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Jurisdictional Approach in REDD+ Implementation for Carbon Trading Management in Central Borneo

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Abstract*: Carbon trading is a promising mechanism for mitigating climate change. Indonesia, with its vast forest resources, has the potential to make a significant contribution to global carbon reduction efforts. Presidential Regulation No. 21 on Carbon Economic Value provides a crucial legal framework, yet its technical implementation remains unclear in several aspects, with overlapping regulations at both central and regional levels. Additionally, challenges such as deforestation and forest degradation persist, particularly in regions like Central Kalimantan. This study explores the potential of a jurisdictional approach to REDD+ in Central Kalimantan, focusing on multi-level collaboration, local government engagement, performance-based incentives, and effective monitoring, reporting, and verification (MRV) systems. The jurisdictional approach to REDD+ involves multi-sector collaboration to reduce carbon emissions and ensure sustainable forest protection. Performance-based incentives and transparent monitoring systems encourage active participation and accurate forest management, while decentralization, local community empowerment, and alignment with national and international policies enhance project sustainability and support Indonesia's global commitments.*

Keywords *: REDD+, Central Borneo, Carbon Trading.*

Introduction

Carbon trading is considered an effective policy to reduce carbon emissions and address climate change. Carbon trading markets are believed to internalize external costs[1], increase the use of environmental resources[2], and encourage carbon

[1] Coase, R. H. (1960). The problem of social cost. *The journal of Law and Economics*, *3*, 1-44.
[2] Dales, J. H. (1968). Land, water, and ownership. *The Canadian Journal of Economics/Revue canadienne d'Economique*, *1*(4), 791-804.

sequestration.[3] Since the Kyoto Protocol was published in 1997, many countries have established carbon trading schemes. Under the Kyoto Protocol, signatory countries are divided into two groups, Annex I (Annex B) and Non-Annex I countries. Annex I countries are required to meet emission restrictions, while Non-Annex I countries are not required to meet emission reduction targets, but must commit to reducing greenhouse gases.

Annex I countries have three schemes to achieve emission reduction targets: Clean Development Mechanism (CDM), Joint Implementation (JI), and Emissions Trading. At COP21 in 2015, countries reached the Paris agreement, which strengthened climate change mitigation efforts including the reduction of carbon emissions and the development of carbon trading mechanisms. According to WWF (2013) Indonesia, as a Non-Annex I country, is not required to meet the emission reduction target but is committed to reducing greenhouse gas emissions by 26% by 2020, and 41% with international assistance.

Forest-based emission reductions through REDD+ began after the Paris Agreement was agreed in 2015 within the framework of the UNFCCC. Indonesia issued Presidential Regulation No. 98 of 2021 concerning the implementation of carbon economic value to achieve national contribution targets and control greenhouse gas emissions in national development, which was later reduced in Permen 21/2022 concerning technical rules for carbon trading. The concept of carbon trading is considered successful in combining two contradictory interests: environmental (restoration of forest ecosystems) and economic (profit from the sale of carbon credits)[4]. In addition, community forest management, which has a high potential for carbon sequestration, also contributes to carbon trading[5]. Indonesia's forests have the potential to sequester up to 25,773 billion tons of carbon, which is estimated to be around 5.5 giga tons of CO2, making it the fifth largest carbon sink in the world. Indonesia also has an economic value in carbon trading of around US$ 105 to US$

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[3] Newell, P., & Bumpus, A. (2012). The global political ecology of the clean development mechanism. *Global Environmental Politics*, *12*(4), 49-67.

[4] Sari, S. W. P. (2016). Perdagangan Karbon Menurut Hukum Internasional dan Implementasinya di Indonesia.

[5] Hakim, D. B. (2011). Economic growth, trade and environmental issues: Testing environmental Kuznets curve. *Economic Journal of Emerging Markets*, 299-313.

114 billion[6], showing great opportunities in the development of carbon trading mechanisms.

Central Kalimantan has the largest peat forest area in Indonesia, around 3 million ha[7]. In this province, the Katingan Mentaya project aims to reduce carbon emissions by halting deforestation and forest degradation, and restoring degraded land. The project covers 149,800 hectares and uses REDD+ mechanisms, which are recognized by the UN as climate change mitigation efforts. The project also provides social and economic benefits to local communities, by involving them in forest management and increasing their skills and income through forest-based programs. However, the project is adjacent to PT PEAK, a large palm oil plantation company, and Central Kalimantan is experiencing high deforestation, including in the Katingan region, largely due to plantation expansion and illegal activities such as logging and gold mining.

