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BEYOND ENVIRONMENTAL CONTROVERSY: OIL PALM CULTIVATION AS CATALYSTS FOR SUSTAINABLE PEACE POST-CONFLICT OF DARUL ISLAM IN INDONESIA

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ABSTRACT

This study examines how oil palm plantations allocated as “peace compensation” to former Darul Islam combatants have contributed to conflict transformation and sustainable peacebuilding in Aceh Tamiang, Indonesia. Employing a qualitative approach, the research combines participatory observation, in-depth interviews with twenty informants, and documentary analysis. The focus is on two plantation companies, PT. Mapoli Raya Group and PT. Parasawita. Findings indicate that oil-palm cultivation functions simultaneously as an economic driver and as a catalyst for durable peace. In this context, the plantations have facilitated conflict transformation across four interrelated dimensions: (1) Personal transformation, reflected in the creation of stable livelihoods and a reduction in poverty; (2) Relational transformation, manifested through strengthened social networks between ex-combatants and local communities; (3) Structural transformation, marked by a shift from a purely agrarian to an agrarian-industrial economy that addresses underlying welfare-related conflict drivers; and (4) Cultural transformation, which, although still incomplete with respect to environmental concerns, has promoted the adaptation of plantation-based livelihoods within an agrarian heritage. By challenging dominant narratives that portray oil-palm solely as a source of social and ecological harm, this study demonstrates its potential to facilitate reintegration, enhance social cohesion, and reduce economic disparities in post-conflict settings, thereby contributing to sustainable positive peace. The findings enrich broader debates on the role of natural-resource management in post-conflict transformation, especially in regions afflicted by prolonged armed conflict.

KEYWORDS: Post-Conflict Transformation, Oil Palm Plantations, Reintegration, Formers Combatants, Sustainable peacebuilding, Social Landscape, Economic Landscape, Social Cohesion.

1. INTRODUCTION

This study examines the role of oil palm plantations in Aceh Tamiang, provided as 'peace compensation' following the Darul Islam conflict (1953–1962), in facilitating conflict transformation and fostering sustainable peace. Darul Islam conflict is famous known as DI-TII conflict. In Aceh context, it was an Acehnese rebellion movement against the Government of the Republic of Indonesia, led by Teungku Muhammad Daud Beureueh in 1953¹. The DI-TII upheaval was resolved through a peace agreement in 1959 between the DI/TII Revolutionary Council and the Indonesian government, which resulted in Daud Beureueh ceasing his rebellion in 1962 (Formichi, 2012; Munadia & Umar, 2022). Subsequently, the Indonesian government offered plantation land to former DI/TII leaders at low prices as a form of 'peace compensation' in Aceh Tamiang District (the district was formerly included in East Aceh District before the division) and North Sumatra Province. In this case, A. Gani Mutiara, a DI/TII elite, took the opportunity to establish the PT Parasawita plantation business with the status of Cultivation Rights Title (Hak Guna Usaha - HGU) issued in 1965 (Bahany AS *et al.*, 2022). As with Muhammad Sati, the compensatory plantation developed into PT Mapoli Raya Group Plantation. According to information from the local community, compensation was given to DI/TII members who could recover economically and live an everyday life like ordinary civilians. Ngatimin, a veteran fighter from the Republic of Indonesia, **said**

"...Around 1957, the government pardoned the DI-TII rebels, and they were not prosecuted thereafter. Mr Muhammad Sati was originally the treasurer of the Battalion 435. Mr Sati got a share of Mopoli Raya, and A Gani Mutiara, the DI-TII Minister of Finance, got a share of PT Parasawita. The aim was to accommodate the men of Battalion 435, which numbered around 400" (Interview Ngatimin, 2023).

The existence of oil palm plantations in the Aceh Tamiang District, run by former DI/TII movement fighters, has changed the social and economic landscape of the surrounding community, including former DI-TII soldiers. This reality can be seen as a conflict transformation towards positive peace, where oil palm plantations have become a medium

of interaction and negotiation space for former conflict actors.

Many studies have shown that oil palm plantations are an essential commodity that contributes to peace and the achievement of sustainable development; therefore, they are seen as a thriving engine of development in Southeast Asia (Pye, 2019). Oil palms minimize poverty, provide decent work, and increase economic growth (Adhariani & Afrizal, 2021; Kepe & Suah, 2021; Mol, 2017). It positively impacts social aspects (Ayompe *et al.*, 2021; Suryaningsih *et al.*, 2023). In post-war contexts, oil palms can be relied upon to bring peace and strengthen reintegration in some former conflict areas (Gordon *et al.*, 2020; Nirzalin *et al.*, 2023).

In Indonesia, the history of oil palm development has various motives, including oil palm farming interventions, which have significant implications for smallholder livelihoods and rural economic development (Zen *et al.*, 2016). The New Order government used oil palm cultivation for three decades to improve rural socio-economic welfare. Government policy was implemented through small-scale oil palm plantations (nucleus plantations) and assistance programs for individual farmers. Plantation companies operate the "nucleus plantation" system. Nucleus plantations are encouraged to develop plasma smallholders, including management, technology, land clearing, planting services, input provision and processing. Commercial companies provide these activities through 2-3 ha plasma farms. Since the late 1970s, the government has encouraged plantations to develop plasma products. In return, the government provided companies with access to subsidized capital for oil palm development (Zen *et al.*, 2006).

