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Carbon Trading Literacy for Rural Communities

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ABSTRACT
This research aims to explore the importance of carbon trading literacy in rural communities within the context of increasing awareness of climate change while enhancing village income. Understanding the concept of carbon trading becomes increasingly crucial. North Sumatra, with its diverse natural resources and economic sectors that have the potential to contribute to carbon emissions, has an urgent need to enhance carbon trading literacy among its populace. The research method used is literature review and interviews to gather data using a qualitative approach. The results indicate that the level of carbon trading literacy is still low, with limited understanding of the concept, benefits, and implications of carbon trading. Factors such as lack of access to information, education, and environmental awareness are major obstacles in enhancing carbon trading literacy in the community. The findings of this research highlight the urgency to enhance mentoring and education efforts regarding carbon trading.
Keyword: Literacy, Carbon Trading, Villagers

ABSTRAK
Penelitian ini bertujuan untuk mengeksplorasi pentingnya literasi perdagangan karbon pada masyarakat pedesaan dalam konteks meningkatkan kesadaran terhadap perubahan iklim sekaligus meningkatkan pendapatan desa. Pemahaman konsep perdagangan karbon menjadi semakin penting. Sumatera Utara, dengan beragam sumber daya alam dan sektor ekonomi yang berpotensi menyumbang emisi karbon, mempunyai kebutuhan mendesak untuk meningkatkan literasi perdagangan karbon di kalangan masyarakatnya. Metode yang digunakan dalam penelitian ini tinjauan pustaka dan wawancara untuk mengumpulkan data dengan menggunakan pendekatan kualitatif. Hasil penelitian menunjukkan bahwa tingkat literasi perdagangan karbon masih rendah, dengan terbatasnya pemahaman terhadap konsep, manfaat, dan implikasi perdagangan karbon. Faktor-faktor seperti kurangnya akses informasi, pendidikan, dan kesadaran lingkungan menjadi kendala utama dalam meningkatkan literasi perdagangan karbon di masyarakat. Temuan penelitian ini menyoroti pentingnya meningkatkan upaya pendampingan dan pendidikan mengenai perdagangan karbon.
Keyword: Literasi, Perdagangan Karbon, Masyarakat Desa

1. Introduction

Climate change is a phenomenon of global warming, where there is an increase in greenhouse gases in the Earth's atmosphere over a long period. The main cause of climate change is global warming caused by the increasing concentration of greenhouse gases in the Earth's atmosphere, which alters its role as a greenhouse effect. Human activities currently drive climate change through global warming, which will result in a rise in sea levels, an increase in the number of natural disasters, geographical shifts, and ecosystem damage. To support efforts to reduce greenhouse gas emissions and increase greenhouse gas absorption, carbon governance is needed in the forestry sector, one of which is through carbon trading. Carbon trading is

developed because it is considered to have the potential to reduce greenhouse gas emissions at an economic cost. The choice of the carbon trading approach is important for policymakers who will make the carbon market an effort to promote emission reductions in one or more economic sectors. Carbon trading is expected to enhance the economic growth of countries that can sustain their forests and environments. The carbon trading mechanism will also contribute to achieving greenhouse gas emission reduction targets and achieving Net Zero Emission globally.

Carbon Trading is a market-based mechanism to reduce GHG emissions through the buying and selling of carbon units. In a simple concept, communities are still unfamiliar with carbon trading. Introducing this concept could efficiently achieve carbon emission reduction targets in Indonesia[1]. Rural communities may not understand carbon trading because the concept can feel complex and distant from their daily experiences. For rural communities, simplifying the explanation of carbon trading will help maximize programs aimed at carbon trading schemes. Rully Dhora Carolyn (January 16, 2024) realizes that carbon trading may not be easily understood by communities without proper guidance, as carbon trading can be complex. From a distance, rural communities with mangrove forests as a source of carbon trading can engage in global trading. However, genuine understanding of carbon trading by the community remains challenging to achieve.

The reduction of GHG emissions in 2018 exceeded the set target, amounting to 24,454,240 tons of CO2 compared to the target of 15,167,160.4 tons of CO2eq in North Sumatra[2]. The population of Sumatra is approximately 14.5 million people. The area covers roughly 7.3 million hectares, with 3.7 million hectares being forests and 0.3 million hectares being peatlands[3]. Unfortunately, the community is still unaware of this. For example, in Tanjung Rejo Percut Village, there is minimal knowledge about carbon trading literacy. It is very important for the community to understand the basics before getting involved in carbon trading itself.

The situation in North Sumatra indicates that the emissions produced amounted to 48,564.89 Gg CO2 in 2022. This means that North Sumatra contributes 8.85% to the total national emissions of 548,277.74 Gg CO2[4].3 With its vast forest area, mangrove forests, and extensive maritime territory, North Sumatra has significant potential to contribute to the national goal of reducing carbon emissions. Indonesia has committed to reducing emissions through the ratification of the Paris Agreement, as reflected in Law No. 16/2016.