Lestari (2019)[8] identified two main problems that led to the failure of REDD+ implementation in Central Kalimantan: different community perceptions of the program as being only for certain groups, and poor forestry governance practices that triggered ineffective implementation. Poor forestry governance practices occur at various levels of government and among private actors, civil society, companies, NGOs and local communities who compete with each other over forest ownership and management rights.

Understanding the relationships between actors at different levels of governance is critical to solving land use problems and utilizing the role of local governments in practical forest management solutions. The implementation of carbon forestry is influenced by existing power relations, which impact the decentralization of forest livelihoods and ecosystems, with a tendency towards centralization and

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[6] Sari, S. W. P. (2016). Perdagangan Karbon Menurut Hukum Internasional dan Implementasinya di Indonesia.

[7] Ramdhan, M., & Siregar, Z. A. (2018). Pengelolaan wilayah gambut melalui pemberdayaan masyarakat desa pesisir di kawasan hidrologis gambut Sungai Katingan dan Sungai Mentaya Provinsi Kalimantan Tengah. *Jurnal Segara*, *14*(3), 145-157.

[8] Lestari, N. (2019). Factors causing failure of the REDD+ program implementation in Central Kalimantan. *Jurnal Manajemen Hutan Tropika*, *25*(1), 28-28.

decentralization through power transfer. They suggest a juridical approach to address this issue.[9]

To mitigate climate change, new collaborations are needed that involve indigenous and local communities in decision-making and participation in forest management[10]. Although their rights are recognized in national law, implementation is uneven across local governments. Indigenous and local communities' participation in policy-making and revenue-sharing mechanisms is still limited.

A juridical approach is essential in the management of carbon trading in Indonesia, especially in Central Kalimantan. This is because sustainable land use requires major improvements in the jurisdiction of local politics, involving local governments that have substantial authority over land use. Local governments can influence the implementation of national policies and control land ownership and concessions that affect land use[11]. In addition, the support of various stakeholders, including investors, companies and communities, is needed to achieve sustainable land use. REDD+ requires complex planning and coalitions between various actors to address the issues[12][13].

Local governments in Indonesia are beginning to develop a more holistic jurisdictional approach to REDD+ and low-emission development, incorporating market policies within a broader emissions development strategy[14]. This approach builds on REDD+ experiences and critiques of early REDD+ projects[15]. Pay-based on

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[9] Libert-Amico, A., & Larson, A. M. (2020). Forestry decentralization in the context of global carbon priorities: new challenges for subnational governments. *Frontiers in Forests and Global Change*, *3*, 15.

[10] DiGiano, M., Stickler, C., & David, O. (2020). How Can Jurisdictional Approaches to Sustainability Protect and Enhance the Rights and Livelihoods of Indigenous Peoples and Local Communities?. *Frontiers in Forests and Global Change*, *3*, 40.

[11] Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World development*, *29*(10), 1649-1672.

[12] Goering, L. 2015. After errors, Congo Basin forest effort restarts with new scrutiny, Reuters December 8, 2015. URL: http://www.reuters.com/article/us-climatechange-summit-forest-idUSKBN0TR2YM20151208

[13] Marigold, N. 2015. Where has funding for forest protection in Central Africa gone wrong? Reuters (Nov 10, 2015), URL: http://news.trust.org/item/20151110104943-jew41 (Accessed May 8, 2020).

[14] Boyd, W., Stickler, C., Duchelle, A. E., Seymour, F., Nepstad, D., Bahar, N. H., & Rodriguez-Ward, D. (2018). Jurisdictional approaches to REDD+ and low emissions development: Progress and prospects. *Washington, DC: World Resources Institute*, 1-14.

[15] Nepstad, D. C., Boyd, W., Stickler, C. M., Bezerra, T., & Azevedo, A. A. (2013). Responding to climate change and the global land crisis: REDD+, market transformation and low-emissions rural development. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *368*(1619), 20120167.

performance incentives for those involved in sustainable forest management are critical to the success of this approach[16]. These incentives can be implemented through multi-level payment schemes involving various parties from international buyers to landowners[17].

In this study, we aim to fill the gap on REDD+ by analyzing the landscape of local REDD+ projects and developing a jurisdictional approach to REDD+ in Central Kalimantan. This research focuses on the relationship between the actors involved, such as carbon markets, project implementers, and community forest managers, in opening up opportunities for local governments to manage sustainable forest governance.

