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From Digging to Planting: A Sustainable Economic Transition for Berau, East Kalimantan

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August 2019

A CPI Report

The Nature
Conservancy 



Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag

Acknowledgements

We express our gratitude to the Government of East Kalimantan and District Government of Berau for their partnership, support, and facilitation during data collecting, group discussions, and interviews.

We thank our partners, Windrawan Inantha, Javelina Punduh, and Bonifasius Parikesit from the Nature Conservancy, as well as Ade Cahyat and Iwied Wahyulianto from GIZ.

We thank our CPI colleagues: Elysha Davila, Angel Jacob, Angela Woodall, and Irfan Toni, for their review and communications support; Mahua Acharya for her overall guidance; and Hany and Lidya Jalius for their logistical support.

Descriptors

Sector	Land use
Region	Indonesia
Keywords	Fiscal policy, Land Use, Deforestation, Palm Oil
Related CPI Reports	Toward a More Sustainable and Efficient Palm Oil Supply Chain in Berau, East Kalimantan
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About CPI

With deep expertise in finance and policy, CPI is an analysis and advisory organization that works to improve the most important energy and land use practices around the world. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, India, Indonesia, Kenya, the United Kingdom, and the United States.

About LEOPALD

This paper is the second in a series of studies to be conducted by CPI in Berau, East Kalimantan, as part of Project LEOPALD (Low Emissions Palm Oil Development). As part of the International Climate Initiative (IKI), this project is led by the Nature Conservancy and implemented jointly with GIZ and CPI. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. Project LEOPALD aims to support East Kalimantan to achieve its Green Growth Compact through more sustainable palm oil practices. CPI focuses on the climate financing aspects of this goal. practices. CPI focuses on the climate financing aspects of this goal.

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Executive Summary

Indonesia’s economy has seen rapid growth in recent decades, largely driven by natural resource extraction and land-based commodity production. Coal mining has featured prominently. The District of Berau, in East Kalimantan, is a case in point. In Berau, the mining sector regularly contributes more than 60% to Berau’s Gross Regional Domestic Product (GRDP) and coal royalties contribute about a quarter of the district government’s overall revenue.

However, this dependence on coal has made Berau’s fiscal conditions fragile, with lower coal prices shocking the economy into a budget deficit in 2015 and 2016. The growth rate of the coal sector has diminished in recent years and price uncertainty makes it challenging for Berau to rely solely on mining to drive development and provide fiscal stability. The government acknowledges that its focus on resource extraction is not sustainable for the long-term and is beginning to shift its attention from mining to cultivation, with an emphasis on palm oil.

Prima facie, this appears to be a good strategy. Palm oil provides promise as a substitute to a coal-based economy. Even withstanding an economic slowdown at the national level, palm oil has provided a steady economic growth and jobs to Indonesians.

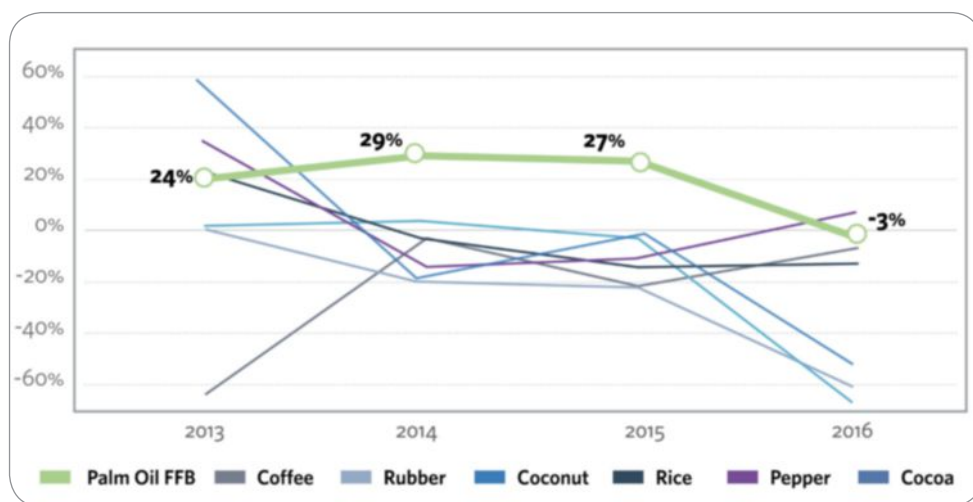
This CPI study, produced as part of Project LEOPALD or Low Emissions Oil Palm Development examines whether palm oil’s potential as an economic driver will bear out for Indonesia’s goals, using Berau as an example case. We find the following:

1. With palm oil edging out other estate crops, Berau’s economy currently lacks diversity and is unsustainable

Palm oil production in Berau has grown exponentially, with both Fresh Fruit Bunches (FFB) production and Crude Palm Oil production from mills increasing by 340% from 2011–2016.