The Paris Agreement requires Indonesia to outline and communicate post-2020 climate resilience actions in the Nationally Determined Contribution (NDC) document, which is submitted to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The NDC document sets targets for reducing Greenhouse Gas emissions in Indonesia, namely 29% unconditionally (with domestic efforts) and 41% conditionally (with adequate international support) by 2030.[5]

Currently, various parties are pushing for climate change control by globally reducing greenhouse gas emissions, under the umbrella of global agreements such as the Paris Agreement[6]. Indonesia, as one of the countries that have ratified the Paris Agreement, has set a target for reducing GHG emissions (NDC) by 29% from Business As Usual (BAU) and could reach 41% with international support. Even with the Enhanced NDC (ENDC), Indonesia aims for a more ambitious national emissions reduction, targeting an increase to 31.89%

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[1] Minister of Energy and Mineral Resources (ESDM) Arifin Tasrif has established the Enhanced Nationally Determined Contribution (E-NDC), which declares an increased carbon emission reduction target from 29 percent or 835 million tons of CO2 to 32 percent or 912 million tons of CO2 by 2030. In the press release dated December 6, 2023, accessed on May 5, 2024, via the following link : https://ebtke.esdm.go.id/post/2023/12/07/3669/indonesia.tetapkan.e-ndc.sektor.energi.miliki.target.tekan.emisi.358.juta.co2.di.2030#:~:text=E%2DNDC%20tersebut%20menyatakan%20peningkatan,juta%20ton%20CO2%20pada%202030

[2] https://sumutprov.go.id/images/2019/LK_Pemprovsu_2018.pdf

[3] http://incas.menlhk.go.id/data/north-sumatra/

[4] https://www.e3s-conferences.org/articles/e3sconf/abs/2024/49/e3sconf_talenta2024_03011/e3sconf_talenta2024_03011.html

[5] http://greengrowth.bappenas.go.id/diskusi-ndc-dalam-upaya-mengurangi-emisi-nasional

[6] The Paris Agreement is an internationally binding agreement on climate change adopted by 196 countries at the United Nations Climate Change Conference (COP21) in Paris, France, on December 12, 2015, and entered into force on November 4, 2016. The implementation of the Paris Agreement requires economic and social transformation by delivering nationally determined contributions (NDCs). Each country communicates the actions they will take to reduce greenhouse gas emissions to achieve the goals of the Paris Agreement. Countries also communicate the actions in their NDCs they will take to build resilience to adapt to the impacts of climate change.

with domestic efforts and 43.2% by 2030 with foreign assistance. In order to achieve the target reduction in GHG emissions according to ENDC, the forestry sector holds the largest share of Indonesia's total obligation to reduce its GHG emissions. The main foundations of the forestry sector include sustainable forest management, environmental governance, and carbon governance".

The essence of Indonesia's FOLU Net Sink 2030 activities lies in technical activities at the site level through three priority actions. Firstly, there is the action to reduce GHG emissions, for example, by reducing deforestation and forest degradation, and controlling forest and land fires. Secondly, there is the action to increase emission absorption by maintaining and preserving existing forest cover conditions. Thirdly, there is the action to enhance emission absorption through forest and land rehabilitation activities and the establishment of new tropical forests. This significant goal will be more attainable if those directly in contact with the environment understand its potential. Village communities, as the communities directly in touch with environmental potential, often do not comprehend the various ways that can be undertaken in developing this potential. Various conceptual approaches need to be further implemented so that the community can better understand carbon trading literacy in advance.

2. Research Method

The Data collection was conducted using secondary data sources through literature studies related to carbon trading. Secondary data was obtained through in-depth interviews with connected stakeholders: the Worldwide Fund for Nature (WWF), the Indonesian Stock Exchange Representative of North Sumatra, the Indonesian Stock Exchange, and the Ministry of Environment and Forestry of the Republic of Indonesia. In-depth interviews were also conducted with the officials of Tanjung Rejo Village, Deli Serdang Regency, because this village is fostered by the Faculty of Law, University of North Sumatra. All data will be analyzed using a qualitative approach method.

3. Result and Discussion.

3.1. The Major Scheme Not Understood by Rural Communities

The complexity of the concept of Carbon trading involves complex economic and environmental concepts, such as carbon pricing, emission limits, and market mechanisms. This is difficult to understand for those without a background in this field. The lack of access to information is not actually an excuse, but field facts show that there are still rural communities with limited access to information about carbon trading, despite the various schemes available.

