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# **Palm Oil Development in Riau, Indonesia: Balancing Economic Growth and Environmental Protection**

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## **Abstract**

Indonesia is the world's top producer of crude palm oil, and this strategic commodity has boosted the nation's economic growth. The palm oil industry expanded significantly following the launch of the Perkebunan Inti Rakyat (PIR) transmigration program by the Indonesian government during the Suharto era. In the 1980s the PIR program brought many Javanese transmigrants to Riau to cultivate palm oil, helping Riau Province become Indonesia's largest producer of palm oil, accounting for almost one fifth of national production in 2018. The growth of the palm oil industry has spurred economic growth in Riau while also contributing to an increase in environmental degradation, deforestation, forest fires, and the risks associated with land use change, leading to a clash of narratives between pro-palm oil coalitions and environmental groups.

Drawing on evidence from Riau, this study investigates the competing claims of groups touting economic growth and others decrying environmental degradation. To what extent does the palm oil industry drive economic growth

and affect environmental conditions in Riau? How do we account for the lack of sustainability policies implementation in Indonesia? This study includes qualitative data obtained from smallholders in eight villages in Riau as well as the perspectives of provincial NGOs, researchers, and government representatives. This study finds that the economic benefits enjoyed, and risks encountered, by smallholders are highly variable with a different balance of outcomes in each village. Many smallholders claim that palm oil harvests have improve their economic situation while also acknowledging environmental problems. However, they argue that economic necessity leaves them no choice but to join the palm oil boom. The government has played a contradictory role by facilitating the growth of the palm oil sector and encouraging it to meet production targets while also passing sustainability policies and imposing moratoriums to respond to local, national, and global pressures.

**Keywords:** palm oil production, economic growth, environmental protection, sustainable development, Indonesia



# 1 Introduction

Indonesia is the world's top producer of crude palm oil and this strategic commodity has boosted its economic growth. The Indonesian palm oil industry has been steadily growing since the early 1980s as a result of the Perkebunan Inti Rakyat (PIR) transmigration program<sup>1</sup>, which established productive links between smallholders and large plantation companies. Indonesia is the world's biggest producer and exporter of palm oil, with total exports of crude palm oil (CPO) and its derivatives totaling some 34.6 million tons ("BPS records", [2019](#)). The palm oil industry has contributed significantly to the improvement of Indonesia's balance of trade. The government of Indonesia has promoted the industry, citing economic growth indicators, job creation and poverty alleviation, while actively challenging what it claims are negative campaigns and illegal protectionist policies on the part of Indonesia's competitors. However, the development of the palm oil industry has provoked debate between the proponents of economic growth and green environmental coalitions. Palm oil production unquestionably brings economic benefits, jobs, and revenues to provinces like Riau, while at the same time, the unchecked expansion of the industry has caused significant environmental damage such as deforestation, haze, and natural habitat loss, as well as frequent fires. The Indonesian government has undertaken several green growth policies in an attempt to mitigate damage, hoping to bridge these two conflicting interests by allowing the continuation of the economic growth engendered by the palm oil industry while also preserving the environment. For example, the Indonesian Sustainable Palm Oil (ISPO) standard is a green growth policy designed to increase production while limiting environmental degradation, but environmental groups question the effectiveness of this policy and, more generally, the sustainability of the palm oil industry.

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<sup>1</sup> Transmigration is a government program to relocate people from densely populated areas to less densely populated ones. The official aim is to increase welfare and reduce poverty. Under the PIR Transmigration Program transmigrants were granted land for housing and plantations (Welianto & Nailufar, [2019](#)).

Riau province has produced CPO more than any other provinces in Indonesia. Large-scale production originated in the North Sumatra Province, but Riau has recently emerged as the largest single CPO producing area in Indonesia, supplying 7,722,564 tons in 2017, or just over one fifth of total national CPO production (Statistics Indonesia, [2018a](#), p. 21). Riau has a greater palm oil plantation area than any other Indonesian province, with some 2.26 million hectares or 18.37% of the nation's total in 2017. Palm oil plantations are nearly ubiquitous within this province of 9 million hectares (Riau Provincial Government, [2019](#)). One-quarter of Riau is effectively covered by monocrop plantations of various types and sizes, not counting Riau's large illegal trade.

As one of Indonesia's biggest CPO producers, the Riau Province has become locked into a form of dependency on plantations, but still suffers from sub-optimal development within this strategic economic sector. Some 514,620 people live below the poverty line (Statistics Riau, [2018](#)), and the new governor, Syamsuar, acknowledges that Riau still lacks adequate infrastructure. For instance, 55.18% of its roads are in poor condition, and Riau's environment quality index is the lowest in Sumatra (Yonavilbia, [2019](#)). Considering these facts, the contribution of the palm oil industry to Riau's economic growth and development is important, but its pros and cons are complex and should be scrutinized, especially in regard to persistent environmental problems.