At the same time, most other estate and food crops have experienced declines in both total area and production. Coconut, rubber, and cocoa have witnessed the most prominent production declines. Pepper is starting to show positive momentum, and rice is slowly but steadily declining. See Figure ES 1. The result of these

Figure ES1. Year-on-year commodity production growth rates



Sources: Dinas Perkebunan Kabupaten Berau 2016 and Berau in Figures 2011, 2012, 2013, 2014, 2015, 2016, BPS of Berau Regency.

dynamics is that today, roughly 90% of the planted area and 31% of plantation land in Berau is devoted to palm oil. Financially, dependence on a single commodity exposes Berau to risks from price and demand fluctuations.

International demand for palm oil is currently slowing. Palm oil has long been subject to global criticism as many consider it one of the main drivers of deforestation and biodiversity loss. The European Parliament recently called for the use of palm oil in biofuels to be banned from 2030 onward, and many of the world’s largest food and drink companies are aiming to procure only certified sustainable palm oil.

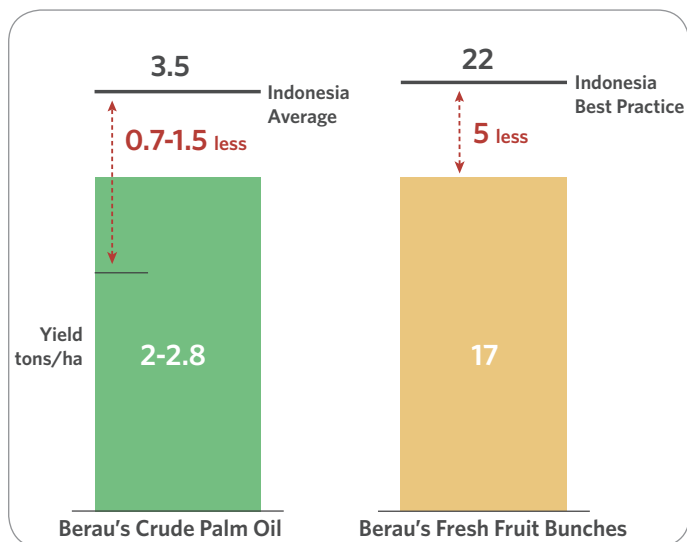
The edging out of food crops in particular is a troubling sign that Berau is shifting from a food secure region with enough staple food such as rice to self-subsist, to becoming a region increasingly reliant on imports of food crops from other regions for food security. Shifting from a focus on one extractive commodity to mono-cropping palm oil may not enable sustained economic growth. Overall, a more diversified approach is likely more promising.

2. Sustainable palm oil can be a starting point for economic growth, but needs to be hedged by a transition plan prioritizing efficiency over expansion, diversification into value-added products, and diversification into other crops

In order to hedge the risks of dependence on a single commodity, Berau can pursue several pillars of a transition plan.

First, Berau can incentivize Sustainable Palm Oil (RSPO) certification for its existing palm oil producers. Globally, products with RSPO certification currently achieve a price premium of 1–4%. Based on the levels of production in Berau, RSPO-certification at the district level could lead to an estimated 7% increase (for a range of IDR 31–158 million/year added value) in added value per year, at the upper level. At present, though, while several palm oil companies operating in Berau are members of RSPO, few are certified, and the majority are neither members nor committed to “no deforestation.” To reduce the cost of certification, district government could become more actively involved by facilitating a single certification which declares the entire district to be deforestation-free (one of the principles of jurisdictional certification).

Figure ES2. Berau falls short on palm oil production



Source: CPI Calculations.

Second, Berau should push palm oil plantations to become more efficient. At the moment, Berau's FFB

yield is less than 17 tons/ha, well below the national best practice of 22 tons/ha for crops of the same age range (Figure ES2). Current CPO yields in Berau are estimated at around 2.0–2.8 tons/ha while the national average in Indonesia is 3.5 tons/ha. Optimizing production and productivity within the existing plantation areas and at the mill level would allow Berau to increase its FFB yields as well as its oil yields without having to expand into new areas (Mafira, Rakhmadi, Novianti, 2018).

Third, and still within the palm oil sector, there is significant potential to expand into value-added products. There are approximately 146 types of products that could be produced by the palm oil industry in Berau¹. However, at present raw CPO from Berau mills are sent to eight refineries across Indonesia and Malaysia; Berau does not have a single refinery (Mafira, Rakhmadi, Novianti, 2008). This means that Berau fails to capture much of the potential added-value from processing CPO within the district.