The existing literature confirms that oil palm cultivation in Indonesia plays a multifaceted role in strengthening post-conflict peace and fostering economic development in Aceh. Nevertheless, comprehensive research examining sustainable post-conflict peacebuilding through oil palm cultivation remains limited. Previous studies generally indicate that oil palm cultivation contributes to improving the economic well-being of ex-combatants and reducing poverty and crime rates (Nasution *et al.*, 2021). However, the broader transformation of the social and economic landscape within local communities

¹ The main reason for the rebellion was the Acehnese people's disappointment with the Indonesian government, which prevented Aceh from running its government based on Islamic Sharia and merged the Aceh region into North Sumatra Province on January 23, 1951 (Djumala, 2013; Missbach, 2012). Aceh, with its Islamic spirit, became a "capital region" for Indonesian

independence, both in resisting colonialism and financing the administration of the Indonesian government in the early days of independence (Miller, 2008; Munhanif, 2016). The people of Aceh contributed \$500,000 to the Indonesian government to continue the Indonesian struggle in the early days of independence (Pane, 2001).

particularly in ways that can foster sustainable, positive peace has received insufficient scholarly attention.

This study challenges the prevailing assumption that oil palm plantations inherently generate social and ecological harm. While a substantial body of research documents the association between oil palm cultivation and social conflict, deforestation, biodiversity loss, and environmental degradation (Adhariani & Afrizal, 2021; Austin et al., 2015; Berenschot et al., 2022; Kepe & Suah, 2021; Levang et al., 2016), the post-war context in Aceh reveals a more nuanced reality. In this setting, oil palm plantations have contributed positively to peacebuilding by facilitating social reintegration and strengthening social cohesion. These findings suggest that, under certain socio-political conditions, oil palm cultivation can serve not only as an economic driver but also as a catalyst for durable peace.

2. LITERATURE REVIEW

This study investigates the extent to which the historical designation of a “land of war” shapes the transformation of social and economic landscapes in ways conducive to sustainable peace, interpreted through the theoretical framework of conflict transformation. In the case of Aceh Tamiang a region formerly characterized by armed resistance the transition of former Darul Islam/Tentara Islam Indonesia (DI/TII) combatants from insurgent actors to participants in a sustainable economic enterprise, specifically the palm oil sector, illustrates a model of reintegration that advances positive peace. This transformation unfolds within a context where state authority interacts with local agency, producing what Long (2003) conceptualizes as a sphere of “social interaction,” wherein values, interests, and conflicts intersect, negotiate, and adapt through the interplay of governmental influence and community agency.

Conflict transformation breaks the sources of conflict by changing relationships, interests, discourses, and even societal regulations that are carried out comprehensively, from small to more significant changes (Miall, 2004). Effective post-conflict transformation requires a comprehensive approach to forestall the re-emergence of violence and to eradicate various manifestations of harm against both human populations and the natural environment (Sharifi & Simangan, 2021). Such transformation is normatively underpinned by the universal principles of well-being, justice, equality, and freedom, which are recognized as fundamental human rights (Barash & Webel, 2021).

Lederach (2014) proposes a holistic framework for conflict transformation encompassing four interrelated dimensions. The personal dimension centres on mitigating the destructive effects of conflict while enhancing individual capacities for growth at physical, emotional, and spiritual levels. The relational dimension seeks to reduce harmful patterns of interaction and communication, fostering mutual understanding and trust among stakeholders. The structural dimension addresses the underlying causes of violent conflict by promoting nonviolent mechanisms, establishing systems that meet basic human needs, and ensuring inclusive public participation. Finally, the cultural dimension emphasizes recognizing and engaging with cultural patterns that may perpetuate violence, while mobilizing cultural resources to transform conflict constructively.

The operationalization of conflict transformation necessitates the engagement of multiple stakeholders including governmental institutions, private sector actors, and civil society organizations in advancing social justice imperatives (Allen & Friedman, 2021; Visoka, 2020; Watkins & Lowery, 2023). In post-conflict contexts, reconciliation processes, equitable natural resource governance, and sustainable economic initiatives collectively contribute to reshaping both social and economic landscapes. Social landscapes are subject to transformation through processes of globalization, environmental change, and societal reconfiguration, reflecting complex and dynamic interactions between socio-political and spatial factors (Feola, 2015). Addressing the structural roots of vulnerability particularly inequalities in resource access, insecure land tenure, and weakened social networks is crucial for sustaining peace. Given the complexity of the social and political challenges in post-conflict contexts, such efforts require robust and coordinated support from government, the private sector, and non-governmental organizations (Mangun et al., 2018; Miklian & Medina Bickel, 2020).

Similarly, economic landscapes are influenced by natural, social, and economic drivers (Mameno et al., 2022). In Aceh Tamiang, the establishment of two major oil palm enterprises has generated substantive socio-economic change, creating opportunities for livelihood enhancement while simultaneously introducing new governance and equity challenges. Negotiated arrangements between policymakers and local communities have given rise to reciprocal forms of social exchange, shaping both cooperative behaviors and patterns of resource distribution.

Transformations in the physical environment

influence not only ecological relationships but also the modalities of social interaction and the construction of communal identities (Butler & Sarlöv-Herlin, 2019). Consequently, post-conflict reintegration should be understood as a multidimensional process aimed at cultivating shared values, expanding social networks, and strengthening interpersonal trust (Endris *et al.*, 2020; Leff, 2008) to build robust social cohesion (Darmenova, Yuliya and Koo, 2021; Kilroy & S. A. Basini, 2018). The affective dimension manifested in the preservation and nurturing of emotional bonds remains central to the success of reintegration initiatives (Mpanje *et al.*, 2018; Sánchez-Arrieta *et al.*, 2021). In this regard, Lederach's framework provides a robust foundation for addressing the structural, relational, personal, and cultural dimensions of conflict, thereby enabling constructive transformation, restoring fractured relationships, and establishing the conditions for durable peace.

