

**CONVERGENCE OF CARBON PRICING POLICY AS A CLIMATE  
CHANGE SOLUTION TO RECOVERY ENVIRONMENTAL  
DAMAGE IN INDONESIA**

**Faradila Umayana Nasution**  
**Universitas Sumatera Utara**  
**E-mail: [faradilaumayanasution@gmail.com](mailto:faradilaumayanasution@gmail.com)**

---

**ABSTRACT**

---

*The carbon pricing refers to the costs imposed by the carbon tax on a company based on the amount of carbon as they emit. The government establishes carbon price policy through regulations and policies. In Indonesia, carbon prices are still being determined through theoretical methods. Based on the research conducted, the research method used is the normative juridical legal research method. This research provides valuable insights for legal evaluation, indicating that environmental policies in Indonesia should prioritize the welfare of individuals affected by environmental pollution. Carbon pricing is expected to be a tool for controlling climate change in Indonesia and promoting the green economy concept by applying economic value*

**Keywords:** *Carbon Pricing, Climate Change.*

**Journal History**

Received	: April 26, 2024;
Reviewed	: May 30, 2024;
Accepted	: May 31, 2024;
Published	: May 31, 2024.

*Copyright @2022 NLR. All right reserved.*

---

**INTRODUCTION**

Legal history requires every human being to observe the development of law from time to time, where we will find out how the law has developed throughout the ages. In fact, it is not only the fields of science, biology, social science or other fields of science that experience movement, but the field of law also experiences movement and development from time to time which applies the theory of evolution, which according to Charles Darwin in biology applies the principle: *the fittest of survival*. This is easy to understand because the development of law goes hand in hand with legal rules that cannot be accepted by human logical reasoning and will disappear by themselves. Due to the slow process of legal evolution, the impact in modern and even *postmodern times* is that there are still many rules, principles, theories and legal provisions that are actually still at the premodern stage. Delays provide space for "mystical" things that can only be

accepted by people who have a supernatural perspective. Once two or three islands have been crossed, this cannot be realized in the slow development of law because law is left behind by social changes.<sup>1</sup>

The legal history of the Indonesian nation is still experiencing a continuous period of trial and failure in making legal regulations. The influence of legal delays from time to time has apparently had an impact on Environmental Law in Indonesia. Starting from events at that time, the first Environmental Law was born in 1982, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management (UULH). Then, changes were made to Law Number 23 of 1997 concerning Environmental Protection and Management and most recently, further changes were made to Government Regulation Number 22 of 2021 concerning the Implementation of Environmental Protection and Management. The presence of Law Number 11 of 2020 concerning Job Creation is a support for the Environmental Law.

This law was amended by Law Number 6 of 2023. Amendments to the Law on the Environment show that the government follows every development process that occurs in the environment. The existence of Law Number 23 of 1997 to Government Regulation Number 22 of 2021 illustrates how far the environment has developed in Indonesia so that these changes are regulated in the latest Environmental Law. The creation of legal rules governing the environment illustrates that Indonesia is seriously committed to representing its involvement in resolving environmental problems which will later become an experience that is hoped will not be repeated.

Article 1 paragraph (1) of Government Regulation Number 22 of 2021 explains that the environment is *the unity of space with all objects, forces, conditions and living creatures, including humans, from their behavior, which affects nature itself, the continuity of life and the welfare of humans and living creatures. other*. The living environment is a place of residence in various shapes and forms. Both are assessed by their actions or behavior towards the environment. If their actions and behavior damage the environment then the perpetrator is considered an environmental polluter. Because his behavior results in bad changes to the environment. This verse does not focus on explaining that only living creatures are capable of destroying the environment, but there are still other substances and objects that are capable of polluting the environment.