Fourth, analysis of Berau estate crop production values per hectare between 2010 and 2014 shows that other crops may be more profitable than palm oil FFB. Cocoa and pepper show particular promise. On average, pepper production value per hectare has been more than three times palm oil FFB smallholders and nearly double palm oil FFB private companies. The estimated production value per capita of smallholder farmers lends to the same narrative: pepper is by far the most valuable estate crop on a production value basis, and cocoa is nearly equal to palm oil FFB. This suggests that encouraging farmers to explore different crops can help Berau's overall economic diversity.

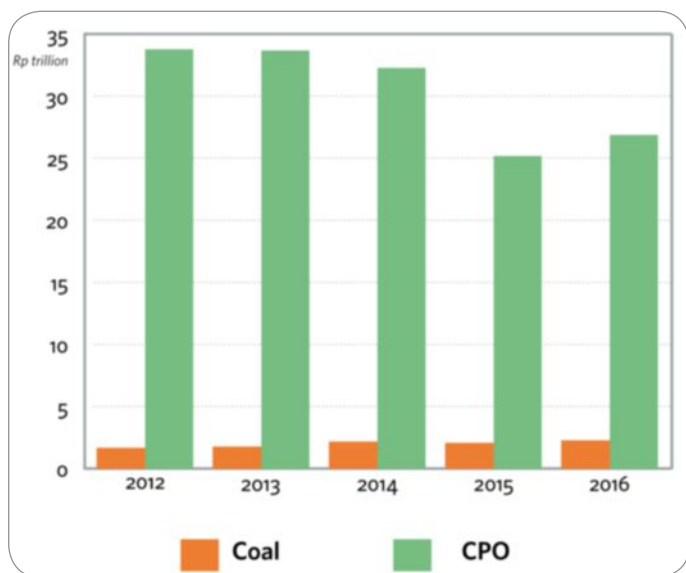
Lastly, it is important to develop the downstream industry not just for palm oil but also for other agricultural products. Recently, small home industries have shown an interest in developing consumer products from cocoa and pepper. These need to be supported and scaled. Small businesses operating in other parts of Indonesia have been successful in developing social enterprises that utilize Indonesia's raw agricultural commodities to capture added value and drive sustainable economic growth, and these models could be replicated in Berau. Village enterprises (Badan Usaha Milik Kampung - BUMK) could be utilized to develop and/or connect with these social enterprises.

1 These generally fall into three categories: oleo food products (e.g., palm cooking oil, margarine, vitamin A, vitamin E, ice cream, creamer), oleochemicals (e.g., bio-surfactant products, bio-lubricants, and bio-materials), and biofuel complexes (e.g., biodiesel, biogas, bio premium). Recognizing that the required capital investments for some forms of processing would be higher than others, the added value captured could be significant; bio-surfactant products, for example, could lead to an added value of more than 350%. It may be prohibitively expensive to set up the infrastructure for biodiesel production, but biofuel complexes are likely to exhibit positive price

3. Berau’s fiscal health can also be supported through optimization of government revenue sources and improvements to budget allocations

Our analysis of Berau’s fiscal data shows that Berau’s district government revenue is dominated by central government transfers with a large portion coming from revenue sharing funds related to coal mining. Palm oil growth has not translated into government revenue growth. Berau’s palm oil sector contributed an estimated IDR 559 billion (USD 42 million) to central government revenue in 2016, and only IDR 9.77 billion (USD 734,955), or 2% of their total tax contribution, went back to Berau via the Dana Bagi Hasil/DBH (IDR 1.8 billion from personal income tax and IDR 7.94 billion from the land and building tax). At the same time, palm oil does not contribute much to Berau’s own-source revenue. Approximately 80% of Berau’s own-source revenue from taxes and retribution originate from service-related industries (e.g., restaurants, hotels, healthcare, and financial markets). Despite the strong focus on agriculture and mining, currently, little revenue is secured from land licenses or permits for agriculture or mining. Figure ES3, illustrates how unrealistic it is to expect palm oil to replace coal revenues.

Figure ES3. CPO production value versus coal production value (IDR trillion)



Source: CPI Analysis, 2018.

So, while palm oil may have direct benefits to Berau’s economy in terms of employment and improving GDRP, these benefits do not translate into government revenue that can be strategically deployed to improve overall sustainable economic growth in the district.

2 A revenue stream generated from local taxes and retributions

There are several ways in which revenue as well as spending can be improved to more strategically benefit Berau’s sustainable growth plans.