3. METHODS

3.1. Research Location (Study Sites)

The research was conducted in Aceh Tamiang Regency, Aceh Province, Indonesia. **Site selection was guided by two primary criteria** 1) the regency hosts dispersed oil palm plantation zones operated by PT Mopoli Raya, owned by Muhammad Sati, and PT Parasawita, owned by A. Gani Mutiara; and 2) these plantations have served as key socio-economic platforms for the reintegration of former combatants from the Darul Islam/Tentara Islam Indonesia (DI/TII) movement into civilian life within the framework of the Unitary State of the Republic of Indonesia.

Field access was secured through formal coordination with local governmental authorities and company representatives. Initial field activities involved meetings with village heads to present the research objectives and obtain community endorsement, followed by consultations with the management teams of both companies. Prior to participation, all prospective informants received a comprehensive briefing on the study's objectives, scope, and ethical protocols, thereby ensuring informed consent and voluntary involvement in accordance with prevailing research ethics standards. Participants were explicitly informed of their right to withdraw at any time without repercussions, and of the open access nature of the forthcoming publications. After the interviews, each informant was asked to confirm whether the data could be published openly or whether the use of pseudonyms, disconnected from their personal

identities, was required. This procedure aimed to alleviate any concerns about disclosing sensitive experiences and to safeguard the confidentiality of participants. In this study, all informants understood and agreed to the full research process up to the publication stage; consequently, no anonymisation of names, locations, or data was deemed necessary. The researchers affirm that the data will be employed solely for the research purposes expressly approved by the informants. Should any participant request deletion or withdrawal of their data at any point, the request will be promptly honoured without objection.

3.2. Data Collection Approaches and Techniques

This qualitative study employed descriptive-analytical techniques that integrated both primary and secondary data. Primary data were gathered via participatory observation, in-depth interviews, and documentary analysis. Secondary data were sourced from a systematic review of diverse published and unpublished scholarly materials, including reports issued by governmental and non-governmental organisations.

Participatory observation: Data collection was conducted through the researcher's direct presence with the study participants. In this investigation, the researchers traversed the oil palm plantation sites and the adjacent villages where plantation workers reside. Systematic observation and detailed field notes captured phenomena, actions, and events pertinent to the research problem over a period of one month. When appropriate, the researchers engaged in informal, spontaneous conversations in Acehnese, Javanese, and Indonesian regarding community activities. The purpose of these dialogues and of the observations was to construct a comprehensive understanding of local social practices, especially those linked to the operations of oil palm companies and their socio-economic impacts on the surrounding community.

In other words, participatory observation aims to maximize the sociological imagination of a community (Benson & O'Reilly, 2022). In addition, participatory methods help identify people who need to be in a stronger position to be used as key informants for the study. Therefore, to fill in the gaps, participatory observation helps balance the information in the field (Bowd & Özerdem, 2016).

In-depth interview: In-depth interviews were conducted to collect information on the participants' knowledge, values, perspectives, ideas, and experiences. Some informants were actors identified as information-rich figures during the observation activities (Lucas, 2014), while others were

determined purposively using a snowball technique as the research progressed. The interviews aimed to obtain information on 1) the process of the establishment of PT Parasawita and PT Mapoli Raya Group and their existence so far; 2) the process of transformation and changes that occurred in the lives of the community with the presence of the two plantations; and 3) the implications of the presence of plantations in strengthening post-conflict reintegration. Interviews were conducted in a structured and semi-structured manner (Spradley, 2016). The researcher used a recording device to document the information (Suarez & Baines, 2022).

This study engaged informants from seven distinct categories, purposively selected to ensure comprehensive, source-validated data. A total of 20 informants participated. Two informants representing company management supplied information on operational procedures, corporate policies, and the broader socio-economic context of the plantation area. Five plantation workers offered direct insights into working conditions, the social environment, and daily dynamics on the plantation site. Three village leaders and officials contributed knowledge of local social structures, governance, and plantation-related dynamics at the community level. Another three local community members represented civil-society perspectives on the plantation's social, economic, and cultural impacts.

Table 1: List of Informant Categories and the Number Interviewed.

No.	Informant Categories	Number of Informants
1	Company manager	2 informants
2	Workers in the company	5 informants
3	Formal leaders at village level	3 informants
4	Communities around the plantation	3 informants
5	Individuals or groups identified as having affiliations and links with DI/TII groups	3 informants
6	Community and traditional leaders	1 informant
7	Historical experts will confirm and enrich data related to the DI/TII movement in the past	3 informants
Source: Field documentation, 2023		

Three individuals with connections to the DI/TII movement provided crucial historical information concerning the presence and traces of the plantation in the region; among them, one served as a traditional or community leader with authority over local customs and wisdom, thereby enriching the cultural-historical context. Finally, three specialist historians with expertise in the DI/TII movement played a key role in verifying historical data and establishing an accurate chronological framework.

The informant roster is detailed in the table 1.

Study of Documents: This study employed documentary analysis as a source of primary and secondary data (Cardno, 2019). The documents reviewed included: 1) government-issued materials, such as plantation HGU (land use rights), certificates, and related spatial data; 2) company publications detailing land use allocation for plantations, housing, and social-development initiatives; and 3) media reports concerning the plantations operated by the two companies. All selected documents were pertinent to the research problem.

3.3. Data Analysis Techniques

The data analysis procedure followed an inductive approach, consistent with the data collection strategy. Analyses were conducted iteratively according to the framework proposed by Patton (2014) as follows: 1) pattern identification by detecting recurring elements within the collected data; 2) theme compilation by grouping data into themes that reflect salient characteristics; 3) relational mapping by examining inter-conceptual relationships to derive interpretative insights from the interactions among data points; and 4) interpretation and synthesis by assigning meaning to the findings and formulating concluding statements that encapsulate the entire analytical process.

