Resilience Development Initiative

Social Forestry Opportunities in Reducing Carbon Emissions

Laura Winaeni

Summary

Human activities have produced excess carbon dioxide, contributing significantly to climate change. Decarbonisation is one of the initiatives that has been implemented to address this global issue. Carbon credits are one of the answers to reducing emissions by relying on the forestry sector in global carbon trading. Social forestry plays an important role in this effort by empowering local communities to manage forest resources that will eventually generate carbon credits. This article explores the opportunities of Social Forestry in reducing carbon emissions through carbon credits, employing a literature review approach. The finding highlights that community involvement is essential to the success of carbon credit projects through Nature-based Solutions (NbS) by implementing Reducing emissions from deforestation and degradation (REDD+) programmes. Carbon credits present both challenges and opportunities. One key challenge is the lack of regulation, policy, and legal recognition, while the opportunity lies in providing economic support through sustainable forests to increase existing forest carbon storage.

Keywords: Social Forestry, Carbon Credits, Nature-based Solutions (NbS), REDD+, Challenges, Opportunities

Introduction

Global warming is the cause of climate change, which has become an urgent global issue and is felt by various countries around the world. Climate change is caused by excessive greenhouse gas emissions, where various human activities, such as the use of fossil fuels, deforestation, degradation, industry, and the use of electrical devices such as air conditioners, produce carbon dioxide. Developing countries are more vulnerable to the impacts of climate change than developed countries due to the predominance of rainfed agriculture, scarcity of capital for adaptation measures, warmer climate baselines, and higher exposure to extreme events (Chapagain et al., 2009; Mertz et al., 2009). In the face of this, various initiatives have been taken, one of which is the reduction of carbon emissions (decarbonisation). Decarbonisation is important to achieve the net-zero emission (NZE) target agreed upon in the 2015 Paris Agreement.

Reducing greenhouse gas (GHG) emissions or carbon offset can be done through various projects, such as mitigation actions and carbon credits. Forms of mitigation actions to reduce GHG emissions through carbon sequestration and storage, which are regulated in the Ministry of Environment and Forestry Regulation No. .7 of 2023 is reducing the rate of deforestation and degradation of mineral land, peatland, and mangroves; plantation forest development; sustainable forest management; forest rehabilitation, and others. This carbon credit certificate is the result of a company's actions in reducing or avoiding greenhouse gas emissions and can be said to be the company's right to release a certain amount of carbon emissions in the industrial process. The forestry sector is a supply factor in the realm of global carbon trading, especially for developing countries

(Posma Sariguna, 2024). FOLU Net Sink stands for 'Forestry and Other Land Use Net Sink', which refers to the ability of forests and other land uses to absorb carbon from the atmosphere and store it in biomass and soil. Under the FOLU Net Sink 2030 sector, the Ministry of Environment and Forestry (MoEF) has established policies and programmes to minimise GHG emissions by 29% (unconditional) and up to 41% (conditional or with foreign assistance) (Asdak, 2023; Pembengo et al., 2023). Through community empowerment, preserving forest stands is necessary to determine the value of forest quality and appropriate forest management as a regulation to achieve the success of FOLU in Indonesia (Hartoyo et al., 2023).

Social Forestry is defined as initiatives, science, policies, institutions, and processes to enhance the role of local communities in regulating and managing forest resources (RECOFTC, 2013 in Gilmour, 2016). According to PermenLHK No. 83 of 2016, Social Forestry can take the form of Village Forest, Community Forest, Community Plantation Forest, Customary Forest, and Forestry Partnership agreements. In addition to utilising forests and conserving them, communities with Social Forestry Forest Utilisation Permits (IPHPS) can take advantage of carbon trading as additional income by applying for carbon credits. These carbon credits can be traded on the carbon market to countries or companies interested in reducing their emissions as part of efforts to achieve climate change targets (KPSHK, 2023). The utilisation of Social Forestry is one of the ways to achieve FOLU Net Sink 2030 with the participation of forest communities. This article explores an understanding of the opportunities of social forestry in reducing carbon emissions with carbon credits.