Exploitation without limitation and not considering environmental sustainability (environment sustainability) can potentially damage the environment and kill its

---

<sup>1</sup> Munir Fuady, *Sejarah Hukum*, Cetakan Kedua (Bogor: Penerbit Ghalia Indonesia 2013),p.

sustainability. Thus, the progressiveness of judges is urgently needed to stop exploitative steps that have the potential to damage the environment in the future.<sup>2</sup>

Exploitation without limitation and not considering environmental sustainability (environment sustainability) can potentially damage the environment and kill its sustainability. Thus, the progressiveness of judges is urgently needed to stop exploitative steps that have the potential to damage the environment in the future. Environmental Audit has the authority to implement the type of audit carried out, the type of business or activity, and the implementation by a team of auditors. Conduct a Pre-audit. Carry out field activities by holding preliminary meetings the initial stage, is field checking, data collection data, and information, and conducting tests the main principle of environmental auditing is that the information presented by the auditor team has been tested and confirmed. Provide an evaluation of the results of the audit findings. Carry out the final meeting. And post-Audit The auditor team will compile a complete written report as a result of the implementation of the environmental audit. The report also includes an explanation of the follow-up plan for the issues that have been identified.<sup>3</sup>

*Principle* has arrived, which is called the Principle of Internalization of Costs which is summarized in the 16th Principle of the Rio Declaration which reads "*National authorities should endeavor costs and the use of economic instruments, taking into account the approach that polluters should, in principle, bear the cost pollution, with regard to the public interest and without distorting international trade and investment*". The formulation of the 16th Principle means that the government of the countries participating in the Rio Conference as a policy need applied to internalize cost environment And use instrument economy. Internalization of costs means that each actor is required to plan the environmental costs incurred by the company while the company is operating into the production costs incurred by the company. The polluter pays principle shows changes in behavior due to the implementation of serious sanctions against polluting companies. It is hoped that the emergence of this principle will create environmental awareness for companies in Indonesia. Before this principle was born, many companies ignored the importance of protecting the environment. The result was that many companies had a negative impact on the environment and the costs of this negative impact were borne by other parties. For example, An The company disposes of its business waste into water bodies which are used by the local community to meet

---

<sup>2</sup> Eka N A M Sihombing B Et Al., *Application Of The Principle Of In Dubio Pro Natura By Judges In Realizing Sustainable Environmental Development ( Study Of Supreme Court Decision No . 651 K / Pdt / 2015 )* (Atlantis Press International BV, 2015), [Http://Dx.Doi.Org/10.2991/978-94-6463-140-1\\_28](http://Dx.Doi.Org/10.2991/978-94-6463-140-1_28).

<sup>3</sup> Dani Sintara B, Eka N A M Sihombing, And Cynthia Hadita, *Authority Of Environmental Auditors*, Vol. 1 (Atlantis Press International BV, N.D.), [Http://Dx.Doi.Org/10.2991/978-94-6463-140-1\\_29](http://Dx.Doi.Org/10.2991/978-94-6463-140-1_29).

daily living needs such as opening a fish pond business. If this principle is not implemented then companies will abandon their responsibility to improve the environment. So the community will bear losses from their business and they will have to give up their money to improve polluted river bodies in order to continue their business.<sup>4</sup>

The government determines *carbon pricing* in Article 13 paragraph (9) of Presidential Decree Number 98 of 2021 concerning Implementation of the Economic Value of Carbon to Achieve Nationally Determined Contribution Targets and Control of Greenhouse Gas Emissions in National Development. This paragraph explains that the carbon tax rate is set at higher or equal to the carbon price on the carbon market per kilogram of carbon dioxide equivalent (CO<sub>2</sub>e). Presidential Decree Number 98 of 2021 also explains the subject of carbon tax as taxpayers who participate in carbon emissions trading. The National Secretariat of the *United Nations Framework Convention on Climate Change* (UNFCCC) has prepared climate change mitigation actions (NAMAs) which are supported in the Copenhagen Agreement and are rapidly rebuilding the moment of international climate cooperation. The Kyoto Protocol defines an international approach, namely *the clean development mechanism (CDM)*, the number of preventers in developing countries can become an individual management project to reduce the greenhouse effect (GHG) in developing countries. The Copenhagen Agreement (2009) expanded the rules of low-emission development strategies. It invites developing countries to join NAMAs, they use an idea for the implementation of those strategies. This includes a commitment from developing countries to provide new and additional approach resources of around \$30 billion for the 2012-2012 period and an ambitious financing target for 2020.