4. RESULTS

4.1. Company profile of PT Parasawita

After peace was established between the DI/TII group and the Indonesian government, A. Gani Mutyara established a rubber and oil palm plantation company in the Sungai Iyu area of Aceh Tamiang District called PT Parasawita. Initially, the company's land was a former Dutch plantation nationalized into government ownership by A. Gani Mutyara and PT Parasawita, and proliferated. He took care of the company's deed of establishment so that the state would recognize its legality. The Deed of Establishment No. 16 and Deed of Amendment No. 47, dated November 19, 1962, were issued by Notary Panusunan Batubara. The deed of establishment and its amendments were approved by the Minister of Justice of the Republic of Indonesia under decree No. J.A.5/20 dated February 1, 1963, and published in the supplement of the State Gazette of the Republic of Indonesia No. 101 supplement No. 482/1964 dated December 18, 1963. The deed of establishment has been amended multiple times. The latest deeds are No. 02 and 03, dated October 19, 2015, by Notary Aslely Asrol, SH. It has been registered and recorded in the Legal Entity Administration system of the

Ministry of Law and Human Rights of the Republic of Indonesia with Number AHU-AH.01.03-0973732 dated October 21, 2015 (Bahany AS *et al.*, 2022).

The plantation area of PT Parasawita on March 1, 2017, was ± 685.89 Ha with HGU No.83, valid until 2040. Companies that buy Fresh Fruit Bunches (FFB) from outside parties are coordinated by cooperatives around the plantation location and companies that own other oil palm plantations around PT Parasawita's plantation (Bahany AS *et al.*, 2022). A. Gani Mutyara's success in managing his plantation is inseparable from his disciplined and professional character. His discipline and professionalism in overseeing the plantation can be observed from Yusrizal, **A. Gani Mutyara's adopted son, as follows**

"...A. Gani Mutyara was a very disciplined person. He was very professional when it came to managing the company's finances, so among his own family, A. Gani Mutyara was known as a "stingy" person. He would never give money to his relatives, but he would give goods according to their needs if they asked him. " ... His professionalism is also seen when he places his trusted younger brother as the company's supervisor. However, he still treated his brother professionally, the same as other people, including providing salaries and work facilities..."

Yusrizal added

"There was a will left by A. Gani Mutayara before he passed away. He died on July 20, 1993. He intended to distribute the produce from his garden to his immediate family. They received 10 million per month from the distribution process. It was only later that the family regretted saying "stingy" to A Gani Mutyara."

Another development strategy was to build a head office in Medan, a city experiencing rapid development, which he thought would also impact the development of his plantation. The success of managing PT Parasawita led A. Gani Mutyara to venture into other businesses and made him an influential and respected figure in Medan City (Bahany AS *et al.*, 2022).

4.2. Company Profile of PT Mopoli Raya Group

PT Mapoli Raya Group is a private company engaged in oil palm plantations and processing. PT Mapoli Raya Group was established on 17 December 1980 by three principal founders: H.A Basyah Ibrahim, H. Muhammad Sati, and Mustafa Sulaiman. Initially, the forerunner of PT Mopoli Raya only had one rubber plantation company, PT Darma Agung, owned by Muhammad Sati. The company operated until 1973. At that time, the area of PT Dharma Agung was only 137 ha. Subsequently, PT Darma

Agung was converted into an oil palm plantation. In 1980, Mapoli Raya Group succeeded in acquiring land from other companies located in Aceh Tamiang District until the formation of the Mopoli Raya Group (Interview Sumarno, Plantation Assistant of PT Mapoli Raya Group, 2023).

According to Nastain, Unit One Manager of PT Mapoli Raya Group (interview, 2023), PT Mopoli Raya Group succeeded in establishing eleven subsidiaries engaged in the palm oil sector and managing 9,732.33 ha of oil palm land. The oil palm plantation areas owned by the Mopoli Raya Group and its subsidiaries are spread across Aceh Province and North Sumatra, Indonesia. The company's main office is located in Medan City, Jalan Sunggal No 91, Medan City. The area of oil palm plantations owned by PT Mopoli Raya and its subsidiaries in Aceh Province is 6,678.76 Ha, and in North Sumatra Province, it is 3,053.57 ha. The planted area is under several companies that have joined a business group coordinated by PT Mopoli Raya, the parent company. The factory is located in Aceh Tamiang Regency due to near the source of raw materials, availability of labor in the vicinity of the project site, as well as transport facilities are quite good.

Mopoli Raya Group, in its activities, has a vision of "Becoming a high-performing and sustainable company with a strong agribusiness base in the region." The missions of Mopoli Raya Group are as follows: a) managing an integrated oil palm plantation business to produce sustainable palm oil; b) managing productive and efficient rubber plantations that are environmentally friendly; and c) managing and developing professional human resources in the plantation sector that benefit all stakeholders. In its operations, this company manages oil palm production, fresh fruit bunches (FFB), crude palm oil (CPO), palm kernel (PK), and kernel (Interview Sumarno, 2023).

4.3. Changes in Social Landscape

PT Mopoli Raya has several times carried out the process of transferring the HGU (Hak Guna Usaha - Cultivation Rights Title) land it manages, both for the benefit of the company and for the benefit of PT Mapoli Raya Group employees and the general public by building several public facilities. This program began with the establishment of employee housing in each afdeling under the management of each subsidiary company. There are two types of employee housing construction. First, houses for employees who serve as afdeling assistants, and second, houses for employees whose positions are under the auspices of afdeling assistants. This

housing is located in a particular area called "Pondok." The determination of the land area used for the cottage adjusts to the capacity of the employees. The housing lodge is adjacent to community housing so that the surrounding community can also feel the public facilities built.