Drawing on data which has been collected in Riau, this study investigates the competing claims of those espousing economic growth and those concerned about environmental degradation. To what extent does the palm oil industry drive economic growth and affect environmental conditions in Riau? How do we account for the lack of sustainability policies implementation in Indonesia? For this study, in addition to governmental data and research statistics, qualitative data has also been obtained from smallholders in eight villages in Riau as well as perspectives from provincial NGOs, researchers, and government representatives. The results indicate that the economic benefits enjoyed by smallholders are highly variable, with a different balance of outcomes in each village. Many smallholders claim that palm oil harvests improve their economic situation while also acknowledging environmental problems. However, they argue that economic necessity leaves them no options but to join the palm oil boom and replanting agenda. The government plays a contradictory role by both encouraging and facilitating the growth of the palm oil sector while also passing sustainability policies and imposing moratoriums in response to local, national, and global pressures.



## 2 Economic Growth, Environmental Protection, and Sustainable Development

States have fundamentally contradictory imperatives when it comes to economic growth and environmental protection. Governments need to increase economic growth and generate revenues; states, companies, and trade associations find necessary legal cover to defend and uphold commercial interests, arguing that they provide necessary infrastructure, investment, facilities, and services for businesses to thrive they ultimately benefit communities. There is a form of functional dependency between the capitalist state and the capitalist economy: states must provide an environment in which wealth can be increased and jobs produced, but at the same time must respond to concerns about environmental damage caused by capital accumulation through commercial activities (Eckersley, [2004](#)).

In managing the palm oil industry, the Indonesian government faces a dilemma. On the one hand, the government facilitates the growth of the palm oil industry through programs such as the PIR-Trans, building the capacity of smallholders, giving financial support through the Indonesian Palm Oil Estate Fund (Badan Pengelola Dana Perkebunan Sawit; BPDP), and engaging in palm oil diplomacy to counter negative campaigns by concerned groups such as Greenpeace and the Indonesian Environmental Forum (Wahana Lingkungan Hidup Indonesia; WALHI). The government also plays a crucial role in providing licenses and permission to establish plantations in forest areas, whether these are granted locally by village heads, mayors and governors, or nationally by the National Land Agency and the Ministry of Environment and Forestry. Some licenses and permits are given by powerful but irresponsible actors in the government. For instance, Annas Ma'mun, the former governor of Riau, was sentenced to six years in prison for accepting bribes on a forest conversion of 1,118 hectares in Kuantan Sengingi District and 1,214 hectares in Rokan Hilir District (Dipa, [2015](#); Halim, [2015](#)). The government also provides health and environmental protection in Riau. When an outbreak of forest fires occurs, such as the crisis in 2015, the authorities spent 385 billion rupiah to extinguish fires in six provinces (Kusumawati, [2015](#)).

Governments face a dilemma, on the one hand they try to promote economic growth, on the other hand they get pressure from environmental groups to protect environment which might slow the economic growth. At certain stages of development, the high rate of economic growth is quickly followed by high rates of environmental degradation, but officials are reluctant to protect the environment lest it negatively affect economic growth. The underlying assumption is that the relation between economic growth and environmental

protection is a zero-sum game (Eckersley, [2004](#)). Many developing countries still depend on the exploitation of natural resources, and the environment is usually sacrificed for the sake of generating jobs and revenue. Economic growth for developing countries, democratic or authoritarian, is a significant form of legitimation and stability.

The emergence of sustainable development challenges the underlying assumption of the zero-sum game. Sustainable development should enable the state to pursue economic growth and to protect the environment concurrently. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This concept contains two main elements: needs and limitations. There are the essential needs of the world's poor, which should be prioritized, and the critical limitations imposed on states so they can continue to meet present and future needs, as the public trust doctrine implies (United Nations, [1987](#)).

Green growth is a related concept that offers a practical and flexible approach for achieving concrete, measurable progress across economic and environmental domains while taking full account of the social consequences of the growth dynamic of economies (Organisation for Economic Co-operation and Development [OECD], [2018](#)). According to the OECD, "green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies." Indonesia's National Development Planning Agency (BAPPENAS) has a similar definition that emphasizes sustainable economic development. Green growth as a paradigm can be defined as green policies, innovation and investments that drive sustainable economic development. Green growth as an approach suggests that Indonesia can achieve sustainable development by protecting and valuing the often economically invisible natural assets that have underpinned economic success over the centuries (Global Green Growth Institute, [2014](#)). Indonesia now has a green growth roadmap for its national development, and palm oil is included in that map.

### **3 The Palm Oil Industry's Economic Contribution to Riau**

The government, along with palm oil companies and trade associations, has generally promoted the benefits of palm oil production by focusing on economic growth, job creation and poverty alleviation. This subsection reviews the specific benefits the palm oil industry brings to Riau. According to Statistics Riau ([2019c](#)), Riau's gross regional domestic product (GRDP) increased 94% from 2010 to 2018 (see Table 1). Most of Riau's GRDP comes from three areas:



mining and extraction; agriculture, forestry, and fisheries; and the processing industry. The palm oil industry contributes significantly to Riau's GRDP. The bunches of fresh fruit that are harvested and processed to make palm oil contribute to "agriculture, forestry, and fisheries," while the refinery process contributes to the industrial sector (see Tables 1 and 2).

