The Effectiveness of the Implementation of HRDD and SIA in Advancing Sustainable Forest Management Certification in Indonesia

Anggoro Hadi Putranto1*, B. Medina Nilasari2, Maria Ariesta Utha3

1,2,3Trisakti University, West Jakarta, Jakarta, Indonesia
Email: 122012106007@std.trisakti.ac.id1, medina@trisakti.ac.id2, maria.utha@trisakti.ac.id3

Abstract: This study examines the effectiveness of integrating Human Rights Due Diligence (HRDD) and Social Impact Assessment (SIA) into the certification process of sustainable forest management in Indonesia. Adopting a comprehensive approach, it analyzes how HRDD safeguards human rights and how SIA evaluates and addresses social impacts within forest management practices. The study focuses on stakeholder engagement, risk assessment, and mitigation measures as critical components of HRDD and SIA implementation. Drawing on a sample of practitioners from sustainable forest management sectors, including companies, NGOs, consultants, Certification Bodies, and Auditors, the research highlights the role of HRDD and SIA in enhancing the credibility of sustainable practices, mitigating conflicts, and promoting regional socio-economic development. It contributes insights for policymakers aiming to balance economic growth with environmental conservation in Indonesia’s forestry sector. Furthermore, integrating HRDD and SIA supports the achievement of Sustainable Development Goals 5 and 10 by addressing discrimination and promoting gender equality. The study underscores the direct impact of HRDD and SIA on women’s empowerment and equal opportunity, illustrating their broader societal benefits.

Keywords: Forest Management Certification, Human Rights Due Diligence, Sustainable Forest Management, Social Impact Assessment, Sustainable Development Goals.

INTRODUCTION

Forests play a very important role in efforts to support biodiversity globally, mitigate climate change, and provide resources that are essential for human well-being. However, unsustainable forest exploitation has led to widespread deforestation, habitat destruction, and social conflicts, especially in countries with large forest areas, such as Indonesia. Recognizing these challenges, a Sustainable Forest Management (SFM) certification system has been established to encourage responsible forestry practices (Deng et al., 2023). One of these certification systems is the Forest Stewardship Council (FSC) and the Program for The Endorsement of Forest Certification (PEFC), which focuses on environmental, social, and economic sustainability (Chen et al., 2020; Kartika et al., 2020; Paluš et al., 2021).

Indonesia, as a forest-rich country, faces a major challenge in balancing the economic benefits of its forest resources with the need for conservation and protection of the rights of local communities and indigenous peoples. In recent years, there has been a growing recognition of the importance of integrating Human Rights Due Diligence (HRDD) and Social Impact Assessment (SIA) into the certification process to address these challenges comprehensively (Atyi, 2021; FASTERLING, 2017; Vanclay, 2003).

HRDD involves a systematic process that plays a role in identifying, preventing, and mitigating human rights risks and impacts associated with forest management activities (Rahmatullah, 2021). SIA, on the other hand, assesses the potential social consequences of forest management practices, including impacts on local communities, indigenous peoples, and other stakeholders. Both HRDD and SIA aim to ensure that forest management practices respect human rights, promote social justice, and contribute to sustainable development (https://ic.fsc.org/en/document-center/id/). The integration of HRDD and SIA
into forest management practices aims to improve the sustainability and ethics of the company's operational activities. By focusing on human rights and social impact, HRDD and SIA can help identify and mitigate adverse effects on local communities and workers, thereby fostering a more inclusive and equitable management approach. The effectiveness of the implementation of HRDD and SIA in Indonesian forest management companies is a crucial area of investigation (Tali, 2020).

In recent years, there has been a growing recognition of the need to incorporate broader social and human rights considerations into forest management practices. Human Rights Due Diligence (HRDD) and Social Impact Assessment (SIA) have emerged as frameworks to ensure that forest management activities not only meet environmental standards but also uphold human rights and address social impacts (Favotto & Kollman, 2022; PARTITI, 2022; van Kalmthout et al., 2021).

So far, HRDD and SIA in their application are considered something different and are carried out separately and specially. This positions the company/business to choose which priorities must be implemented between HRDD and SIA, where both have an important role for the company/business. The integration of HRDD and SIA implementation has not only an economic impact on the company/business but also a balance of environmental and social impacts. However, the effectiveness of integrating HRDD and SIA into the certification process in Indonesia is still a subject of limited debate and empirical research. Therefore, in this study, the researcher will analyze the integration of HRDD and SIA in influencing the environmental performance of certified forest management operations in Indonesia, analyze the effectiveness of integrating HRDD and SIA in forest management companies in Indonesia, analyze the economic implications of the implementation of HRDD and SIA, consider the potential costs and benefits for forest management companies, certification bodies, and local stakeholders.