Housing and public facilities are the responsibility of the company and its management. Employees who live in the housing and those who use the facilities have the right to use them, not the right to ownership (Interview Nastain, unit one manager of PT Mapoli Raya Group, 2023).



Figure 1: Employee Cottage House.

Source: Field Documentation, 2023.

The company builds public facilities, such as sports fields, houses of worship, schools, and road transportation facilities. The location of these

facilities is adjusted to the community's needs so that their existence benefits the community.



Figure 2: Sports.

Source: Field documentation, 2023.

In addition, PT Mapoli Raya Group built sports fields and public road facilities that connect regions. The company manages these facilities, including their maintenance. Although the company builds several public roads, the government maintains them.

Land is released for public interest through a series of processes, from the government's submission to the agreement to release the land from

the company. Meanwhile, the land transfer for the company's benefit was construction of an oil palm mill in Block 53 of the Gedong Biara Plantation. This process occurred within one year, from 1984 to 1985 (Interview with Sumarno, Plantation Assistant of PT Mapoli Raya Group, 2023).

The same is true for PT Parasawita, owned by A Gani Mutiara. He allowed the community to occupy the company employees' houses in the Sungai Iyu

Plantation Village. In addition, Gani Mutiara gave 6 hectares of his plantation land to be used as rice fields managed by the residents of Sungai Iyu. When the land was transferred to PT Rapala, it was closed and planted with oil palms. He also donated 1.1 hectares of land to construct an elementary school and a football field. During the conflict, the school building was built through the Special Allocation Fund and now serves as PT Rapala's fertilizer shed. PT Parasawita did not disturb the existence of the four graves of influential scholars (Tgk Rencong, Tgk Tinggi, Tgk Nibong, Tgk Abid). Group Mopoli Raya and PT Parasawita have good relations with the surrounding communities. Even if problems occur, they are still within reasonable limits, such as the theft of palm fruit by the community (Interview with Salimin, 2023).



Figure 3. Public Road.
Source: Field documents, 2023.

In this context, in contrast to the presence of PT Kapuas Sawit Sejahtera in Kapuas District, Central Kalimantan Province, it has only a limited impact on the community's social and economic system. It does not contribute to or directly influence village infrastructure or facilities, such as road improvements, schools, and community health centers (Puskesmas). Consequently, conflicts between the company and the community have occurred, resulting in the company's inability to operate normally and incurring losses (Yasin *et al.*, 2023).

4.4. Changing Economic Landscape

Before the establishment of oil palm plantations, the inhabitants of Aceh Tamiang derived their livelihood primarily from rice cultivation, rubber plantations, trade, and fisheries. Rice represented the main source of household income, while many community members worked on rubber estates that had originally belonged to Dutch colonial enterprises and, after independence, were managed by the

VOC successor PT Sutanaga Co. Following independence, the rubber concession was transferred to former members of the DI/TII. In addition, a considerable portion of the population was engaged in the fishing sector; the coastal location of Aceh Tamiang allowed residents to exploit marine resources for daily subsistence.

The advent of two oil palm plantation companies generated a marked economic transformation in the Aceh Tamiang region. The most immediate effect was the absorption of labour across a wide skill spectrum, from technical experts to ordinary field workers. The surrounding community became involved in all stages of plantation operations, giving rise to a variety of new employment opportunities, including the establishment of new estates and nurseries, planting, maintenance, and harvesting (Interview Sumarno, 2023). During the first decade of PT Mapoli Raya Group's activity (1980–1990), production was labour-intensive, and the company found it relatively easy to recruit locals eager to work for the plantation.

"..... In the 1980s, it was easy to work in a factory or on a plantation because Mopoli had just acquired other small companies, and the factory had just been built. If a kampong person wanted to ask for a job from the assistant or foreman of the plantation foreman, they would usually try to get in and work right away...." (Interview Usmanden, community leader, 2023).

The company not only employs the community but also opens exceptional opportunities for the children of employees who will work in the company. This was done because the company needed a lot of labor during the plantation expansion period. Company workers then follow a career path during their work. The initial stage starts with daily workers or casual laborers in the company environment until they are appointed as permanent employees of the company (Interview Salimin, 2023).

The wages received by workers vary depending on the type of work they perform. Wages are paid daily, weekly, or monthly. Administrative or managerial employees are generally paid on a fixed monthly basis. Meanwhile, wages for laborers are based on daily work. Mopoli Raya Group applies special provisions for the receipt of wages for company employees in several components as follows: Firstly, the basic wage is the primary compensation paid to employees according to the level or type of work. The amount is determined based on the agreement. The basic salary is determined based on company regulations and

adjusted to government regulations regarding provincial minimum wages.

Secondly, a fixed allowances and non-permanent allowances. A fixed allowance is regular pay for employees with the basic wage. In practice, the fixed allowance provided by Group Mopoli Raya is the distribution of in-kind rights (cashed rice). In addition to fixed allowances, Group Mopoli Raya will also provide non-fixed allowances for its employees. Non-permanent allowances are payments given on a non-permanent basis and are not paid at the same time as the basic wage. Generally, these allowances or premiums are related to attendance, such as transport or meal allowances (Interview Sumarno, 2023). These premiums and bonuses also have distribution provisions according to the performance of each employee working under the Mopoli Raya Group. **The following table shows the premiums provided by the Mopoli Raya Group**

Table 2: The Structure of the Distribution of Other Rights Received by Employees (Fruit Harvester Premiums).