**Table 1.** Palm Riau's Gross Regional Domestic Product (GRDP) from 2010 to 2018

<b>Year</b>	<b>Riau's Total GRDP (billion rupiah)</b>
2010	388,578.23
2011	485,649.34
2012	558,492.72
2013	607,498.45
2014	679,395.86
2015	652,761.63
2016	681,699.03
2017	704,797.58
2018	755,274.29

*Note.* From Statistics Riau ([2019c](#))

**Table 2.** Contribution of Three Strategic Sectors towards Riau's Total GRDP (Million Rupiah)

Year	Mining and Extraction	Contribution to Riau's PDRB (percentage)	Processing Industry (percentage)	Contribution to Riau's PDRB (percentage)	Agriculture, Forestry, and Fisheries	Contribution to Riau's PDRB (percentage)
<b>2010</b>	126,754.70	33%	93,533.89	24%	91,152.77	23%
<b>2011</b>	189,902.42	39%	107,243.25	22%	99,561.48	21%
<b>2012</b>	235,437.55	42%	115,048.88	21%	106,538.79	19%
<b>2013</b>	256,395.34	42%	124,879.98	21%	115,444.55	19%
<b>2014</b>	268,819.88	40%	141,874.68	21%	133,550.01	20%
<b>2015</b>	201,796.80	31%	155,685.92	24%	144,218.91	22%
<b>2016</b>	191,970.57	28%	168,241.90	25%	156,234.41	23%
<b>2017</b>	182,685.67	26%	178,829.42	25%	165,933.35	24%
<b>2018</b>	210,105.12	28%	185,198.80	25%	169,487.75	22%

*Note.* From Statistics Riau ([2019c](#))

Tables 1 and 2 show that Riau still depends on natural resources as a main source of income and revenue. Riau depends mostly on the mining and extraction sector, but there has been some volatility with a considerable amount of yearly variation while other sectors have been increasing steadily since 2010. CPO productivity grew continuously from 2010 to 2017, and Riau's CPO contributed nearly a quarter of total national production (Table 3). The economic value of the CPO from Riau is significant. For instance, the total export value of CPO from the port of Dumai amounted to nearly US\$ 1.8 billion in 2016 and US\$ 2.5 billion in 2017 (Statistics Indonesia, [2019a](#)). More of Indonesia's CPO is shipped through the Dumai port than any other.



**Table 3.** Crude Palm Oil Production in Riau and Indonesia, 2010–2017

<b>Year</b>	<b>Riau Province Total Production (tons)</b>	<b>National Production (tons)</b>	<b>Percentage of Riau's Production towards National Production</b>
<b>2010</b>	5,495,968	22,496,857	24%
<b>2011</b>	5,748,867	23,995,973	24%
<b>2012</b>	6,384,537	26,015,519	25%
<b>2013</b>	6,646,997	27,782,004	24%
<b>2014</b>	6,993,241	29,278,189	24%
<b>2015</b>	7,333,610	31,284,306	23%
<b>2016</b>	7,425,108	31,487,986	24%
<b>2017</b>	7,722,564	34,468,293	22%

*Note.* Compiled from Statistics Indonesia ([2011](#), [2012](#), [2013a](#), [2014](#), [2015](#), [2016](#), [2017a](#), [2018a](#))

The Riau Province does not directly receive any of the substantial taxes imposed on palm oil exports. These taxes are collected by the Indonesian Oil Palm Estate Fund (BPDPE), which collected 14.2 trillion rupiah in 2017 (Nurfatriani et al., [2018](#)). The central government then distributes funds nationally through the BPDPE-KS for employment and poverty alleviation. Based on the unemployment rate data shown in Table 4, the unemployment rate in Riau Province fluctuates widely from year to year. It decreased gradually from 2009 to 2012 but then increased gradually from 2013 to 2015. The unemployment rate went down again in 2016, and this positive trend continued through 2018. The steady increase in CPO production in Riau has created no corresponding reduction in the unemployment rate.

**Table 4.** Unemployment Rate in Riau Province

<b>Year</b>	<b>Unemployment rate (percentage)</b>
<b>2009</b>	8.72
<b>2010</b>	7.21
<b>2011</b>	7.17
<b>2012</b>	5.17
<b>2013</b>	5.48
<b>2014</b>	6.56
<b>2015</b>	7.83
<b>2016</b>	7.43
<b>2017</b>	6.22
<b>2018</b>	6.20

*Note.* From Statistics Indonesia ([2019b](#))

The population in Riau was over 5.3 million in 2009 (Statistics Riau, [2014](#)) and 6.7 million in 2018 (Statistics Riau, [2019b](#)), with growth driven largely by migrant workers mostly from Java island, North Sumatra and West Sumatera. Seven to ten percent of those living in Riau are classified as poor (Table 5). Despite the palm oil boom, there has been no steady trend of poverty reduction in the last decade.