Common issues not directly understood by the community are the direct impacts on their sustainability. Small communities require a stable income that can sustain their livelihoods, yet these large-scale schemes are difficult to comprehend because the indirect impacts on fulfilling the economic needs of the community are not immediately met (Selamet: January 2024). Large-scale schemes such as carbon emission reductions under the Kyoto Protocol, cap and trade mechanisms (C&T), Reducing Emissions from Deforestation and Degradation (REDD) mechanisms, to local schemes like the Nusantara carbon scheme. Even on a smaller scale, factors like Carbon Economic Value Enhancement (NEK), global warming, and climate change mitigation are involved[7]. The majority of the Tanjung Rejo Village community, who are predominantly farmers, simply seek direct household economic stability, if they are able to make efforts to reduce greenhouse gas emissions[8].

3.2. The Role of Stakeholders in Literacy Development

Involving stakeholders in literacy pursuits can make it more comprehensible to the public. Stakeholders often possess a better understanding of the needs and challenges faced by communities in their

[7] https://www.cifor-icraf.org/knowledge/publication/2919/
[8] https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions

respective areas. By engaging them, literacy materials can be tailored to local contexts, making them more relevant and accessible to the community.

An integrated approach involving stakeholders representing various perspectives and interests aids in the development of holistic and comprehensive literacy programs, encompassing relevant economic, social, and environmental aspects for communities. Involvement of stakeholders can help garner support and legitimacy from the community. Stakeholders often possess resources and networks that can be leveraged to support literacy efforts. They can provide access to facilities, experiences, and expertise useful in delivering information and providing training to the community.[9]

This is also what is carried out by the Faculty of Law, University of North Sumatra, which frequently participates in making Tanjung Rejo Village a foster village so that the maximization of community development can be implemented. Behind the intricacies of its concepts and technical implementation, it is important to acknowledge that carbon trading literacy has far-reaching impacts beyond just environmental development. Alongside increasingly global policies recognizing the importance of carbon emission reduction, a solid understanding of carbon trading becomes key to achieving comprehensive sustainable development goals. Pintor (January 4, 2024); Murtaza (January 19, 2024) clearly elucidate how broader contributions of carbon trading literacy can manifest in several aspects. Firstly, a better understanding of carbon trading can help enhance economic efficiency by providing incentives for companies and rural communities to adopt environmentally friendly technologies and reduce long-term operational costs. Additionally, carbon trading literacy can also generate new opportunities in the economic sector, such as the development of sustainable emission mitigation projects or local carbon trading supporting community development.

Furthermore, there are important societal repercussions from carbon trading literacy. By educating the public about this idea, we can increase public participation in efforts to mitigate climate change and strengthen local communities' ability to adapt to changing environmental conditions. Furthermore, comprehension of carbon trading can facilitate broader social and economic inclusivity for vulnerable communities by granting access to resources and novel opportunities within the global carbon market (Diah Suradiredja: January 9, 2024).

3.3. Carbon Trading Literacy: Beyond Environmental Development

Beyond the intricacies of its concepts and technical implementation, it is crucial to acknowledge that carbon trading literacy entails far-reaching impacts beyond mere environmental development. With global policies increasingly recognizing the importance of carbon emissions reduction, a strong understanding of carbon trading is key to achieving comprehensive sustainable development goals.

Pintor (January 4, 2024); Murtaza (January 19, 2024) have clearly elucidated how the broader contributions of carbon trading literacy can manifest across several facets. Firstly, a better understanding of carbon trading can help enhance economic efficiency by incentivizing companies and rural communities to adopt environmentally friendly technologies and reduce long-term operational costs. Additionally, carbon trading literacy can also generate new opportunities in the economic sector, such as developing sustainable emission mitigation projects or local carbon trading supporting community development.

Furthermore, carbon trading literacy also yields significant social ramifications. By disseminating knowledge of this concept among the populace, we can augment public engagement in climate change mitigation endeavors and fortify local resilience to environmental shifts. Moreover, comprehension of carbon trading can open doors to greater social and economic inclusion for vulnerable communities by providing access to resources and new opportunities in the global carbon market (Diah Suradiredja: January 9, 2024). The literacy patterns offered in literacy development can take the form of school curricula that then extend into social activities. Open access to information sources is also expected to provide a broad range of educational materials to the community.

4. Conclusion

In facing the challenges of climate change, carbon trading literacy becomes increasingly urgent within local communities. This research has unveiled the urgency and importance of enhancing the understanding and awareness of the populace regarding the concept of carbon trading. By highlighting the significance of carbon trading literacy in rural communities, this study identifies challenges, opportunities, and strategies to enhance community understanding of carbon trading. Through a better understanding of carbon trading, communities can become more effective partners in global efforts to reduce carbon emissions and build a sustainable future for future generations.

Key points in this research include: limited public awareness; potential for collaboration and participation that can open larger doors; the important role of government and private sectors in facilitating literacy enhancement through appropriate policies and educational programs; and the need for education and training involving the provision of easily understandable information, practical training, and community capacity building in managing projects related to carbon trading.

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