No.	Kind	Sum	Information
1	Basic Salary/ Day	IDR 101,000.00	Worker
2	Natura Worker	15 kg	1 Worker
3	Natura Wife	9 Kg	1 Worker
4	Natura Kids	8 kg	3 Dependents of Workers' Children
5	Attendance Premium	IDR 2,500.00	Daily Data Collection
6	Complete Work Premium	IDR 10,000.00 / 1000 Kg	Workers complete bulk tasks per day.
7	Premium > 1000 – 1250 Kg	Rp. 110,00 / Kg	Overtime incentive if they have completed the harvest volume
8	Premium > 1250- 1500 Kg	Rp. 120,00/ Kg	Overtime incentive if they have completed the harvest volume
9	Premium > 1500- >2000	Rp. 135,00/ Kg	Overtime incentive if they have completed the harvest volume

Source: Field documentation, 2023

The table above depicts the distribution of supplemental entitlements received by fruit harvesters. These entitlements comprise a fixed salary component, volume-based incentives, and family allowances. For the basic salary, each worker is paid a daily wage of IDR 101,000, which constitutes the primary source of income. **In-kind allowances are allocated on a tiered basis** 15 kg for the worker, 9 kg for the spouse, and 8 kg for each child. In the illustrative case shown, the household consists of one worker, one spouse, and three dependent children.

Consequently, the total in-kind allowance per worker amounts to 48 kg (15 kg + 9 kg + 3 × 8 kg), enabling the incorporation of caloric and nutritional considerations into the welfare analysis.

An attendance bonus of IDR 2,500 is granted for each day worked, as recorded through daily monitoring, thereby incentivising punctuality. Regarding the work-completion premium, every 1,000 kg of harvested fruit that is successfully processed yields an additional IDR 10,000. For instance, a worker who harvests 2,500 kg in a single day receives a premium of IDR 25,000 (2,500 kg × IDR 10,000 / 1,000 kg).

Three volume-bonus tiers apply to yields exceeding 1,000 kg: 1,001–1,250 kg: IDR 110 per kg; 1,251–1,500 kg: IDR 120 per kg; and 1,501–2,000 kg: IDR 135 per kg. The premium rate escalates progressively across these intervals.

The combination of basic salary, in-kind benefits, attendance bonus, work-completion premium, and volume incentives yields a multidimensional remuneration structure. Table 2 therefore presents a transparent and quantifiable mechanism for allocating additional entitlements to fruit harvesters. This structure integrates fixed components (daily wages, in-kind benefits) with productivity-based incentives (work-completion and volume bonuses) while also reflecting socio-cultural considerations through allowances for spouses and children. The proposed compensation model can serve as a reference for agricultural remuneration practices that prioritize worker welfare and enhance production efficiency.

Table 3: Other Rights Sharing Structure Employees Receive (Fertilization and Pest Treatment Premiums).

No.	Kind	Sum	Information
1	Basic Salary/ Day	IDR 101,000.00	Worker
2	Natura Worker	15 kg	1 Worker
3	Natura Wife	9 Kg	1 Worker
4	Natura Kids	8 kg	3 Dependents of Workers' Children
5	Attendance Premium	IDR 2,500.00	Daily Data Collection
6	Complete Work Premium	IDR 10,000.00 / Block Completed	Workers complete bulk tasks per day.

Source: Field documentation, 2023

The structure of additional entitlements awarded to employees engaged in fertilisation and pest-control activities comprises the following components 1) Basic remuneration. Each worker receives a daily wage of IDR 101,000, which

constitutes the fixed portion of income and ensures daily economic stability for the workforce; 2) Attendance bonus. An amount of IDR 2,500 is paid for every day the worker is present and duly recorded in the daily data-collection system. This incentive promotes punctuality and transparent attendance monitoring; 3) **In-kind food allowance. Rice is allocated on a tiered basis** 15 kg for the worker (the primary food allowance), 9 kg for the spouse, and 8 kg for each child (three dependents in the illustrative case). Providing food in kind reflects the agricultural context, where it constitutes a vital component of compensation and reduces household living costs; and 4) Work completion premium. A block (a unit of work area in fertilisation or pest-control) is rewarded with an additional IDR 10,000 upon successful completion. For example, completing three blocks in a single day yields a premium of $3 \times \text{IDR } 10,000 = \text{IDR } 30,000$. **This premium operationalises the principle of performance-based remuneration** the greater the number of blocks processed, the higher the supplemental reward, thereby motivating productivity and operational efficiency.

The interaction between fixed wages (basic salary, in-kind benefits) and variable incentives (attendance bonuses, block premiums) creates a multidimensional remuneration structure. By covering the nutritional needs of workers, spouses, and children, the in-kind component addresses basic welfare, while the block premiums provide positive feedback that encourages faster and higher-quality execution of fertilisation and pest-control tasks. Consequently, this integrated compensation model aligns with internationally recognised performance-based remuneration practices, balancing social welfare considerations with production efficiency in the agricultural sector.

Finally, the piece-rate wage system. The piecework system is a method of remuneration in which the amount of services is determined based on the volume of work and the duration of the work. This wage system only applies to casual daily laborers (*Buruh Harian Lepas - BHL*) (Sumarno interview, 2023). According to Casimir (2020), piecework wages are a system of paying wages for work based on the number of units produced and not based on time spent. This system is seen as a solution for optimal employee performance and reduction of inefficiencies.