The results of this study are expected to provide positive benefits to several parties, including providing information for company management to consider in determining strategies in the implementation of HRDD and SIA as one of the indicators of compliance with the sustainable forest management certification standards. So that company management is able to increase awareness in carrying out corporate social responsibility and provide information and the reality of challenges faced in the implementation of HRDD and SIA in the forestry business sector (RASCHE & WADDOCK, 2021). So that it can be a reference for the government in drafting regulations related to human rights in the business sector and other regulations related to corporate CSR programs in the forestry sector in Indonesia, providing information for stakeholders in Indonesia and internationally, namely NGOs/Non-Governmental Organizations (NGOs) and certification bodies regarding the implementation of HRDD in Indonesia, especially forestry companies in Indonesia. So that it can open up opportunities for collaboration between stakeholders and companies in the implementation of HRDD.

The research aims to explore how integrating Human Rights Due Diligence (HRDD) and Social Impact Assessment (SIA) into sustainable forest management practices in Indonesia affects environmental performance, evaluates their effectiveness in local companies, and analyzes economic implications for stakeholders. This study aims to inform corporate strategies, influence government regulations, and provide insights to NGOs and certification bodies regarding the implementation of HRDD in Indonesia, especially forestry companies in Indonesia. So that it can prioritize human rights, social equity, and environmental stewardship in Indonesia.

RESEARCH METHODS
The research method used in collecting data and information is a qualitative descriptive method of content analysis, which involves categorizing and interpreting textual or visual data systematically to identify patterns, themes, and meanings (DİNCER, 2018). The sampling technique used in the form of purposive sampling techniques, namely selecting participants with relevant knowledge and experience in the fields of HRDD, SIA, and forest management certification. The goal is to ensure that the sample taken includes individuals who represent perspectives and roles in the fields of HRDD, SIA, and the forestry
The resource persons in this study are 36 people with backgrounds, including practitioners in the field of HRDD application, SIA, and forest management certification.

<table>
<thead>
<tr>
<th>Background / Occupation</th>
<th>Number (people)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry Industry Professionals</td>
<td>25</td>
</tr>
<tr>
<td>Environmental Advocacy (NGO/NGO)</td>
<td>2</td>
</tr>
<tr>
<td>Government Officials</td>
<td>-</td>
</tr>
<tr>
<td>Academic Researcher</td>
<td>2</td>
</tr>
<tr>
<td>Certification Bodies / Auditors</td>
<td>3</td>
</tr>
<tr>
<td>Social &amp; Environmental Consultant</td>
<td>3</td>
</tr>
<tr>
<td>Sustainability Professional</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

The data analysis method used is qualitative descriptive content analysis. The researcher uses descriptive content analysis, which is a type of content analysis that involves systematic and objective communication analysis, with the aim of describing and categorizing content based on predetermined criteria.

**RESULTS AND DISCUSSION**

Sustainable Forest Management Certification in Indonesia is an important action in addressing the environmental and social challenges posed by deforestation, biodiversity loss, and human rights violations in the forestry sector. The certification process aims to ensure that forestry practices are carried out in an ecologically responsible, socially just, and economically viable manner.

**Understanding and Awareness of HRDD and SIA**

Knowing about HRDD and SIA and aligning them within forest management practices with international standards and guidelines not only increases credibility but also ensures that certification meets global expectations. Implementing HRDD and SIA in sustainable forest management certification is not just a legal or ethical requirement. This is a strategic need to ensure and demonstrate that forest management practices in Indonesia are not only environmentally sustainable but also socially responsible and respectful of human rights.

As many as 36.1% or as many as 13 respondents were very familiar with the concept of human rights assessment obligations in the context of forest management. While the remaining 61.1%, or as many as 23 respondents answered that they knew enough about the concept. The survey findings show that there are variations in understanding and application across various stakeholders, such as certification bodies, non-governmental organizations (NGOs), and private companies. Analyzing these variations can contribute to a comprehensive understanding of the multi-stakeholder landscape involved in advancing sustainable forest management certification through HRDD and SIA.