The expansion of small emissions reductions for low-carbon development is driven by rapid evolution in the economic lens. The many ambitions and reductions in emissions over time are important things that are more likely to happen now than anticipated during the negotiations in the Kyoto Agreement, namely: Scientific evidence of climate change mechanisms is strong and climate identification is triggered by points which causes the problem to escalate. The assessment impact of the regional climate crisis has given rise to new problems through the many vulnerabilities that occur in society. This will be a demonstration of the magnitude of change. Change Panel Climate (IPCC) has concluded that emission CO<sub>2</sub> global must down between 50 And 85 percent in lower level year 2000 by 2050 so that the average temperature can go on between 2.0 and 2.4 degrees Celsius. Countries develop has increase efforts to reduce greenhouse gas emissions over two decades final, with emissions in several developing countries increasing in line with conditions economy Which profitable, so that difficult For fulfil

---

<sup>4</sup> Takdir Rahmadi, *Hukum Lingkungan di Indonesia*, Cetakan Kelima, (Jakarta: PT. Raja Grafindo Persada).

target 2°C. As a developing country, it has pursued the expansion of efforts to mitigate greenhouse gas emissions over the last twenty years and emissions in some developing countries have increased rapidly in line with strong economic growth. Analysis economy Already show that development economy low carbon Keep going experience progress. Simulation of the global economy done by project *Ambitious Climate Goals* assume decline in gross domestic product (GDP) between 0 until 3 percent. A small comparison with the GDP growth rate horizontally Which expected. This matter requires technological innovation and transition investment fast from carbon -intensive use to choice infrastructure, development, industry, And transportation energy which is low carbon and efficient.

## METHOD

Based on the research conducted, the research method used is the normative juridical legal research method. Marzuki in Eka NAM Sihombing (2019) states that the normative juridical legal research method is a method that uses an approach that is based on the main legal material by examining theories, concepts of legal principles, norms, rules of legislation, court decision, agreement. The nature of the research used in this paper is prescriptive, adhering to the characteristics of legal science as an applied science, the prescriptions given in legal research activities must be able and possible to be applied. Therefore what is produced by legal research, even if it is not a new legal principle or a new theory, is at least a new argument.<sup>5</sup>

## DISCUSSION

### Determination of Carbon Pricing Policy to Address Climate Change

Model economy show that with growth economy, emission carbon And effort subtraction carbon can limit increase temperature . In general scenario (which considered by IPCC 2007), policy change strict climate is projected to reduce GDP by no more than 3 percent in year 2030 compared to a business as usual scenario; Many models suggest even smaller reductions . 1 .3 percent is the average annual GDP growth rate world over the past year. Therefore, the high mitigation costs amount to must estimated so that the 2030 global GDP estimate was reached one year later in 2031. **The Stern Review** (2006) identified three policy interventions needed to transition the economy to a low-carbon economy . Direct and encourage sustainable economic development: (1) Put a price on carbon creating economic incentives for individuals and the world efforts to participate in the transformation. By providing information to these parties regarding the value of various carbon reduction options, carbon pricing drives market participants to make investment, production, and consumption decisions in a

---

<sup>5</sup> Eka N.A.M Sihombing, Eksistensi Paralegal dalam Pemberian Bantuan Hukum bagi Masyarakat Miskin (The Existence of Paralegals in Providing Legal Aid to the Poor), *Jurnal Ilmiah Penegakan Hukum*, Vol. 6, No. 1, June(2019).



way that minimizes the impact on economic welfare. (2) Tailored technical support facilitates the development of carbon reduction technologies new and supports existing technologies when prospect carbon pricing alone is not enough to motivate spending on research, development and implementation, so that characteristics performance And cost can improved. Request will technology new is not enough. (3) There appear to be many profitable opportunities for increase efficiency, but not utilized. This can be caused by a variety of very varied obstacles by technology, industry, and country. Tailored programs and policies can help realize part of energy efficiency opportunities This. Learning of energy efficiency opportunities can be applied more broadly to low carbon technology programs .