In addition, to improve the community's economy, the Mopoli Raya Group also has a unique program for the plantation community, namely the release of part of the HGU land it controls for the

social interests of the surrounding community, which includes being used for rice fields/rice planting following the agricultural culture of the local community, community settlements, and the establishment of Marlempang State Elementary School. PT Parasawita acquired 34 ha of land in Tempok Tinggi and Paya Rakan villages for paddy fields and 3 ha for constructing Elementary School in Marlempang Village, Aceh Tamiang. A total of about 37 ha for social interests. It differs from the plasma program, in which the state requires every company that obtains a plantation HGU to provide a portion of land to the community (at least 20%) of the land area controlled to plant the same crops as those developed by the company. Every oil palm plantation company is obliged to cooperate with surrounded communities by establishing plasma plantations of at least 20% of the area of the core plantation (Li & Semedi, 2021; Rahayu *et al.*, 2022). In addition, the company also released about 40 hectares of HGU land for village development, which became known as Bukit Kapal Village.

5. DISCUSSION

The existence of two oil palm plantations owned by former DI/TII Movement leaders in Aceh Tamiang has resulted in social and economic changes for the surrounding community. These changes can be seen as a form of transformation that has implications for strengthening post-conflict reintegration and sustainable peace.

The aspects of transformation analysis explained in Lederach's concepts (Lederach, 2014) first, transformation in personal and community aspects. The existence of plantation land presents employment opportunities that former DI/TII combatants can utilize to have a job and a steady income. Ex-combatants and the surrounding community can work on the two plantations. Projects like this can minimize poverty and crime rates (Nasution *et al.*, 2021). It also helps to realize a sense of prosperity and wellbeing. Moreover, helps realize a sense of wellbeing, justice, and equality (Barash & Webel, 2021).

Similar benefits are also felt by the local community, which depends on the agricultural world. Communities previously close to the world of agriculture only needed a little time to adapt when they became part of plantation company workers. It aligns with Kusakabe and Chanthoumphone (2021), state that a good livelihood and investment system must suit to the area's context and history. According to Turner *et al.*, (2015), livelihood systems are so closely linked to the location context that they

criticize livelihood analysis approaches that focus only on access to materials and capital and ignore local distinctiveness.

An important implication of this personal and community transformation is avoiding destructive behaviour and the lack of criminal behaviour. Simply put, cases that have the potential to trigger conflict no longer occur because the presence of palm oil companies has encouraged the development of personal and community potential for economic and social empowerment. As a result, reintegration has occurred with oil palm development, and ex-combatants have been spared from engaging in labour that contravenes state law to support themselves, their families, and their dependents (Torjesen, 2013).

Second, transformation in the aspect of improving relations. Relationship transformation minimizes destructive forms of communication in social interactions that can threaten sustainable peace. The existence of oil palm has created good relations and networks between ex-combatants and the community. The intensity of interaction in carrying out oil palm development makes ex-combatants reintegrate, becoming part of civil society. Social solid relations have implications for strengthening reintegration (Mpanje et al., 2018; Sánchez-Arrieta et al., 2021). The concept of social reintegration essentially also includes strengthening families, guaranteeing sustainable employment, and providing civic responsibility. Reintegration does not only focus on economic strengthening (Bowd & Özerdem, 2016; Kaplan & Nussio, 2018).

Third, structural transformation. It can be seen from the transformation process resulting from changes in the community's economic system, from an agrarian society to an agrarian-industrial society, which results in changes in social structure and social norms. In other words, the oil palm plantation industry not only opens up new jobs for the community but also promotes changes in the economic system that encourage structural changes. This kind of structural transformation is part of the effort to address the root causes of conflict related to welfare issues. It fosters a new economic structure that fulfils basic human needs (Lederach, 2014).

Finally, transformation in the cultural aspect. This transformation calls for a change from a culture of violence to peace culture. The activity aims to eliminate the culture of violence and identify cultural resources helpful for constructive conflict. In the context of the development of oil palm plantations, there has yet to be a cultural change as desired by this concept. The culture of violence against the natural

environment continues due to oil palm development. However, this research found other essential aspects of the Aceh Tamiang community's culture related to peaceful oil palm development. Socio-culturally, the people of Aceh Tamiang are an agrarian society, so they easily adapt to the presence of oil palm plantations. The case of the farming community in South West Cameroon can be an essential lesson. They opposed the intention of a US-based company to establish an agro-industrial oil palm plantation in their region because the land investment in the form of a plantation was not structured, negotiated, and implemented with a cultural approach. The investment was perceived to pose a series of threats to the ecological, cultural, and economic stability of farming communities that depend on land and forest resources for their livelihoods (Ndi, 2017).

In this case, the socio-economic changes in the Aceh Tamiang community can lead to peaceful conditions, no more wars, and all forms of violence. The economic impact of the expansion of oil palm plantations is reducing the economic gap between the upper, middle, and lower classes (Suryaningsih et al., 2023). As an essential commodity, oil palm contributes at minimizing poverty, providing job diversification, and adding to economic growth (Ayompe et al., 2021). However, sustainable palm oil management is vital to reduce threats to natural resources and other potential problems, such as deforestation, land expansion using environmentally unfriendly methods, and damage to peat ecosystems (Miklian & Medina Bickel, 2020; Pesqueira & Glasbergen, 2013).