Carbon Credit in Indonesia

Carbon credits are permits that represent every 1 unit of CO2 or carbon dioxide removed from the atmosphere. Companies usually purchase carbon credits as their right to emit a certain amount of carbon or greenhouse gas emissions in their industrial processes (Lucas & Leticia, 2021). Companies that buy carbon credits from the government will get permission to produce one tonne of

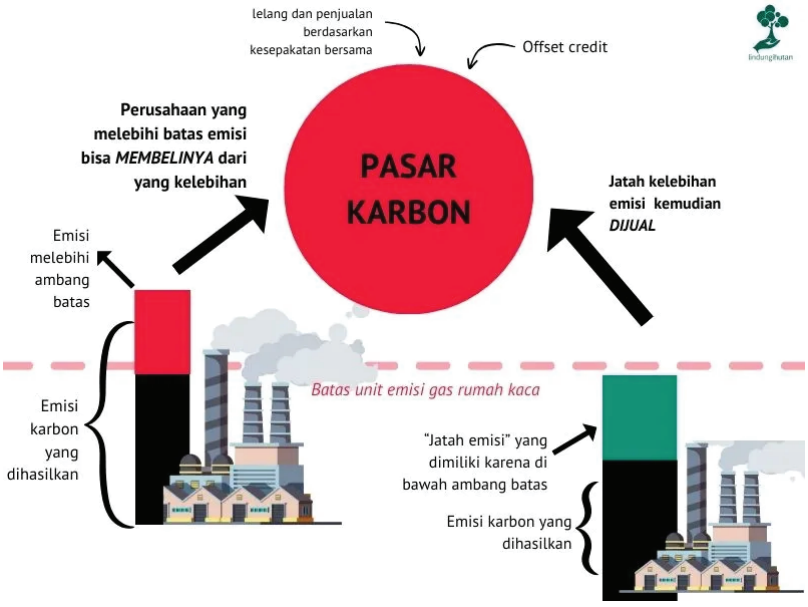

Figure 1. Carbon trading concept
Sources: Lindungi Hutan, 2023

CO2 emissions. Companies that produce less CO2 emissions than the credits they have can sell their carbon credits on the carbon market. The company must pay or buy carbon credits on the carbon market if the emissions exceed the credits.

There are three types of carbon credits: reduction, removal, and avoidance. Carbon reduction is an action that reduces the amount of CO2 to reach Net Zero, for example, by pressing for a reduction in the use of fossil fuels. Carbon avoidance is an action that prevents carbon-emitting activities, for example, by avoiding deforestation that will result in the release of carbon dioxide into the atmosphere. Carbon removal is the process of removing CO2 from the atmosphere and locking it away for decades, centuries, or thousands of years (Julio & Matthew, 2023). Carbon credit projects can be generated through various sectors, such as forestry and land use, waste disposal, renewable energy, and agriculture. Reducing Emissions from Deforestation and Degradation (REDD+) is one of the carbon credit-generating projects in the forestry sector. Indonesia itself has actively committed to the REDD+ project to reduce CO2 emissions. In terms of carbon trading, Indonesia applies the Cap and Trade scheme. Countries that implement the scheme have an allotment or quota of carbon emissions within a certain time frame (Akram, 2024).

Carbon credit schemes are dynamic in terms of the challenges and opportunities for implementation, both for stakeholders and the environment. The main challenges are a lack of standardization, integrity, and transparency. Companies have difficulty knowing their emissions reductions without a definitive standard for carbon credits (UBS Investment Bank, 2023). The limited carbon market regulation has led to legitimate concerns that some credits may simply be greenwashing. Indonesia itself only has two reference regulations on carbon credits, namely Presidential Regulation No. 98 of 2021 and Minister of Environment and Forestry Regulation No. 7 of 2023. The lack of standardization, integrity, and transparency poses other challenges, such as setting a reference price for carbon units, many procedural administrative requirements, and differences in the quality of carbon credits.