Matter it also requires changes to existing technologies , related institutions , and behavioral patterns. These transitions are frequent This is often hampered not because of costs, but because of various factors that can be overcome with policies and programs certain. Changes in the regulatory framework cause changes in resources and opportunities between social groups. For example just, set prices on emission CO<sub>2</sub> will increase energy prices , thus having a disproportionate impact on poor consumers. Assess distributional impacts and discuss how policy measures can offset negative impacts to ensure the social impact and political viability of climate policies.

With pay price Which worth it with loss Which suffered party other, user internalize influence external in process taking decision they. Scientific evidence provides the basis for global political agreement on among G8 countries that CO<sub>2</sub> emissions must be reduced to a fraction of current emissions levels. Some economists advocate a comprehensive assessment of the future damage caused by current CO<sub>2</sub> emissions and setting a carbon price equivalent to the estimated damage for each unit of CO<sub>2</sub> emissions. By Because That, party The private sector will only emit CO<sub>2</sub> if it is privately profitable they outweigh the costs of future damage . Other analysts question the merits of the science knowledge to measure and politicize carbon pricing for reach agreement, so that increase possibility that payments from emitters will benefit affected people .

Therefore, policymakers usually define targets in terms of acceptable temperature increases due to the greenhouse effect and try to translate them into emissions targets consistent with temperature targets. First evaluation of System Trading European Union emissions , which is implementation biggest from determination price carbon, found that emissions from facilities included in the system the reduced by about 2.5 until 5 percent in 2010. However, due to limited data , uncertainty exists estimates are still high, especially in long-term impact assessment . To consider other evidence , we turn to the fact that most carbon emissions come from energy use . Data on the relationship between energy prices and energy consumption provide information on the expected impacts of carbon pricing.

Presidential Decree Number 98 of 2021 explains that the carbon price in the carbon market is lower than Rp. 30.00 (thirty rupiah) per kilogram of carbon dioxide equivalent (CO<sub>2</sub>e) or equivalent unit. Changes in carbon tax rates must be determined based on tax imposition. Revenue from the carbon tax is allocated to control climate change. Carbon tax revenues are paid by taxpayers. Taxpayers who participate in carbon emissions trading, carbon emissions offsetting, and/or other mechanisms receive carbon tax reductions. However, the procedures for calculating, collecting, paying or depositing, reporting and the mechanism for imposing carbon tax and reducing carbon tax are regulated in a Minister of Finance Regulation.

### **Recovery of Environmental Damage in Economic Valuation Methods**

Theoretically, losses ( *damage/losses* ) can be distinguished into two large groups: losses that can be directly calculated in money ( *pecuniary losses* ) and losses that cannot be directly calculated in money ( *non-pecuniary losses* ). Example of loss financial including disappearance income ( *loss of earnings* ) And disappearance cost treatment ( *medical expenses* ). Example loss Which No forms include loss of enjoyment of life ( *loss of amenities* ) and suffering ( *pain and suffering* ).

For comparison, damages are also described in *the Principles of European Tort Law* . In this case, *pecuniary losses* are listed in Title IV, Chapter 10, Section 2. According to Article 10:201, *pecuniary losses* are a reduction in the victim's wealth (patrimony) due to losses. Furthermore, *the Principles of European Tort Law* divide *pecuniary losses* into losses arising from personal injury and death ( *personal injury and death* ) and losses due to loss or damage to goods ( *loss destruction and damage of thing* ).<sup>6</sup>

damage is slightly different from damage in general. In side Alternatively , environmental losses can also occur on private resources , and losses in cases this is often very big. Besides that, there are environmental losses may also arise from environmental resources that cannot be owned privately And often happen in form no loss tangible. However, regardless of these possibilities, there is Also possibility that environmental losses arise from private sources but no significant, or from non-private resources is also important.