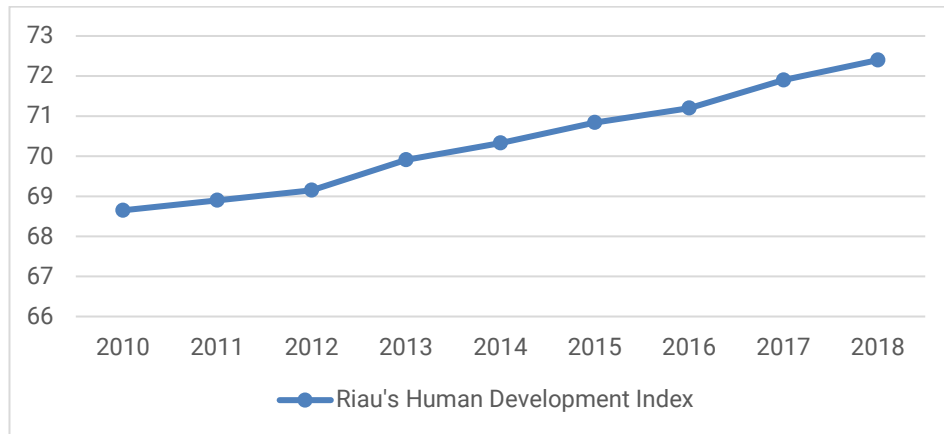
**Table 5.** Poor People in Riau Province

<b>Year</b>	<b>Poor People (thousands)</b>
<b>2009</b>	527.50
<b>2010</b>	558.00
<b>2011</b>	472.45
<b>2012</b>	476.46
<b>2013</b>	511.47
<b>2014</b>	498.28
<b>2015</b>	531.39
<b>2016</b>	515.40
<b>2017</b>	514.62
<b>2018</b>	484.34

*Note.* From Statistics Indonesia ([2013b](#)), Statistics Riau ([2019a](#))

Riau is marking positive progress, according to the Human Development Index (HDI)<sup>2</sup> (see Figure 1), which increased steadily from 2010 to 2018; the HDI average of Riau is slightly higher than Indonesia's national average, though the HDI gap between districts within Riau is still wide. The gap between the city of Pekanbaru and the Kepulauan Meranti Regency, for instance, was 15.43 points in 2018 (HDI scores of 80.66 and 65.23, respectively).

**Figure 1.** Riau's Human Development Index



*Note.* Adapted from Statistics Indonesia (2018c)

The HDI heat map of Riau suggests that development is concentrated in the provincial capital of Pekanbaru, whereas the palm oil plantations, mills, and refineries are mostly located outside Pekanbaru (see Figure 2). For example, Rokan Hulu and Indragiri Hilir, the first and third largest palm oil plantation areas, respectively, have HDI scores below 70, far below the provincial average.

<sup>2</sup> The Human Development Index is a “summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and having a decent standard of living” (United Nations Development Programme, 2019, para. 2).

**Figure 2.** Human Development Index Map in Riau



*Note.* From Statistics Indonesia ([2018c](#))

#### **4 The Palm Oil Industry and Environmental Degradation in Riau**

This section examines the environmental impact of the palm oil industry in Riau Province. It cannot be assumed that environmental degradation is caused only by the development of the palm industry since there are other industries, such as mining, pulp, and paper production, which also cause land use change and emissions. However, the rapid growth of the palm oil industry is creating clear patterns of expansion, with companies and smallholders utilizing ever greater forest and land areas for palm oil production. Land use change and deforestation trends are depicted in Table 6, while tree cover loss data is given in Figure 3, which shows that Riau lost 3.61 million hectares of tree cover between 2001 to 2017 (Global Forest Watch, [2019](#)).



**Table 6.** Net Deforestation Rate Riau, Inside and Outside Forest (ha/year), 2009 to 2016

Year	The Forest Remains	Conservation		Total Deforestation
		Production Forest	Other Use Area	
<b>2009 - 2011</b>	93,637.3	26,534.6	-	120,171.9
<b>2012 - 2013</b>	3,358.3	3,878.8	5,292.2	5,812.7
<b>2013 - 2014</b>	172,122.5	8,664.0	21,152.9	201,939.4
<b>2014 - 2015</b>	119,666.7	4,647.8	11,216.1	135,530.7
<b>2015 - 2016</b>	14,956.0	3,409.6	5,825.4	24,191.0

*Note.* Compiled from Statistics Indonesia ([2017b](#), [2018b](#)), Ministry of Environment and Forestry ([2019](#))

**Figure 3.** Tree Cover Loss in Riau from 2009 to 2018 (million hectares)



*Note.* From Global Forest Watch ([2019](#))

According to the Global Forest Watch ([2019](#)), palm oil represents the largest plantation area by species in Riau (over 3 million hectares), covering around one-third of the province's total land area. By comparison, timber plantations, the second largest type in Riau, cover less than one million hectares. The expansion of palm oil plantations continues, although President Joko Widodo passed a moratorium on palm oil plantation permits in September 2018 (Inpres. 8/[2018](#); Saputra & Saif, [2018](#)). It seems unlikely that this Presidential Instruction will stop or reduce illegal forest encroachment by criminals, land grabbers, or smallholders. The moratorium policy began under former president Susilo Bambang Yudhoyono to preserve primary forest and peatland. Based on the data in Table 6, it temporarily slowed the deforestation rate in 2012–2013, but it shot back up in 2013–2014. According to Figure 3, loss of tree cover remains high.