Characteristics in establishing a REDD+ Jurisdiction Approach

1. Multi-sector Collaboration

Jurisdiction-based REDD+ implementation requires the involvement of various stakeholders from various sectors. In Central Kalimantan, this includes local government, local communities, indigenous peoples, the private sector, NGOs, and international actors with a role in climate change mitigation. This multi-sector collaboration is necessary to ensure that various interests can be aligned in one coherent framework. Each sector has a unique role that supports each other in achieving the goal of reducing deforestation and forest degradation. Local governments have the authority to make local policies that support REDD+, while local and indigenous communities are instrumental in forest management and protection. The private sector, particularly companies, can provide technology and investments that support project sustainability, while NGOs play a role in advocacy and implementation of community-based programs. International actors provide crucial financial and technical support. Crosss-sector collaboration allows for more holistic and effective solutions to global environmental problems[18]. Well-established collaborations

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[16] Ros-Tonen, M. A., Reed, J., & Sunderland, T. (2018). From synergy to complexity: the trend toward integrated value chain and landscape governance. *Environmental Management*, *62*, 1-14.

[17] Andoh, J., & Lee, Y. (2018). National REDD+ strategy for climate change mitigation: a review and comparison of developing countries. *Sustainability*, *10*(12), 4781.

[18] Angelsen, A., Brockhaus, M., Sunderlin, W. D., & Verchot, L. V. (Eds.). (2012). *Analysing REDD+: Challenges and choices*. Cifor.

also raise collective awareness, which is essential for driving real action at the local to global level.

2. Local Government Involvement

Local governments play an important role in the jurisdictional approach to REDD+ because of their authority to manage natural resources and land use in their area. The active involvement of local governments ensures that REDD+ policies are appropriate to local needs and challenges, and integrated with local development plans. Local governments can develop local regulations that support policies to reduce deforestation and forest degradation, for example by enforcing regulations on sustainable spatial planning and environmentally friendly forest management. Local government involvement in REDD+ enables the creation of policies that are more responsive to local conditions and optimizes REDD+ implementation at the field level[19]. Without local government support, REDD+ policies could potentially be less effective and unsustainable. Therefore, collaboration between local governments and local communities in designing and implementing policies is essential to ensure the long-term success of REDD+ programs.

3. Performance-Based Incentives Approach

An important element of the REDD+ approach is performance-based incentives, which provide financial compensation for those who contribute to the reduction of carbon emissions. This mechanism is designed to encourage active participation from communities and the private sector in preserving forests. Performance-based incentives work by rewarding or paying those who achieve targets for reducing deforestation and carbon emissions. For example, communities that engage in sustainable forest management or companies that implement environmentally friendly practices may receive financial incentives. Performance-based incentive models have proven effective in reducing deforestation in several REDD+ projects in different countries[20]. These incentives not only serve as an economic motivation for stakeholders, but can also create a sense of shared responsibility in maintaining forest

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[19] Karsenty, A. (2017). The World Bank's endeavours to reform the forest concessions' regime in Central Africa: Lessons from 25 years of efforts. *International Forestry Review*, *19*(4), 64-79.

[20] Andoh, J., Oduro, K. A., Park, J., & Lee, Y. (2022). Towards REDD+ implementation: Deforestation and forest degradation drivers, REDD+ financing, and readiness activities in participant countries. *Frontiers in Forests and Global Change*, *5*, 957550.

ecosystems. By rewarding those who succeed in reducing emissions, this approach encourages better cooperation between local actors and the private sector.

4. Monitoring, Reporting, and Verification (MRV) Framework

A jurisdictional approach to REDD+ requires a transparent and accountable monitoring, reporting and verification (MRV) system to monitor land use change, deforestation and carbon emissions. An MRV framework enables consistent oversight of REDD+ program implementation, and provides clarity on achievements. Accurate monitoring not only ensures that emission reductions are achieved, but also ensures that the results of the program can be verified by external parties. A robust and transparent MRV system is an important basis for trust and accountability in REDD+ implementation[21]. In Central Kalimantan, good MRV implementation will ensure that deforestation in the area can be properly measured, and support national efforts to meet carbon emission reduction targets. In addition, an effective MRV system also allows for a more detailed assessment of project impacts on local communities and forest ecosystems.

5. Decentralization and Multi-level Management

Decentralization in REDD+ management is key in ensuring the successful implementation of programs that involve many parties at different levels of government. A multi-level approach to REDD+ management allows local governments, local communities, and higher levels of government to work together in formulating policies and making decisions related to land use. Decentralization provides opportunities for local communities to be directly involved in forest management and provides solutions that are more specific and responsive to the needs of the area. In addition, decentralization allows for compatibility between national policies and local conditions, reducing tensions between higher levels of government and communities on the ground. With decentralization, different levels of government can work together to ensure the sustainability of REDD+ projects and ensure that policies are appropriate to the highly diverse local context.[22]

6. Empowerment and Participation of Local and Indigenous Communities

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[21] Sunderlin, W. D., & Atmadja, S. (2009). Is REDD+ an idea whose time has come, or gone. *Realising REDD*, 45.