At a glance, difficult For translate damage environment become loss economy. However along with continues degradation environment, neglect to loss Which happen become No too scary. Moment This there is a number method evaluation economy Which can used in practice For estimate damage not tangible. According to Brands,

---

<sup>6</sup> Andri G. Wibisana, *Penegakan Hukum Lingkungan Melalui Pertanggungjawaban Perdata*, Cetakan Kesatu, (Depok: BP-FHUI),p 217-218 .

damage environment apparently own characteristics Which on basically No in line with allocation loss tangible And No tangible based on loss. Besides That, as stated by Father Jin, damage environment Also own characteristics other Which distinguish it with damage civil on generally. Characteristic features the is: *First* , damage environment often need action repair compared to compensation. Along with increasing importance recovery environment, need will intervention government even increase. Para polluter tend externalize impact bad to environment And, If they have intention Good, often time Also faced on skill For determine level effort remediation Which must done. By Because That, intervention government required Because party authorized Possible have capacity And knowledge so far where remediation need done. *Second*, damage environment often time result disappearance life man ( *personal injuries* ) And treasure object personal ( *property damage* ). By Because That, para polluter can responsible answer on damage environment And loss civil other. *Third*, damage environment often happen No only on stage implementation something activity, but Also on stage preparation And after activity end. Damage environment can balanced No only through system not quite enough answer civil, However Also through regulation And system compensation Which in accordance.<sup>7</sup>

It seems that the Indonesian government is still calculating environmental damage using theoretical methods, which can be implemented without the actual costs used by the government to rehabilitate the damage. This is interesting because the government has the possibility of requesting compensation from polluters for damage that has been done. Although in reality this is not progressing in the field due to the government's lack of effective action in demanding compensation costs from polluters.

Economic valuation methods appear to be able to harmonize environmental loss calculations. According to Wibisana and Dewaranu, interpreting economic valuation is a process of placing a monetary value on environmental objects. These values are useful when decision makers are presented with environmental and natural resource economic choices. It is hoped that economic valuation through ecosystems and natural resources will be able to explain explicitly to the public and policy makers that biodiversity and ecosystems are rare and valuable things, as well as the degradation of resources can be linked to costs that are ultimately borne by society. According to Cross, to drive economic valuation, the first thing that must be done is to determine standards for the type of value that is the object of the environment. For example, how many values are missing, and how feasible a standard determination of those values is. After that, it is

---

<sup>7</sup>Ibid., 220 - 221



necessary to estimate the economic value carried out using a certain method in order to get an exact figure of how much the monetary value of the object is.<sup>8</sup>

of environmental values should be determined into three types of values, namely use value, existence value and intrinsic value. Use value is the value allocated to people who use the environment. According to Pearce, use value is divided into several parts, namely: consumptive value and non-consumptive use value, direct use value and indirect use value. indirect use value). Consumptive use value is value whose environmental function is reduced directly due to human reuse. Meanwhile, non-consumptive use value is using resources indirectly reducing the function of those resources. Apart from use value, humans are also able to obtain environmental value because of the existence of these environmental resources. Environmental value exists because its existence is felt by society.<sup>9</sup>

Apart from use value, humans as users of the environment can also find environmental value because of the existence of environmental resources. According to Cross, existence value can be an option value, a vicarious value and also an inter-temporal value or bequest value. The existence of choice value is due to a person's ability to choose because assessment is needed in the living environment. Therefore, the value of choice becomes relevant if the existence of the environment and resources are not exploited. The option value is closely related to the investment value. Because investors who wish to invest must use the option value as an individual right before using the environment in investment development.<sup>10</sup>

Some people might argue that nature contains intrinsic value, namely value that is definitely contained within itself, regardless of the usefulness of nature or its use for humans. The existence of efforts to provide intrinsic value to nature is a phenomenon that is considered good because providing monetary value to nature is an inevitable and concrete tool to demonstrate the value of nature itself. If these values are hidden as has happened so far, then nature will be damaged because humans do not comply with natural values. Nature will be damaged because of the actions taken by humans. Humans forget to take measurements in their actions towards nature. Humans forget that after they cause damage to nature, there is an economic value that must be paid as

---

<sup>8</sup> Andre Bianchi, "Harm to the Environment in Italian Practice: The Intercation of International Law and Domestic Law", in Peter Wetterstein (ed.), *Harm to the Environment: The right to Compensation and the Assessment of Damages*, (Oxford: Clarendon Press, 2016), p. 114

<sup>9</sup>David Pearce, *Economic Values and the Natural World*, (London: Earthscan, 2018), pp. 16-22

<sup>10</sup>Frank Cross, *Natural Resource Damage Valuation*, (Vanderbilt Law Review, Vol 42 (2013), p. 280

compensation for the damage. In short, it is not uncommon for environmental values to be ignored, due to the belief that nature has no value.<sup>11</sup>