Role of Communities and Social Forestry

Tommunity involvement plays an important role in the success of carbon credit projects through Nature-based Solutions (NbS), especially in local communities. Local communities have a better understanding of the condition of the location and are most often in contact with carbon storage ecosystems such as mangrove forests, protected forests, and others. Active involvement of local communities can provide knowledge about the environment and existing ecosystems. Social forestry schemes in Indonesia are closely linked to carbon credits as both have aligned objectives in preserving sustainable forests and the welfare of local communities (PKPS-menlhk, 2024). One of them is the implementation of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme in social forestry. In addition to generating carbon credits, REDD+ involves communities in the sustainable management, preservation, and monitoring of forests, which directly contributes to preserving carbon storage and reducing greenhouse gas emissions. In addition, REDD+ implementation in social forestry can increase income and welfare by utilising non-timber forest resources, such as land use.

The development of REDD+ projects has great potential to reduce GHG emissions, protect tropical forests rich in biodiversity, and improve the welfare of local communities. The programmes applied in the development of REDD+ projects include 1) forest protection and emission reduction; 2) empowerment of local communities; 3) community participation and involvement of related parties; 4) Increased transparency and accountability; 5) Capacity and technology development; 6) International partnerships and collaboration; and 7) Continuous evaluation and learning (Wong et al., 2022). The Forest Investment Programme (FIP-1) is one of the REDD+ projects with potential in carbon credit trading (Forest Digest, 2023). FIP-1 is a KLHK project with the Asian Development Bank (ADB) for sustainable forest management to reduce greenhouse gas emissions (GoKUPS, 2022). In addition to reducing emissions, the FIP-1 project seeks to improve the livelihood capacity of communities around forest areas. It can benefit the community in terms of the environment and community livelihoods. One example of an FIP-1 project area is Sintang and Kapuas Hulu in West Kalimantan, which has five villages and 12 villages, respectively. According to Bambang (2023), the area's carbon sequestration value is worth IDR 5 million per hectare.

Indigenous forest management makes a positive contribution to maintaining biodiversity and reducing greenhouse gas emissions with traditional knowledge and approaches. Indigenous peoples have strong traditional knowledge about forests, such as understanding species, plants, animals, animal movement patterns, and others (Hein Jl, 2019). This can prevent the forest from excessive logging and poaching, and avoid the use of tools that can damage the forest. In the use of forest resources, indigenous peoples focus on sustainable practices, such as crop rotation, selection of appropriate species for logging, and sustainable land maintenance (Miles WB, 2021). In addition, Indigenous peoples have beliefs that encourage them to look after the forest with respect, so Indigenous peoples are very concerned about the ecosystem and try to maintain the balance of nature. Traditional management shows that sustainable indigenous forest management contributes to carbon sequestration in the atmosphere, such as carbon storage, prevention of deforestation, and reduction of forest fires. Community involvement in customary forest management also enhances carbon conservation efforts through joint decision-making in forest protection and will tend to maintain the forest sustainably (McKechnie J, Colombo S, and Chen J, 2011).

Challenges and Opportunities of Carbon Credit

Technical regulations for carbon trading in forestry are still being finalised. This also created challenges regarding community rights, particularly in Indigenous communities. According to Suich and Lugina (2016), the lack of regulation, policy, and legal recognition has led to many new problems, such as the issue of rights and ownership of local communities, especially in Indigenous Forests. Many Indigenous Forests have yet to be recognised in writing by local governments (Alviya et al., 2018). The lack of regulation on carbon credits has led to indigenous peoples' neglected role and position in carbon management, as they have no space to participate in regulations related to carbon trading. Presidential Regulation No. 98/2021 is not based on the principles of openness and participation, where the

community is not involved, especially indigenous peoples (Gunawan, 2022). Apart from Presidential Regulation No. 98/2021, Article 3 of OJK Regulation No. 14/2023 states that entities that can be required to become carbon exchange organisers must have a capital of 100 billion and not loans, which closes the access of Indigenous peoples to become carbon exchange organisers (Arman & Siagian, 2023). The lack of written recognition of Indigenous Forests creates a further challenge in terms of carbon credits in Indonesia, namely in the benefit sharing of the REDD+ program, which is already enforced in the double-tiered (international and national) payments for environmental services (PES) (Alviya et al., 2018).