**Implementation of Forest Management Certification in Indonesia**

As many as 86.1% or as many as 31 respondents answered that their organization has been involved in the implementation of Sustainable Forest Management Certification (SPHL) / Sustainable Forest Management Certification (SFMC). This high percentage indicates a broad recognition of the importance of sustainable forestry practices, and most of the organizations surveyed demonstrate a commitment to adhering to established standards and principles. These findings underscore a positive trend in the forestry sector, which shows increasing awareness of the need for ecologically responsible and socially responsible practices.
sustainable forest management practices. The results of this survey illustrate the positive trend toward Sustainable Forest Management Certification in the surveyed sample, which shows recognition of the importance of certification initiatives in promoting environmentally and socially responsible forestry practices in Indonesia.

**The Importance of SIA in Forest Certification**

The data obtained showed that 97.2% or as many as 35 respondents answered that *social impact assessment* is very important to support the sustainable forest management certification process. The high percentage of SIAs that state the importance of SIA indicates a strong awareness of the need to comprehensively evaluate and address the social consequences of forest management initiatives. This is in line with the global shift towards a more inclusive and holistic approach to sustainability, recognizing that ecological conservation is inseparable from the social well-being of communities that are closely linked to the ecosystem.

These findings show that SIA is an important tool for anticipating, mitigating, and managing potential adverse social impacts. This support strengthens the evolving landscape of sustainable forest management, and traditional ecological considerations to include the social dimension that is integral to achieving long-term environmental sustainability. In addition, the high level of support for SIA implies the potential acceptance of integrating this assessment tool into the certification process. As a result, Indonesia's forestry sector will implement a stronger and more comprehensive certification approach, encouraging practices that not only adhere to ecological standards but also prioritize the protection of human rights, people's livelihoods, and cultural heritage.

**Application of HRDD in Forest Certification**

Based on the data from the survey conducted in this study, 51.4% of respondents answered that their organizations only carry out part of their obligations to human rights assessments. The results of the survey show a different understanding of the extent to which organizations in the forestry sector in Indonesia are fulfilling their obligations related to human rights assessments in forest management practices. These findings raise concerns about potential gaps in awareness or commitment within certain groups of organizations and emphasize the need for targeted interventions to encourage a more responsible and rights-oriented approach to forestry practices.

As many as 11.4% of respondents admitted that their organizations carry out their obligations to human rights in a limited way. This section may be that organizations face challenges or constraints that hinder a more comprehensive approach to human rights assessments in forest management practices. A smaller percentage, 2.9% of respondents, reported that their organizations have no obligation at all to assess human rights in the context of forest management. These findings raise concerns about potential gaps in awareness or commitment within certain groups of organizations and emphasize the need for targeted interventions to encourage a more responsible and rights-oriented approach to forestry practices.

The results of this survey highlight the diverse efforts of organizations in addressing human rights in the forestry sector. While some organizations have shown a commendable commitment, others may benefit from targeted support and awareness-raising initiatives to improve human rights due diligence in forest management practices. These findings provide input for policymakers, industry stakeholders, and certification bodies working to improve and standardize human rights assessments in Indonesia's forestry sector.

**Challenges of HRDD Implementation in the Context of Forest Management Certification in Indonesia**

As many as 81% of respondents answered that the challenge faced in the implementation of HRDD is the lack of awareness in the implementation of HRDD. This shows the importance of awareness-raising initiatives in the forestry sector, emphasizing the importance of human rights considerations in forest management practices. Efforts to increase understanding and knowledge among stakeholders can contribute to overcoming these key obstacles. As many as 61% of respondents provided information that
the resources owned by the organization are insufficient to implement HRDD. Many organizations face obstacles in terms of financial, human, or technological resources required for effective HRDD implementation.

Resistance from stakeholders emerged as a major challenge for 41.7% of respondents. Overcoming resistance requires active engagement from a wide range of stakeholders, including industry players, local communities, and policymakers, to build consensus on the importance of HRDD in promoting responsible and sustainable forest management. As many as 22% of respondents indicated that the existing regulatory framework may pose challenges to the effective implementation of HRDD. Advocacy for supportive and clear regulations, as well as collaboration between industry players and policymakers, is critical to creating an environment that supports HRDD integration.

These findings provide a comprehensive overview of the challenges faced by organizations in Indonesia in their efforts to implement HRDD in the context of forest management certification. These findings demonstrate the need for a holistic approach that combines awareness-building, resource mobilization, stakeholder engagement, regulatory advocacy, and refinement of assessment methodologies in order to successfully address these challenges and advance responsible forestry practices in the country.