First, Berau’s own-source revenue² has room for growth, as it is at the moment dominated by passive income (such as returns from deposits). This could be improved by focusing on increasing the pool of productive activities from which regional taxes could be sourced, and adds a further imperative to developing downstream industries. Specific ways in which Berau could enhance its own-source revenue include adding to the list of retributions items, such as IMB refinery permits, port permits, refining plant permits, and jurisdiction certification service to boost own-source revenue.

Second, income tax could be optimized by diversifying agricultural production and down-streaming. The

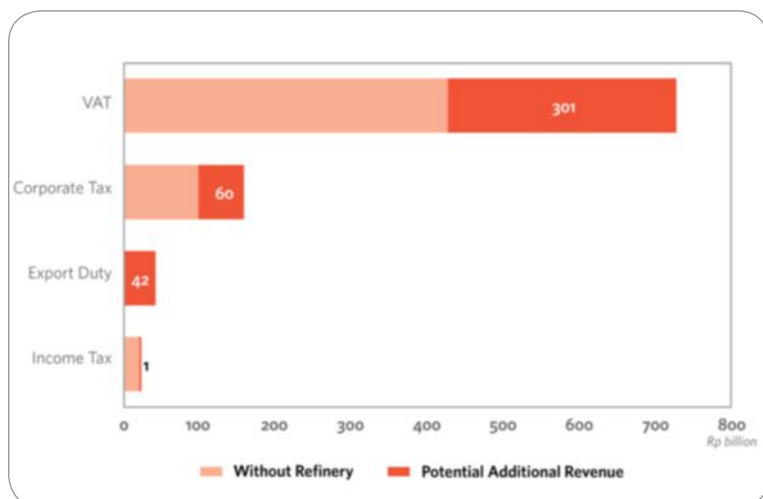
Figure ES4. Map of Berau



opening of refineries would not only create more jobs and added value for the palm oil sector in Berau, but it would also boost Berau’s government revenue. We estimate that if all CPO could be refined in Berau, this would result in a boost of approximately IDR 405 billion (USD 31 million) in national tax revenue. These additional revenues could be reinvested into infrastructure and services that support sustainable agriculture in Berau.

Third, certain fund allocations could be improved by investing in business units that could leverage capital, instead of being spent on programs. For example, the

Figure ES6. Potential national income from palm oil refineries in Berau (IDR Billion), 2016



Source: CPI calculations, 2018.

Village Fund could be channeled to support village enterprises (Badan Usaha Milik Kampung - BUMK). In Berau, only 15 out of the 100 villages allocated investment for BUMK in 2017. That said, the number of BUMK nearly doubled from 26 in 2016 to 42 in 2018. The government of Berau would like to increase the number of BUMK, especially the number of BUMK structured as financial institutions, to help develop community businesses from 99 in 2017 to 584 in 2021. In Berau, 3 out of the 42 existing BUMK already conduct some form of business related to palm oil. This could be scaled up and improved by allocating more resources to developing professional BUMK.

4. Innovative fiscal transfer mechanisms need to be developed

Lastly, inter-governmental fiscal transfer mechanisms could be improved to support district economic health for districts like Berau that are prioritizing sustainability, by making transfers conditional upon the achievement of certain sustainability performance indicators.

For central-to-regional government transfers, the Special Allocation Fund (DAK) and the Regional Incentives Fund (DID) show promise as these funds already incorporate some degree of direct or indirect ecological variables. For example, the DAK allocation includes measures relating to water quality and pollution control, and a recent 2019 addition to the DID formulation actually provides incentives to local governments to manage waste more effectively, including through waste reduction and waste recycling.

For province-to-district fiscal transfers and district-to-village fiscal transfers, new fiscal transfer mechanisms which insert ecological criteria are being developed by civil society and tested in a few regions. These are:

- Ecology-based Provincial Budget Transfer (Transfer Anggaran Provinsi berbasis Ekologis - TAPE), which is a fiscal transfer mechanism between provinces to districts; and
- Ecology-based District Budget Transfer (Transfer Anggaran Kabupaten berbasis Ekologis - TAKE), which is a fiscal transfer mechanism between districts to villages.

These mechanisms envision funds to be delivered out of the Provincial Financial Aid fund (Dana Bantuan Keuangan Provinsi) using a formula for allocation that rewards the protection of forests.

The indicators used to calculate the formulas are specific to forest cover and forest changes.

However, these formulas are still being discussed and are continuously being developed and modified for different provinces. The fact that the formula only considers forest cover as a variable also discriminates against districts that do not have any forest cover at all, but may have policies supporting sustainability (such as urban park initiatives or sustainable marine areas).