The transformation driven by oil palm expansion in Aceh Tamiang, when underpinned by rigorous oversight, inclusive community engagement, and robust environmental governance, holds significant potential as a foundation for sustainable peace. The success of this transformation is not solely gauged by conventional economic metrics but is also assessed through the enhancement of inter-community relations, the advancement of social equity, and the prioritization of environmental stewardship, collectively forming a multidimensional framework for enduring peace. Key indicators of progress include a marked decline in both the frequency and intensity of violent incidents. Since the 1962 peace agreement, there have been no recorded acts of political violence carried out in the name of the DI/TII movement, underscoring the efficacy of arms control mechanisms. The successful implementation of the Disarmament, Demobilisation, and Reintegration (DDR) programme further signals the state's capacity to facilitate the peaceful transition of

former combatants into civilian life a development that strengthens state legitimacy and fosters public trust. Political stability, supported by inclusive governance structures capable of enacting legitimate decisions and providing platforms for dialogue with marginalized groups, reinforces local agency and ownership of peace processes. Economic security is evidenced by a narrowing poverty gap and rising per capita income, reflecting a trajectory toward sustainable and equitable development. Finally, social reconciliation and community cohesion are manifested through high levels of social trust and positive perceptions of transitional justice, which collectively serve as essential prerequisites for building a resilient and lasting peace.

6. CONTRIBUTIONS AND IMPLICATION

This study offers a novel contribution to the literature on post-conflict peacebuilding by demonstrating that oil palm cultivation often criticized for its environmental and social harms can, under specific socio-political conditions, serve as a catalyst for personal, relational, structural, and cultural transformation that consolidates sustainable peace. In particular, the study makes an important theoretical contribution to the literature on conflict transformation by demonstrating how Lederach's four dimensions personal, relational, structural, and cultural operate simultaneously and interactively within a single case of post-conflict reintegration. While previous studies have often examined these dimensions separately, the Aceh Tamiang case reveals how they reinforce one another in practice, producing a more holistic process of transformation. Moreover, the findings extend the framework by integrating the role of natural resource-based industries, such as oil palm, into the core of peacebuilding theory, showing that economic drivers are not merely background conditions but active agents shaping both structural and cultural change.

Empirically, the study offers rare and contextually rich evidence from Southeast Asia, documenting the transformation of former combatants from violent resistance to economic participation in a post-conflict environment where state authority is negotiated rather than imposed. The case illustrates how the oil palm sector can act as a catalyst for social and economic change, influencing patterns of resource governance, community identity, and intergroup relations. In doing so, it contributes to the global comparative literature on post-conflict recovery by providing insights into the specific dynamics of resource-based economies in regions emerging from prolonged conflict.

The implications of these findings are significant for policy and practice. Sustainable peace in resource-rich post-conflict settings requires more than the creation of employment opportunities; it demands equitable distribution of benefits, inclusive governance arrangements, and sensitivity to local cultural values. The Aceh Tamiang experience demonstrates that the private sector can play a constructive role in peacebuilding when embedded within multi-stakeholder governance structures that foster trust, cooperation, and mutual accountability. Economic initiatives, when designed with cultural and relational dimensions in mind, can become powerful platforms for rebuilding fractured social networks and consolidating the foundations of durable peace.

7. CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

This study demonstrates how oil palm plantations, initially given as 'peace compensation' to former DI/TII combatants in Aceh Tamiang, Indonesia, have served as an effective medium for conflict transformation and sustainable peacebuilding. The establishment of two large oil palm plantations, PT Mapoli Raya Group and PT Parasawita, **has successfully transformed the social and economic landscape of Aceh Tamiang through four dimensions of conflict transformation** personal, relational, structural, and cultural. The companies have created significant employment opportunities, improved infrastructure, and fostered social cohesion. It can change the ideology of actors involved in the DI/TII conflict to transform and realize positive peace.

In addition, the study highlights that successful post-conflict transformation requires comprehensive approaches that address both economic and social dimensions. The companies' initiatives in building public facilities, providing employment opportunities, and maintaining good community relations have contributed to sustainable peacebuilding efforts. However, while the economic and social benefits are evident, future research should examine the environmental implications of oil palm expansion in post-conflict regions and explore sustainable management practices that balance economic development with environmental conservation. These findings contribute to the broader understanding of how natural resource management can be effectively utilized in post-conflict transformation and peacebuilding efforts, particularly in regions with historical armed conflicts. While this study provides important

insights into the role of oil palm cultivation in post-conflict transformation, several limitations should be acknowledged. First, the research focuses on a single case study in Aceh Tamiang, which, while rich in contextual detail, limits the generalizability of the findings to other post-conflict settings with different socio-political, ecological, and cultural dynamics. Second, the analysis primarily draws on qualitative data, which, although effective for capturing nuanced social processes, could be complemented by longitudinal quantitative measurements of economic, social, and environmental indicators to assess long-term impacts. Third, this study centers on plantations owned by former combatants, and therefore does not address the potentially divergent outcomes in contexts where ownership and management structures differ. Finally, while the research incorporates Lederach's (2015) four-dimensional framework, it does not fully explore how external market forces, global sustainability standards, and transnational governance mechanisms interact with local peacebuilding processes.

Future research could address these limitations in several ways. Comparative studies across multiple post-conflict regions could test the applicability of the findings beyond Aceh Tamiang, identifying the socio-political and environmental conditions under which oil palm cultivation fosters or undermines peace. Mixed-methods research combining ethnographic fieldwork with economic and environmental impact assessments would strengthen the evidence base and illuminate causal pathways. Additionally, future work could examine the role of supply chain actors, certification schemes such as the Roundtable on Sustainable Palm Oil (RSPO), and government policy frameworks in shaping the peacebuilding potential of resource-based industries. Finally, research exploring community-driven sustainability models and participatory governance approaches could generate practical strategies for ensuring that economic recovery through oil palm cultivation aligns with environmental protection and social equity, thereby enhancing the durability of post-conflict peace.

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