Burning the forest is the easiest and cheapest way to clear land to start plantations, but at great cost to the environment and public health. Such fires have been linked to land use change resulting from the expansion of plantations and are believed to be negatively impacting weather patterns and air quality index. Forest fires produce hazardous emissions and haze, cause acute respiratory infections, school and airport closures, and various forms of economic loss to Riau Province and other area in Indonesia, as well as neighboring countries such as Malaysia, Singapore, and Thailand. According to Table 7, Riau experienced large-scale forest fires in 2015; 183,809 hectares were burned, and the haze from Riau affected neighboring countries. Indonesia's plantation-linked forest fires are a major transnational political issue. According to the National Disaster Management Agency, Indonesia spent around 500 billion rupiah to extinguish forest fires in 2015, leading to a loss that the World Bank ([2016](#)) estimates to be US\$ 16.1 billion, or equivalent to 1.9% of Indonesia's 2015 GDP. The World Bank estimates this loss is almost equal to Indonesia's total 2015 palm oil exports, which amounted to US\$ 18.64 billion (Hasan, [2016](#), para. 5).

**Table 7.** Forest and Land Fires in Riau

<b>Year</b>	<b>Ha (thousands)</b>
<b>2014</b>	6,301.10
<b>2015</b>	183,808.59
<b>2016</b>	85,219.51
<b>2017</b>	6,866.09
<b>2018</b>	37,220.74
<b>2019</b>	17,290.66

*Note.* From Ministry of Environment and Forestry ([2019](#))

Riau's 2015 air quality data, the year of the wildfire and haze crisis, is not included in the annual reports from Statistics Indonesia. Considering the scale of forest and peat fires in 2015, Riau's air quality index would almost certainly have been rated as unhealthy, very unhealthy, or hazardous. The Ministry of Health ([2015](#)) reported the pollutant standard index (PSI) of Riau in September and October 2015 was 1,074 and 602 respectively, where a PSI measure above 300 is categorized as hazardous. These indicators suggest that locals almost certainly suffered serious health effects (Badan Meteorologi, Klimatologi, dan Geofisika, [2019](#); The World Air Quality Project, [2019](#)). Another fire outbreak occurred in September 2019, causing similar problems. The PSI in in Riau spiked to 603 on September 13 according to AirVisual apps ("Kualitas udara Pekanbaru", [2019](#)).



## 5 The Experience of Smallholders and Villagers in Riau

The information in this section is based on qualitative data gathered in face-to-face interviews with smallholders and villagers from eight villages in Riau: Air Buluh, Beringin Jaya, Bukit Raya, Dosan, Lubuk Kembang Bunga, Rawa Mekar Jaya, Segati, and Sotol. From our observations, most of the villagers own or work on palm oil plantations and other types of agribusinesses. We conducted interviews with villagers in areas that are difficult to access to learn about the local perspective of the economic benefits and environmental challenges caused by the development of the palm oil industry and new patterns of investment and land use change. Generally speaking, villagers and smallholders say that the palm oil industry brings them economic benefits. Regular monthly income is generated from the selling of harvests (fresh fruit bunches) to *tauke*,<sup>3</sup> which creates jobs and increases standards of living (as measured by purchasing power and patterns of consumption). There is also a downside to this local cash crop economy, with a rise in debt, price volatility, food insecurity and related risks (Tyson et al., 2018).

A smallholder farmer in Dosan village said his life improved when he started producing palm oil (personal communication, May 26, 2018). He had previously depended on the rubber plantation he owned, but his income as a rubber tapper was uncertain and the price of rubber decreased significantly in the 1990s. He now earns 3 million rupiah per month from 3 hectares planted with oil palm trees. This earning is higher than the provincial minimum wage (UMP) in Riau which is 2,662,026 rupiah per month (Pejabat Pengelola Informasi dan Dokumentasi Provinsi Riau, 2018). Two villagers in Bukit Raya report economic benefits from the palm oil industry, but for different reasons. They claim that their income has increased because the price for fresh fruit bunches (FFB) in their village is higher in other, nearby villages (personal communication, July 12, 2018). These farmers can get 1,800 rupiah per kg, which is almost double the price received by villagers in other parts of Riau. There are at least two reasons why the price of FFB in Bukit Raya is comparably high. First, the palm oil plantation is nearer to the mill, and second, the quality of their harvest is superior because the smallholder farmers have a partnership agreement with the company which buys their yield, and the company provides some technical support to help them grow oil palm trees with better quality. One hectare can yield 2 tons of FFB per month. A farmer who has 2 hectares can produce 4 tons of FFB per month and can sell them for around 7,200,000 rupiah. Independent smallholder farmers who are not part of a cooperative or do not have partnership agreements

3 *Tauke* are “middlemen” who buy fresh fruit bunches (FFB) from farmers and resell them directly to mills. The farmers cannot sell their FFB directly to mills because only traders who have a letter of permit issued by the mills can do so.

with companies will not get optimum prices for their harvest. They may depend on the *tauke* and cannot supply their FFB harvests directly to companies.