Opportunities to Improve HRDD and SIA in the Sustainable Forest Management Certification Process

The most well-known opportunity, identified by 81% of respondents, is to collaborate with local communities. This emphasizes the important role of community involvement in encouraging the effective implementation of HRDD and SIA. Collaborative efforts with local communities not only ensure their perspectives are considered but also contribute to building trust and support for sustainable forest management practices. A total of 77.8% of respondents supported the approach by providing capacity building for stakeholders. The initiative empowers a diverse range of stakeholders, including industry players, local communities, and policymakers, with the knowledge and skills necessary to actively participate and contribute to the HRDD and SIA process.

Strengthening the regulatory framework is seen as an opportunity. A strong regulatory framework can provide clear guidelines, standards, and incentives for organizations to incorporate HRDD and SIA into forest management practices. Opportunities to provide training that supports forest management schemes. This emphasizes the importance of targeted training programs tailored to the specific needs of organizations involved in forest management, ensuring a more diverse understanding and effective implementation of HRDD and SIA. The results of this collective survey show that a comprehensive and collaborative approach, which includes community engagement, capacity building, technology integration, regulatory improvement, and targeted training, offers promising opportunities to improve the effectiveness of HRDD and SIA in the sustainable forest management certification process in Indonesia.

Responsibility for Monitoring the Implementation of HRDD and SIA in Forest Management Activities

As many as 52.8% of respondents stated that government agencies must play a central role in monitoring the implementation of HRDD and SIA. This perspective underscores the general expectation for government agencies to take a proactive stance in ensuring that forestry practices are in line with human rights standards and social impact considerations. Government agencies, which have the authority to regulate, are often considered key actors in setting and enforcing standards in the forestry sector. In contrast, 27.8% of respondents stated that private companies in the forestry industry have a responsibility to monitor the implementation of HRDD and SIA (Asmara et al., 2023). This perspective emphasizes the role of industry players in self-regulation and accountable business practices. This provides input for companies to actively monitor and address human and social impacts related to company activities.

However, 8.3% of respondents expressed the view that all parties should share the responsibility to monitor HRDD and SIA in forest management activities. This inclusive perspective suggests that collaborative efforts involving government agencies, the private sector, local communities and
independent institutions are needed to ensure comprehensive and effective monitoring. The survey showed findings that reflected diverse opinions on the institutions responsible for monitoring the implementation of HRDD and SIA in sustainable forest management activities. These perspectives underscore the complex and multistakeholder nature of forestry governance and the importance of collaborative efforts to ensure effective monitoring.

**Trends or Technologies for the Integration of HRDD and SIA Obligations in Forest Management Certification.**

The results of data collection through the questionnaire observed several technological trends that respondents believe can significantly improve the integration of HRDD and SIA in forest management certification in Indonesia. These trends represent innovative approaches that leverage technology to strengthen the monitoring, tracking, and analysis of human and social impacts of forestry activities. The majority of respondents, 65.5%, acknowledged the potential for community-led monitoring initiatives to improve the integration of HRDD and SIA. This emphasizes the importance of grassroots efforts and the involvement of local communities in monitoring and reporting human and social human rights impacts. Leveraging community-based initiatives can contribute to a more comprehensive understanding of realities on the ground and encourage a collaborative approach to sustainable forest management.

Artificial intelligence (AI) can be used to analyze data related to HRDD and SIA. AI technology can efficiently process large data sets, identify patterns, and derive meaningful insights, facilitating more sophisticated and automated analysis of complex information relevant to human and social impact assessments (Arce-Gomez et al., 2015). This survey's findings observed respondents' optimism regarding the potential of various technologies to improve the integration of HRDD and SIA in forest management certification.

**Independent Party Engagement to Ensure the Effectiveness of HRDD and SIA Implementation**

The significant response of the survey, in which 80.6% of respondents stated that independent third-party monitoring is absolutely necessary to ensure the effectiveness of HRDD and SIA in forest management activities, underscores the strong consensus on the importance of external monitoring in the forestry sector. Support for independent third-party monitoring reflects respondents' acknowledgment that external entities prioritize objectivity, impartiality, and expertise in evaluating the implementation of HRDD and SIA. Independent third-party monitoring is seen as an important mechanism for verifying compliance, identifying deficiencies, and ensuring that forestry activities are in line with established human rights and social impact standards. This approach is likely to be seen as a means to increase transparency, accountability, and credibility in the implementation of sustainable forest management practices.