Economic valuation methods have presented several calculation methods in two large groups, namely: *resource-to-resource approach methods* and economic valuation methods. *The resource-to-resource approach* is restoration and replacement costs and habitat replacement ( *habitat equivalency analysis*, HEA). Meanwhile, what is included in economic valuation is an assessment based on market prices ( *market valuation* ), *appraisal methodology* , *factor-income approach* , assessment based on behavior ( *behavioral use valuation* ) through the form of *the travel-cost method* (TCM) and *hedonic pricing method* (HPM), *unit value approach* (UVA), assessment based on the contingent valuation method ( *CVM* ), *conjoint analysis* , and assessment based on the transfer of benefits ( *benefit transfer* ).<sup>12</sup>

## CONCLUSION

Presidential Decree Number 98 of 2021 explains that the carbon price in the carbon market is lower than Rp. 30.00 (thirty rupiah) per kilogram of carbon dioxide equivalent (CO<sub>2</sub>e) or equivalent unit. Changes in carbon tax rates must be determined based on tax imposition. Carbon tax revenues are paid by taxpayers. Existence value can be an option value , a vicarious value , and also an inter-temporal *value or bequest value* in determining the economic value of environmental losses. The calculation method can use the economic valuation method which has presented several calculation methods using the *resource-to-resource approach method* and the economic valuation method.

## REFERENCES

- Andre Bianchi, "Harm to the Environment in Italian Practice: The Intercation of International Law and Domestic Law", in Peter Wetterstein (ed.), *Harm to the Environment: The right to Compensation and the Assessment of Damages*, (Oxford: Clarendon Press , 2016).
- Andri G. Wibisana, *Penegakan Hukum Lingkungan Melalui Pertanggungjawaban Perdata*, Cetakan Kesatu, Depok: BP-FHUI.
- David Pearce, *Economic Values and the Natural World* , London: Earthscan, 2018.
- Frank Cross, *Natural Resource Damage Valuation* , Vanderbilt Law Review, Vol 42 2013.

---

<sup>11</sup>Valerie Ann Lee, *et al.*, *Natural Resource Damage Assessment Deskbook: A Legal and Technical Analysis*. Second Edition. (Washington, DC: Environmental Law Institute, 2016), Pg. 182-197

<sup>12</sup> *Ibid.*, p. 184-185

ISSN (Print) 2723-3413 - ISSN (Online) 2722-3663

DOI: 10.30596/nomoi.v%vi%i.19376

Fuady, Munir Fuady, *Sejarah Hukum*, Cetakan Kedua Bogor: Penerbit Ghalia Indonesia, 2013.

Sihombing, Eka N A M, Et Al., *Application Of The Principle Of In Dubio Pro Natura By Judges In Realizing Sustainable Environmental Development ( Study Of Supreme Court Decision No . 651 K / Pdt / 2015 )* (Atlantis Press International BV, 2015), [Http://Dx.Doi.Org/10.2991/978-94-6463-140-1\\_28](http://Dx.Doi.Org/10.2991/978-94-6463-140-1_28).

Sihombing, Eka N.A.M Eksistensi Paralegal dalam Pemberian Bantuan Hukum bagi Masyarakat Miskin (The Existence of Paralegals in Providing Legal Aid to the Poor), *Jurnal Ilmiah Penegakan Hukum*, Vol. 6, No. 1, June (2019).

Sintara Dani, Eka N A M Sihombing, And Cynthia Hadita, *Authority Of Environmental Auditors*, Vol. 1 (Atlantis Press International BV, N.D.), [Http://Dx.Doi.Org/10.2991/978-94-6463-140-1\\_29](http://Dx.Doi.Org/10.2991/978-94-6463-140-1_29).

Takdir Rahmadi, *Hukum Lingkungan di Indonesia*, Cetakan Kelima, Jakarta: PT. Raja Grafindo Persada.

Valerie Ann Lee, *et al.*, *Natural Resource Damage Assessment Deskbook: A Legal and Technical Analysis*. Second Edition. Washington, DC: Environmental Law Institute, 2016.