Two smallholder farmers in Segati village claim to sell their FFB yield for 1,000 rupiah per kg (personal communication, July 14, 2018), much lower than in Bukit Raya because they do not have a partnership agreement with any companies and they plant the oil palm trees using self-taught methods, which are less efficient, leading to inferior harvests. Despite the low-quality products and low prices, many people in Segati village still seem to live in relative prosperity. Land availability means that a typical villager owns approximately 5 hectares of palm oil producing land. As 1 hectare can produce 3 tons of FFB, a family can earn approximately 15,000,000 rupiah per month, enough to live comfortably so long as earnings and risks are managed well (which is not always the case).

The positive economic impact of palm oil is also enjoyed by people in Air Buluh village. A smallholder farmer living in Air Buluh claimed that palm oil production increased village incomes compared to previous livelihoods based on producing rubber or timber (personal communication, July 13, 2018). Many villagers have a cooperation agreement with a company which manages their plantation and pays them on a quarterly basis (every three months). These villagers only average 600,000 rupiah per month, considerably less than other villages in Riau. The farmer we interviewed also mentioned that the palm oil industry is a good source of income for people individually, but contributes nothing to the village income<sup>4</sup>, which raises questions about the nature of rural development in plantation areas.

A villager in Rawa Mekar Jaya notes that villagers who sell palm oil can increase their income, although villagers who do not own land struggle to meet their basic needs because they depend on occasional labor on plantations, helping with harvests or cleaning the palm oil plantation (personal communication, July 11, 2018). The plantation owners can get 1,500,000 rupiah per month from 1 hectare, and most people in Rawa Mekar Jaya own 1 to 1.5 hectares per family.

A smallholder farmer in Beringin Jaya confirmed that villagers earn higher incomes from palm oil plantations (personal communication, July 12, 2018). He compared the living standards in his village before and after the expansion of palm oil plantations and claimed that prior to the palm oil boom people found it difficult to meet basic needs and were forced to live on corn and cassava, whereas they now regularly eat rice. In addition, there are more opportunities to send their children to school. The farmer criticized the role of the company operating near his village, however, as the company's only contribution is to purchase FFB from farmers, without making significant contributions to village development.

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4 "pendapatan asli desa"





Most of the smallholders we interviewed said that they have a better standard of living and higher incomes because of the palm oil trade and express little concern about their vulnerability to price shocks, even though even minor setbacks could reduce them to absolute poverty. When the price of palm oil goes up, they enjoy higher incomes and a sense of progress, but when prices plummet, they barely earn enough for subsistence. One smallholder in Segati village recounts that the price of FFB once fell as low as 500 rupiah per kg (personal communication, July 14, 2018). Selling yields at this price is not profitable and is only enough to pay people to harvest the yields (labor costs), leaving the small-scale landowners with nothing.

The positive narrative of how the palm oil industry promotes job creation and improves rural livelihood has elements of truth, but many people still live precariously. When job creation is discussed, it generally refers to decent jobs that are sustainable for communities. However, as the smallholders in Riau face difficulties in selling their yields with fluctuating prices means the stability of their lives is always risky and unstable. Low-skilled jobs in the plantations that involve land clearing and bi-monthly harvesting are tenuous, with no guarantees of regular salaries or health insurance or savings opportunities.

With regards to the future of palm oil plantations in village Riau, most smallholders have no plans beyond replanting oil palm trees (the productive life of a typical oil palm is 25 years), although several smallholders indicated they would consider planting alternative crops if they could outperform palm oil (pricing, income). At present, alternative commodities are limited. Some farmers in Riau are planting chili peppers, and in 2018 the price of chili was higher than palm oil fruits, but the risk is high because chilis are particularly vulnerable to crop failure. The Riau Forest Foundation (Yayasan Hutan Riau) has been assisting communities in Air Buluh to plant a sustainable resin producing crop known as *jernang*.<sup>5</sup> The resin from *jernang*, known as dragon's blood, is generally more valuable than CPO, but there is not yet a well-established, stable market for this medicinal commodity (Yayasan Hutan Riau, Pekanbaru, personal communication, July 10, 2018).

When the discussion about the future turned to environmental issues, many interviewees claimed to experience negative impacts from palm oil development, including water scarcity, rising temperatures, forest fires, and hazardous haze as well as attacks from elephants, orangutans, wild boars, and tigers (caused by habitat destruction and expansive land clearing). A smallholder

<sup>5</sup> *Jernang* is a plant from Sumatra and Borneo. The extraction of *jernang* resin contains compounds with medicinal potential. Tests apparently show that ingredients in the resin have valuable biological and pharmacological properties such as antimicrobial, antiviral, antitumor, and cytotoxins. It is potentially a high demand commodity for markets in China, Hong Kong, and Singapore (Saifuddin, Nahar, and Mawardi, 2017).