Independent third-party monitoring is in line with global trends in corporate responsibility and sustainable development, where external verification is increasingly seen as important to ensure compliance with ethical and social standards. These findings reinforce the idea that external monitoring can act as a protection against potential conflicts of interest, biases, or inadequate self-reporting mechanisms, thereby contributing to a stronger and more credible implementation of HRDD and SIA in forest management.

**Parameters of the Effectiveness of the Implementation of HRDD and SIA in the Context of Forest Management Certification in Indonesia**

In assessing the effectiveness of the implementation of HRDD and SIA in the context of sustainable forest management certification, there are several success parameters that can be used, both in terms of legal, social, accountability, and economic. Compliance with legal frameworks can evaluate the extent to which HRDD and SIA processes comply with relevant national and international legal frameworks, including Indonesian labor law, environmental regulations, and human rights standards. In terms of stakeholder engagement, this can be measured by the level of engagement of key stakeholders, including local communities, indigenous groups, NGOs, government agencies, and representatives from businesses,
throughout the HRDD and SIA process. Evaluate the socio-economic impacts of forest management activities on local communities, including livelihoods, access to resources, land tenure rights, and cultural heritage, and assess the extent to which HRDD and SIA contribute positively to communities. Transparency and accountability mechanisms are also important parameters in assessing the effectiveness of the implementation of HRDD and SIA in the context of forest management certification in Indonesia, including information disclosure, complaint mechanisms, monitoring, and verification from independent parties.

The Impact of Human Rights Due Diligence and Social Impact Assessment in Decision Making

As many as 68.6% of respondents answered that HRDD and SIA have a significant influence that can have an impact on the decision-making process in the forestry industry. This majority result underscores the importance of integrating a comprehensive assessment of social impacts and human rights considerations into the decision-making framework of forestry practices in Indonesia. As many as 28.6% of respondents answered that HRDD and SIA will only have an impact to a certain extent on decision-making. These diverse responses demonstrate recognition that while these assessments are valuable, their impact may vary depending on the specific circumstances or context of the organization. It also reflects a pragmatic acknowledgment that, while influential, SIA and HRDD may not be the only determining factor in any decision-making scenario.

Various responses regarding the impact of HRDD and SIA indicate that their effectiveness can vary depending on the specific circumstances or context of the organization. Company leaders must consider the unique characteristics of their operational activities and adapt HRDD and SIA practices. This requires a different understanding of how these assessments can support decision-making in certain contexts. Majority support for the influence of HRDD and SIA in decision-making processes in the forestry industry reflects a growing awareness of the importance of incorporating social and human rights considerations into forestry practices. Managerial implications emphasize the importance of a proactive and strategic approach in integrating HRDD and SIA into decision-making processes in the forestry industry.

Integration of HRDD and SIA in Supporting the Achievement of Sustainable Development Goals (SDGs)

HRDD and SIA are aligned with several Sustainable Development Goals (SDGs) (Baumgartner, 2019). HRDD and SIA have the most relevant contribution in supporting the achievement of SDGs 1, 5, 8, and 10. HRDD and SIA, it can help ensure that companies or business activities implement a fair wage system and responsible work practices so that they can contribute to poverty alleviation and not worsen poverty conditions in Indonesia. It is also related to SDG 8, namely decent work and economic growth. HRDD and SIA can assist in ensuring that companies or business activities must create safe, fair, and dignified working conditions, which are the basis for sustainable economic growth. A considerable contribution to the achievement of SDG 5 and SDG 10, through HRDD and SIA, can help address discrimination and support gender equality. HRDD and SIA directly impact women's empowerment and ensure equal opportunities. In line with SDG 5, within SDG 10, the practice of implementing HRDD and SIA is able to reduce inequality by promoting fair treatment and preventing discrimination based on race, gender, or socioeconomic status.

Analysis of Research Findings

Analysis of the Integration of HRDD and SIA in Affecting Environmental Performance and Certified Forest Management Operations in Indonesia.

According to the results of a study conducted by Pratiwi Kartika, Hariyadi, and Cerdikwan (2020), FSC and PEFC are considered by some to be a more effective way to enforce sustainable practices among producers than government regulations. The presence of multiple standards, both private and public, may have implications for manufacturers, potentially increasing compliance costs and creating the need for a better understanding of how these standards complement or duplicate each other in practice.
The findings in this study can complement the findings in the research conducted by Pratiwi Kartika, Hariyadi, and Cerdikwan (2020). As a result of the correspondence, it was reported that their organization had actively participated or been involved in the implementation of Sustainable Forest Management Certification (SFMC) or voluntary standard certification. The high percentage indicates a widespread recognition of the importance of sustainable forestry practices, and most of the organizations surveyed demonstrate a commitment to adhering to established standards and principles.