[22] Nagendra, H., & Ostrom, E. (2012). Polycentric governance of multifunctional forested landscapes. *International Journal of the Commons*, *6*(2), 104-133.

The success of REDD+ relies heavily on the active involvement of local communities and indigenous peoples in project planning and implementation. Their participation creates a sense of ownership and responsibility for the success of the project. Economic empowerment through environmentally friendly activities, such as sustainable agriculture and the development of non-timber forest products, is an alternative income that can reduce pressure on forests. The success of REDD+ depends not only on government policies, but also on the ability of local and indigenous communities to manage and conserve forests[23]. Local communities that are empowered with adequate knowledge and resources tend to be more committed to preserving forests. This empowerment includes capacity building through education and training, as well as access to markets for the environmentally friendly products they produce.

7. Alignment with National and International Policies

Alignment between REDD+ policies in Central Kalimantan with national and international policies is critical to achieving project sustainability. Central Kalimantan needs to ensure that REDD+ implementation in the region supports Indonesia's commitments to international agreements, such as the Paris Agreement and national emission reduction targets (NDCs). The importance of alignment between local, national and international policies to ensure the sustainability of REDD+ projects[24]. In this context, consistent policies between local and global levels can increase opportunities for access to international funding, as well as technical support needed for more effective REDD+ implementation. This alignment will also ensure that Central Kalimantan contributes to national efforts in achieving carbon emission reduction targets, while strengthening Indonesia's position in international negotiations on climate change.

Phase REDD+

1. Preparation and Planning Phase

The preparation and planning phase is a crucial first step in developing a jurisdictional approach to REDD+ in Central Kalimantan. It involves intensive

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[23] Goering, L. 2015. After errors, Congo Basin forest effort restarts with new scrutiny, Reuters December 8, 2015. URL: http://www.reuters.com/article/us-climatechange-summit-forest-idUSKBN0TR2YM20151208

[24] Vatn, A., & Angelsen, A. (2009). *Options for a national REDD+ architecture*.

coordination between the local government, local stakeholders, indigenous communities, the private sector and NGOs to design a comprehensive strategy. Land mapping was the first step to identify forest areas that could be included in REDD+ schemes, as well as areas most prone to deforestation. This mapping not only identifies areas that need protection, but also informs the setting of realistic carbon emission reduction targets, in line with the capacity and potential of Central Kalimantan's forests. This target should also be in line with the national target for carbon emission reduction that Indonesia has agreed to in international agreements such as the Paris Agreement. The development of local policies and regulations that support REDD+ is the next stage. Local governments must ensure that existing natural resource management and spatial planning policies can support the success of REDD+. In addition, it is necessary to analyze the risks and opportunities for the success of this project to understand the challenges that may arise, such as policy changes, pressure on land, and resistance from some community groups that depend on sectors that cause deforestation. A thorough planning phase will provide a strong foundation for successful REDD+ implementation.[25]

2. Socialization and Stakeholder Engagement Phase

After the preparation phase, the next phase is socialization and stakeholder engagement. This process aims to increase community and stakeholder understanding of the importance of REDD+ and carbon emission reduction. It also includes educating local and indigenous communities on how climate change affects their lives and the importance of forest protection for their future. Public consultations are an important part of this stage, where inputs from communities, indigenous groups and the private sector are needed to design an equitable and sustainable REDD+ scheme. Capacity building for local communities and local governments is needed to ensure they are ready to participate in REDD+ implementation. This can be done through training, workshops and provision of relevant information. The development of participatory mechanisms is also important to create awareness and long-term commitment to the success of REDD+. Inclusive participation ensures that the needs

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[25] Angelsen, A., Brockhaus, M., Duchelle, A. E., Larson, A., Martius, C., Sunderlin, W. D., ... & Wunder, S. (2017). Learning from REDD+: a response to Fletcher et al. *Conservation Biology*, *31*(3), 718-720.

and interests of all stakeholders can be accommodated, which in turn increases the success and sustainability of REDD+ projects.[26]