In the receipt of fees from maintaining forest deforestation, the calculation is only focused on the difference between the deforestation that occurs and the community's ability to withstand the deforestation rate (CNN Indonesia, 2021). In addition, in the administrative realm of determining carbon prices in the market and buyers, communities often do not get buyers quickly if they do not use the services of brokers (Chen et al., 2023) so this carbon trading mechanism is used for abuse of power by certain parties which causes deforestation and forest degradation to continue (Greenpeace, 2021). Another problem with Indonesia's lack of regulation of carbon credits is greenwashing. According to The Guardian (2023), more than 90% of carbon credits from carbon projects do not reduce emissions. Carbon markets have proven ineffective in reducing emissions and stopping fossil fuel production, and this has led to land grabs, conflicts with communities, and other problems (Bryant, 2019).

Forest carbon credit mechanisms can provide great opportunities for Indonesia's development, especially for local communities through the REDD+ program. In addition to reducing emissions, REDD+ is expected to provide economic support through sustainable forest management to preserve and increase existing forest carbon storage (Bottazi, Cattaneo et al., 2013). To create sustainable forests, it is necessary to involve local communities in sustainable forest management. Moktan, Norbu, and Choden (2016) mentioned that involving community roles in forest management is one of the successful approaches to improving livelihoods and forest conservation. REDD+ is also an opportunity to improve forest governance and enhance local livelihoods (Kim et al., 2016). The management of environmental services in protected forests, especially carbon, has become increasingly popular with REDD+, which has received a lot of support in the form of funds from various donor countries that are concerned about climate change (Alviya et al., 2018). It directs payments to landowners and users through national governments to reduce deforestation and forest degradation (Angelsen, 2008). Local communities can benefit from environmental services management by utilising nature tourism, water services, forest carbon services, recreational facilities, and others (Alviya et al., 2018).

Conclusion

IDecarbonisation is one of the initiatives taken to deal with climate change, which can be done with various projects, one of which is carbon credits. FOLU Net Sink refers to the ability of forest and land use to absorb carbon from the atmosphere and keep it in biomass and soil. In Sector FOLU Net Sink 2030, the Ministry of Environment and Forestry (KLHK) has made policies and

programmes to minimise GHG emissions by 29% unconditionally and up to 41% with foreign assistance. To achieve this, the participation of forest communities is required to maintain and preserve forest stands. Social forestry is achieved by involving communities in increasing carbon credits through NbS and as additional income through carbon trading. REDD+ is one of the programmes implemented in social forestry as a carbon credit generator and community empowerment.

In the implementation of carbon credits in Indonesia, there are challenges and opportunities for the community. The challenges faced are the lack of regulations, policies, and legal framework, which creates new problems, such as local community rights and ownership issues, as well as the neglected role and position of local communities in carbon management and benefit sharing. Greenwashing is a further challenge, and carbon credit projects have proven to be ineffective in decarbonisation, leading to land expropriation, conflicts with communities, and more. Carbon credits provide opportunities for local communities to develop and improve their livelihoods through REDD+ programmes. REDD+ is expected to provide an economic boost and increase forest carbon stocks. In addition, REDD+ also provides opportunities to improve forest governance and improve the livelihoods of local communities, such as utilising their land for environmental service management.

Disclaimer

The views expressed in this op-ed are those of the author or authors of this article. They do not necessarily represent the views of RDI, its editorial committee, or the mentioned speakers' affiliation.

Author
Laura Winaeni
Gadjah Mada University

Supervisor
Indria Zhafirah Akbar
Research Officer
Resilience Development Initiative

References

Alviya Iis, Muhammad Zahrul Muttaqin, Mimi Salminah & Faridh Almuhayat Uhib Hamdani. 2018. *UPAYA PENURUNAN EMISI KARBON BERBASIS MASYARAKAT DI HUTAN BERFUNGSI LINDUNG.* Jurnal Analisis Kebijakan Kehutanan Vol. 15 No.

Angelsen, A. 2008. *Moving ahead with REDD+: Issues options and implications.* Bogor Indonesia: CIFOR.

Arman, M., & Siagian, Uli. 2023. Perspektif Ekonomi Politik Perdagangan Karbon dan Dampaknya Bagi Masyarakat Adat. Aliansi Masyarakat Adat Nusantara (AMAN). Diakses dari https://www.aman.or.id/files/publicationdocumentation/46147Kertas_Posisi_Perdagangan_Karbon_2023%20 -%20fin.pdf pada 24 Juni 2024.