The Indonesian Ministry of Environment and Forestry (Junarto, 2023) has also been active in promoting sustainable forest management practices through various regulations, including MENLHK Regulation No. 8 of 2021 concerning Forest Management and Preparation of Forest Management Plans, as well as Forest Utilization in Protected Forests and Production of Forests. One year later, the Regulation of the Minister of Environment and Forestry was issued in the form of a Decree of the Minister of Environment and Forestry number SK. 9895/MenLHK-PHPL/BPPHH/HPL.3/12/2022 concerning Standards and Guidelines for the Implementation of the Legality and Sustainability Verification System.

These findings underscore a positive trend in the forestry sector, which shows increasing awareness of the need for ecologically responsible and socially sustainable forest management practices. Organizations involved in SFMC are most likely to contribute to biodiversity conservation, the protection of the rights of local communities, and the improvement of long-term environmental sustainability.

Analysis of the Effectiveness of the Implementation of HRDD and SIA in Forest Management Companies in Indonesia.

The findings of a study conducted by Robert McCorquodale and Justin Nolan (2021) found that there has been a rapid increase in the number of state, regional and international regulations that require or encourage businesses to perform HRDD. The application of HRDD varies greatly both in terms of scope and consequences, so it can affect its effectiveness.

This is in line with and complements the findings of the results of this study, where the respondents answered that they knew enough about the concept of HRDD. This shows that, in general, the concept of human rights assessment obligations in the context of forest management has been understood so that it will not be an obstacle in the implementation at the site level, and of course, this is in line with the increase in the number of regulations and standards that require companies to implement HRDD. Companies with a strong leadership commitment to ethical and sustainable practices, including HRDD and SIA, are more likely to integrate these processes effectively. Leadership determines the direction of the company's responsibility and sustainability.

Based on MENLHK regulation number 8 of 2021, companies/permit holders have the obligation to utilize forest areas that provide optimal environmental, social, and economic benefits without reducing the main function of forests. This is in line with the findings in the analysis above, where the effectiveness of the implementation of HRDD and SIA can affect the company's performance in the eyes of the government.

Economic Implications of the Implementation of HRDD and SIA on Forest Management Operations in Indonesia.

Based on previous research conducted by Björn Fasterling (2017), it was shown that the proper implementation of HRDD requires modification of objectives and strategies, costs, and risks of human rights due diligence for business companies which can create obstacles that most business companies may not want to overcome, for example, human rights impact assessments will require a heavy burden in terms of data collection and, Also, can recommend financially burdensome mitigation measures.

This is in line with the findings of this study. Based on the data and information obtained, respondents provided information that the resources owned by the organization were insufficient to implement HRDD. These findings show that many organizations face constraints in terms of resources, especially financially, to implement effective HRDD. Therefore, to address these challenges, it is necessary to explore ways or strategies to mobilize resources, increase capacity, and collaborate among
stakeholders to ensure that organizations have the necessary means to integrate HRDD and SIA into the forestry certification process.

CONCLUSION

The integration of HRDD and SIA implementation in sustainable forest management certification in Indonesia has a multifaceted impact on environmental and social performance. The success of this integration depends on the effectiveness of implementation, stakeholder collaboration, and a comprehensive certification commitment. Companies with strong leadership toward ethical and sustainable practices are more likely to integrate HRDD and SIA processes effectively. While it requires an initial investment, the long-term economic impact of this sustainable practice is positive. The implications of this research are important for the management of companies, governments, stakeholders and certification bodies. Companies need leadership commitment, integration into operations, transparency, and a robust monitoring mechanism. Governments must strengthen regulatory frameworks, increase institutional capacity, and encourage community engagement and international collaboration. Stakeholders and certification bodies should be actively involved in the HRDD and SIA processes, with rigorous training for auditors and assessments that take into account local knowledge. This research is limited to aspects of forest management in Indonesia and specific periods, so further research with specific case studies and economic impact analysis is recommended.

BIBLIOGRAPHY


Kartika, P., Hariyadi, & Cerdikwan. (2020). The Programme for the Endorsement of Forest Certification (PEFC) and Its Contribution to Sustainable Forest Management in Indonesia. In *Sustainability*


© 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (https://creativecommons.org/licenses/by-sa/4.0/).