in Air Buluh complained that the river flow to his village was degrading and some of the protected forests around the village had been cleared for plantations (personal communication, July 13, 2018). A smallholder in Segati village described how palm oil mills around the village were allegedly causing river pollution because of mill effluent directly entering the river and killing fish stocks (personal communication, July 14, 2018). A villager in Beringin Jaya reckons that most of the environmental degradation is caused by a mill operating near his village (personal communication, July 12, 2018). Having the waste tank and chimney of a mill near a village suggests zoning and planning irregularities. Air pollution from such a mill could easily cause respiratory ailments. A smallholder in Segati village describes rising temperatures, which may affect the long-term productivity of palm oil plantations (personal communication, May 26, 2018). Two smallholders in Bukit Raya also report the same experience: the temperature in their village is getting hotter, and they are having difficulties with the water supply (personal communication, July 12, 2018). It is ironic that as they earn more money from agriculture, they must now spend extra money on water and basic provisions.

Female villagers in the women's working group known as Perempuan Batang Nilo near the Tesso Nilo National Park reported encroachment and illegal land use inside the park (personal communication, July 19, 2018). The National Forest is supposed to be protected and cannot be used for commercial farming, and yet people have been found to live there and plant oil palm trees for personal gain. This claim is consistent with an investigation conducted by Mongabay journalists (Zamzami, [2018](#)). Toro Jaya is an example of an encroachment case where an entire village has been established inside Tesso Nilo, with some 4,500 families in this village controlling tens of thousands of hectares. The government declared Tesso Nilo as a National Park in 2004, a move unpopular with some local communities. Law enforcement in the area remains weak, and an insufficient number of forest rangers cannot cover the whole Park.

Based on our interviews and observations, critical ambiguities surround palm oil plantations. The actual benefits to smallholders are variable, and the risks are not that well understood. The income from the palm oil trade is unstable with earnings differing widely from village to village. Outcomes largely depend on the plantation model, whether individual or cooperative (in partnership with companies, known as nucleus-plasma schemes). People are particularly vulnerable when prices go down, and they risk defaulting on loans. Despite the financial risks and environmental dangers, most smallholders feel they have little choice but to keep their plantations and continue planting oil palm trees. They have yet to be presented with viable alternatives and remain locked into models of rural development premised on land use and agrarian practices.



## 6 Government Promotion of Sustainability

The debate over green agriculture and sustainable development in Indonesia will continue as long as the palm oil trade remains lucrative, provides returns on investment, and significant indicators of national income and employment remain positive. Banning palm oil production or boycotting products because of environmental concerns would be radical measures and probably would do little to solve the problems of this industry. Such measures could even lead to worse outcomes because millions of people depend on this industry and would probably find new ways to keep producing without certification or oversight. The government actively promotes the Indonesian Sustainable Palm Oil (ISPO) policy as an industry standard and as a counter to the negative campaigns against Indonesian palm oil and has also formally listed its palm oil industry under the United Nations' Sustainable Development Goals. During the Warsaw Humanitarian Expo held in June 2019 for the achievement of the SDGs 2030 agenda, Indonesia presented the theme "Indonesian palm oil and its contribution to SDGs" (Gibbons, [2019](#)). The ISPO is the main sustainability policy which the government has put forth to reduce greenhouse gas emissions, a commitment which has been written into Indonesia's Intended Nationally Determined Contribution, in which it has pledged to reduce emissions by at least 29% by 2030 (Republic of Indonesia, [2015](#), p. 2).

Through this ISPO policy, the government can actually protect the business sector by countering negative campaigns with a firm plan for sustainable palm oil production. The government has also lobbied other countries to recognize the ISPO standard to secure an international market for palm oil while responding to pressure from environmental coalitions, like Greenpeace and others, who have criticized the practices of the rapidly expanding industry as unsustainable. Astari and Lovett ([2019](#)) have written that several stakeholders, especially international and national NGOs, remain skeptical about the ISPO, while other stakeholders, including palm oil companies, auditors, private consultants, and academics have expressed doubt about the ISPO as a standard for sustainable palm oil production. For instance, several important issues such as peatland conversion and high conservation value are not sufficiently covered by the ISPO, which seems to have adopted business friendly principles with standards laxer than those recommended by the 2004 Roundtable on Sustainable Palm Oil (RSPO). A survey conducted by the Centre for International Forestry Research found that the RSPO has more ambitious requirements for certified sustainable products (Pirard et al., [2017](#)). The ISPO is considered less strict, especially regarding forest conservation requirements, and the adoption of the ISPO standard has been slow, with less than 200 companies being certified at the beginning of 2016.

Even with full implementation, adherence to the ISPO does not guarantee sustainable palm oil production. According to a 2017 directory of palm oil companies in Indonesia, there are 1,779 companies located in 25 provinces, with 1,019 in Sumatra and 200 in the Riau Province (Statistics Indonesia, [2019a](#)). Although implementation of the ISPO began in 2011, only 556 palm oil companies had been ISPO certified as of August 2019, less than a third of the total. Only six smallholder cooperatives and five plasma cooperatives are ISPO certified (Fitrianti, [2019](#)) even though smallholder farmers own approximately 39% of the palm oil producing land in Indonesia. This is probably due to a lack of awareness and lack of incentive.