3. Implementation Phase

The implementation phase is where the various activities that have been planned in the previous phase begin to be implemented on the ground. Forest conservation and ecosystem restoration activities are top priorities in this phase, with the aim of preventing further deforestation and restoring degraded land. Local governments, together with local communities and indigenous peoples, can work together to implement reforestation, forest rehabilitation and sustainable management programs. The establishment of a pay-for-performance incentive mechanism is also crucial in this phase. Financial incentives are given to those who successfully protect forests and reduce deforestation. Alternative sustainable livelihood schemes were also introduced to help local communities shift from forest-destroying activities to more environmentally friendly activities, such as sustainable agriculture and the development of non-timber forest products. In addition, it is important to ensure that the monitoring, reporting and verification (MRV) framework is well implemented to accurately measure land use change and carbon emissions. Good management and strict monitoring will ensure that implementation is in line with the plans and targets set.[27]

4. Monitoring, Reporting, and Verification (MRV) Phase

The monitoring, reporting and verification (MRV) phase is critical to ensuring transparency and accountability of REDD+ implementation. In this phase, the success of the project is measured based on clear indicators, such as reduced deforestation, increased carbon sequestration capacity, and impacts on the welfare of local communities. Regular reporting to stakeholders at local, national and international levels is important to maintain transparency. This report will provide information on the extent to which REDD+ projects in Central Kalimantan are achieving the targets set and how they are impacting ecosystems and communities. Independent verification by

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[26] Larson, A. M., & Ribot, J. C. (2009). Lessons from forestry decentralisation. *Realising REDD+: National strategy and policy options*, 175-187.

[27] Sunderlin, W. D., Hatcher, J., & Liddle, M. (2008). From exclusion to ownership?: challenges and opportunities in advancing forest tenure reform.

third parties is also needed to assess the results achieved, ensure that the data reported is valid, and provide assurance that the REDD+ program is in line with carbon emission reduction commitments. Without effective MRV, confidence in the success of REDD+ projects can be eroded, and may hinder access to international funding or other support[28].

5. Evaluation and Learning Phase

After implementation, evaluation and learning are crucial to assessing the effectiveness of REDD+ projects. At this stage, the results of REDD+ achievements are compared with the original targets to see the extent to which the project has succeeded in reducing emissions and safeguarding forests. Evaluation also includes an analysis of the successes and challenges faced during implementation, which provides insight into aspects that need to be improved in the future. These implementation lessons are critical for improving forest management policies, regulations and practices, and for improving the design and implementation of REDD+ in the future. Policy recommendations emerging from the evaluation can be used to strengthen project sustainability or integrate REDD+ into sustainable development policies in Central Kalimantan. By conducting comprehensive evaluations, projects can continue to evolve and adapt to changing social, economic and environmental conditions.[29]

6. Development and Scalability Phase

After the evaluation, the next step is to develop and expand the REDD+ project to other areas in Central Kalimantan or even to other areas that have similar potential. The scalability of REDD+ projects is important to ensure that efforts to reduce deforestation can be carried out more broadly, not just limited to one particular area. Strengthening collaboration with international partners is also important at this stage to obtain financial support or new technologies that can accelerate the achievement of carbon emission reduction targets. In addition, innovations in forest monitoring and restoration technologies, such as the use of satellite imagery and GIS technology, will

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[28] Pratihast, A. K., & Herold, M. (2011). Community based monitoring and potential links with national REDD+ MRV.

[29] Murray, J. P., Grenyer, R., Wunder, S., Raes, N., & Jones, J. P. (2015). Spatial patterns of carbon, biodiversity, deforestation threat, and REDD+ projects in Indonesia. *Conservation Biology*, *29*(5), 1434-1445.

improve reporting accuracy and project management effectiveness. With these innovations, REDD+ management can be more efficient and more responsive to the dynamics of deforestation. The development and scalability phase ensures that REDD+ projects can expand and magnify their positive impacts on the environment and communities.[30]

Concluding Remarks

The jurisdictional approach to REDD+ in Central Kalimantan consists of several important phases to ensure sustainable implementation in reducing carbon emissions and protecting forests. Multi-sector collaboration involving local government, local and indigenous communities, private sector, NGOs, and international actors plays a key role in creating synergy. Each sector has a mutually supportive role, from policy-making to the implementation of community-based programs. The active involvement of local governments in designing policies that support REDD+ is critical to the sustainability of this project. Performance-based incentives and transparent monitoring, reporting and verification (MRV) systems have proven effective in encouraging participation and ensuring accurate forest management.

Decentralization and multi-level management enable policies that are more responsive to local conditions, while empowering local communities strengthens forest sustainability. The alignment of REDD+ policies with national and international policies is also crucial to support Indonesia's global commitment to emission reduction. An evaluation and learning phase is needed to improve existing policies to adapt to social, economic and environmental dynamics. In addition, the development and scalability phase aims to expand the positive impacts of REDD+ to other regions, enhance international cooperation, and optimize technology for forest monitoring and restoration.

Translated with DeepL.com (free version)

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