Asdak, C. 2023. Sustainable Forest Management from Hydrology and Climate Change Mitigation Perspectives. *Jurnal Ilmu Kehutanan*, Vol 17(1), pp: 1–10.

Bottazzi, P., Cattaneo, A., Rocha, D. C., & Rist,S. 2013. Assessing sustainable forest management under REDD+: A community- based labour perspective. Ecological Economics, 93, 94--103.

Chapagain, B.K., Subedi, R., dan Paudel, N.S. 2009. *Exploring Local Knowledge of Climate Change: Some Reflections.* Journal of Forest and Livelihood. 8:108-112

CNN Indonesia 2021. Dari Phon Dagang Karbon (Video). YouTube. Diakses dari https://www.youtube.com/watch?v=b-aZxz1j9_s&t=119s, pada 26 Juli 2024.

Greenpeace Indonesia. 2021. Perdagangan karbon adalah solusi palsu mengatasi krisis iklim. Diakses dari https://www.greenpeace.org/indonesia/siaran-pers/45509/perdagangan-karbon-adalah-solusi-palsu-mengatasi-krisis-iklim, pada 2 Agustus 2024.

Gunawan, A. 2022. Menggugat Penyelenggaraan Nilai Ekonomi Karbon oleh Negara. AMAN. Diakses dari https://aman.or.id/news/read/1477 pada 25 Juni 2024.

Hartoyo, A. P. P., Azis, S. N., Ramadhi, A., Khairunnisa, S., Mudzaky, R. H., Pamoengkas, P., Fadillah, A., & Ruliandi, A. 2023. *Vegetation cover changes and species composition: Preliminary results*

Jonas Hein. 2019. Political ecology of REDD+ in Indonesia: Agrarian conflicts and forest carbon.

Kementerian Lingkungan Hidup dan Kehutanan (KLHK), 2023. *Pemanfaatan Perdagangan Karbon bagi Perhutanan Sosial*. https://kpshk.org/pemanfaatan-perdagangan-karbon-bagi-perhutanan-sosial/

LindungiHutan. "Carbon Credit: Pengertian, Mekanisme, Dan Fakta Tentangnya." Blog LindungiHutan, November 28, 2024. https://lindungihutan.com/blog/mengenal-carbon-credit-dan-mekanismenya/.

McKechnie J, Colombo S, Chen J, Mabee W, MacLean HL. 2011. Forest bioenergy or forest carbon? Assessing trade-offs in greenhouse gas mitigation with wood-based fuels. Environmental science & technology. Jan15;45(2):789-95

Mertz, H., Howden, S.M., Struik, P.C., Nelson, R., Rodriguez, D., dan Chapman S.C., 2009. Adaptation Science for Agricultural and Natural Resource Management – Urgency and Theoretical Basis. *Current Opinion in Environment Sustainability.* 1:69-76

Miles WB. 2021. The invisible commodity: Local experiences with forest carbon

offsetting in Indonesia. Environment and Planning E: Nature and Space. Jun;4(2):499-524.

PKPS-menlhk. 2024. Tentang Program Perhutanan Sosial. Akses Kelola Perhutanan Sosial.

Posma Sariguna Johnson Kennedy. 2024. *KAJIAN MENGENAI PEMANFAATAN PERHUTANAN SOSIAL DALAM PERDAGANGAN KARBON DI INDONESIA UNTUK MENGHADAPI PERUBAHAN IKLIM*

Suich, H., Lugina, M., Muttaqin, M. Z., Alviya, I., & Sari, G. K. 2016. Payments for ecosystem services in Indonesia. Oryx

Wong G, Pham TT, Valencia I, Luttrell C, Larson A, Yang A, Hassan A, Kovacevic M, Moeliono M, Dwisatrio B, dan Sarmiento Barletti J. 2022. *Desain mekanisme pembagian manfaat REDD+: Dari kebijakan ke praktik.* Terjemahan dari: Designing REDD+ benefit-sharing mechanisms: From policy to practice. Bogor, Indonesia: CIFOR.