In Riau, some 54% of the total palm oil plantation area is operated by smallholder farmers (Directorate General of Estate Crops, [2017](#)). In our interviews in eight villages, we only encountered two smallholders who are ISPO certified, both from the same village, and both only managed to get certified with the help of the palm oil company they supply. The other smallholders we met are aware of the ISPO, but they will not bother with ISPO certification unless it gives them clear economic benefit such as a premium price for their harvests. ISPO certification is not mandatory for smallholders. According to the Ministry of Agriculture's *Regulations on the ISPO Certification System* (Permen. 11/[2015](#)), plasma farmers, independent farmers, and estate companies producing biofuel can voluntarily implement the ISPO standard. Once a producer commits to ISPO regulations, the next challenging step is to monitor the implementation of ISPO standards, especially for smallholder plantations. When talking to us, the ISPO certified smallholders admitted that they did not always strictly follow the technical requirements, for instance they do not follow all the codes of practice or use regulation safety equipment when working in the plantation, usually because of hot weather.

Despite the government's efforts to establish a robust sustainability policy, including the 2018 extension of the moratorium on new plantation permits, there are various inconsistencies and forms of resistance. For instance, in November 2018 the Ministry of Environment and Forestry issued a permit to clear forest area for a palm oil plantation in the Buol District of Central Sulawesi (Alaidrus, [2019](#)). Without proper implementation, the moratorium policy is an empty political gesture to satisfy international negotiators and environmental groups pushing for the government to adopt pro-environmental policies. Jakarta wishes to appear responsive to pressure from various groups to stop deforestation through moratoriums but is in fact facilitating the expansion of palm oil businesses by issuing new permits and encouraging investment and replanting.



While the government fiddles, Riau burns. Even if followed closely, the moratorium would not mean zero deforestation, but the real challenge is to use law enforcement to stop illegal deforestation. Forest fires are still a regular occurrence in Riau, and according to field investigations, most of them are deliberately set to clear the land for palm oil plantations (Novitra & Wibowo, [2019](#)). Forest fires linked to agriculture were recorded in the Tesso Nilo National Forest in August 2019 (Yanuar, [2019](#)). The chances of fires naturally occurring is actually very rare. A moratorium policy without serious law enforcement and political will from the government gives the business sector room to continue gaining eventual profits through palm oil plantation expansion and this inevitably means we can expect more environmental degradation.

## 7 Conclusion

The pro-growth narrative about how palm oil brings economic development, poverty alleviation, and jobs to Indonesia is powerful, but data from the field presents a less clear and more heterogeneous range of outcomes. Palm oil production contributes to Riau's gross regional domestic product (GRDP), but most of the taxes from the palm oil sector, such as export taxes, are accrued by the central government, so the growth of GRDP is not always followed by real development in Riau such as improved infrastructure or human capital. The palm oil sector does create job opportunities, but most are the low-skilled variety, so poverty and unemployment rates in Riau have not decreased significantly in the past decade despite the palm oil boom. At the same time, due to changes brought about by conversion of land to palm oil production, the government of Riau has to cope with increases in public health emergencies, financial risks, social tensions, and costly environmental hazards such as forest and peat fires, haze pollution and negative land use change. During transnational crises such as the 2015 fires in Riau, the Indonesian government must spend a considerable portion of the national budget on disaster management while facing mounting political pressure both at home and from abroad.

Many smallholders in plantation provinces such as Riau enjoy the economic benefits of palm oil production, and it is clear that they can improve their lives in various ways. Most of them use household income as the main indicator of progress, and when the demand for palm oil is strong their incomes increase. However, their monthly earnings are unstable because of price fluctuations, risks of disease such as basal stem rot, and the variable costs of land conversion and replanting. Local communities living in and around plantation areas are vulnerable to a complex array of variables. People understand that the palm oil sector causes environmental degradation, but most see no real alternative to improving their lives outside of agriculture.

The government of Indonesia is engaged in complex forms of environmental diplomacy, seeking to balance growth imperatives backed up by emergent forms of economic nationalism with development goals and sustainability pledges. Unfortunately, these agendas are often at odds. Palm oil is considered a strategic national commodity in Indonesia, and the private sector plus GAPKI alleges unfair treatment at the hands of supposedly green actors such as the European Union. The Indonesian government seeks to increase annual production of crude palm oil and biofuels, while backing sustainability standards such as the ISPO and moratorium policies. The effectiveness of the ISPO standard is questionable, however, because it is less rigorous than the RSPO and seems to benefit palm oil companies. It is unclear whether the international market will recognize the ISPO certification standard, and whether domestic consumers will increase demand for greener products. The moratorium on plantation permits will be purely symbolic if the government does not monitor implementation and tackle illegal deforestation. As for the proliferation of smallholders in provinces such as Riau, there remains little practical incentive to join ISPO-type schemes. By most accounts, regardless of the risks, local communities envision further expansion and investment in the palm oil trade, which will have a lasting impact on the tropical forest landscapes of Indonesia.



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