5. Next steps

Based on this analysis, we recommend specific next steps that include creating strategy for agriculture growth in Berau that prioritizes efficiency over expansion from palm oil, as well as diversification into other crops and value-added products. In addition, policymakers in Berau should encourage national-level dialogue regarding the allocation formulas for central-to-regional fiscal transfer mechanisms (e.g., DAU, DAK, DBH, DID, and the Village Fund) as well as taking small adjustments to other mechanisms to better reward and incentivize sustainable land management, setting the District up for longer-term fiscal and economic health.

In following studies, CPI will take a closer look at ecological fiscal transfer mechanisms learning from the TAPE and TAKE initiatives. Follow up studies will delve deeper into what the incentives formula might be for these transfer instruments, and how to deploy them effectively.

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1. Introduction

1.1 Shifting from a focus on mining to a focus on sustainable agriculture

Over the last 10 years, Indonesia has exported more than two-thirds of its coal production, largely to neighboring Asian countries.³ The main coal producing areas of Indonesia—East Kalimantan, South Kalimantan, and South Sumatra—have consistently placed Indonesia as one of the world’s largest producers and exporters of coal. In 2017, Indonesia, being the world’s largest coal exporter, provided 28.5% of exports on a tonnage basis.⁴ In the same year, coal was Indonesia’s top commodity export by value, exceeding USD 20 billion.⁵ Coal exports have consistently functioned as a primary foreign exchange earner for the country. Agricultural commodities provide another important source of foreign exchange earnings. For example, Indonesia is the world’s largest producer and exporter of crude palm oil (CPO), a material used in a range of products from food to personal care to biodiesel.

The District of Berau, in East Kalimantan, relies on coal mining as its main source of economic development; the mining sector regularly contributes more than 60% to Berau’s Gross Regional Domestic Product (GRDP). However, the growth rate of the coal sector has diminished in recent years and exhibited negative growth in 2016. Price uncertainty makes it challenging for Berau to rely solely on mining to drive development and provide fiscal stability. The government acknowledges that its focus on resource extraction is not sustainable and is beginning to shift its attention from mining to cultivation, with an emphasis on palm oil.

Berau is optimistic about the potential of palm oil for several reasons. First, even though overall economic growth has slowed in recent years, the agricultural sector, including palm oil production, has exhibited positive growth. Second, palm oil plantation land coverage exploded from 40,000 hectares (ha) in 2011 to 120,000 ha in 2016, and currently accounts for about 90% of the planted area (luas tanam) and 31% of the plantation land (lahan perkebunan) in the district. Third, palm oil requires more labor inputs compared to other crops, so the expansion in coverage has led to an employment

rise from 14,000 people in 2010 to nearly 43,000 people in 2016.⁶ Finally, rainfall, climate, and soil conditions in Indonesia are ideal for palm oil trees, and it is one of the highest yielding oil plants in the world.⁷

At the same time, Berau is committed to conserving its environment for future generations. Berau thus faces the challenge of protecting its diverse ecosystems and natural resources while also realizing its development goals.

This CPI study, produced as part of Project LEOPALD (Low Emissions Oil Palm Development) looks at whether palm oil’s potential as an economic driver will bear out for Berau’s goals by answering the following questions:

1. What is the composition of Berau’s economy, and what role does or could palm oil play?
2. How can Berau diversify its economic activities to maximize economic and ecological prosperity?
3. How can the government optimize its revenue and spending to best support sustainable development?

1.2 Approach

This study provides an overview of the fiscal and economic conditions in Berau, East Kalimantan, with a view to identifying whether fiscal resources and incentives are available to support sustainable development in the region. We look at opportunities to optimize economic resources both in the context of and beyond palm oil plantations, in line with a broader goal to support sustainable land use and economic growth by shifting away from natural resource dependency and towards a diversified economy.

Data collection was conducted with support and facilitation from the Crop Estate Office (Dinas Perkebunan) of East Kalimantan Province and Berau District, as well as the Regional Development Planning Body (Bappeda) of Berau District. The research team collected the following datasets:

- Gross Regional Domestic Products 2011-2015, 2012-2016, 2013-2017

3 Indonesia-Investments, 2018; Fünfgeld, A. 2016. “The state of coal mining in East Kalimantan: Towards a political ecology of local stateness.” *ASEAS – Austrian Journal of South-East Asian Studies*, 9(1), 147-62.

4 IEA, 2018.

5 Munthe, B.C., 2018.

6 Dinas Perkebunan Berau, 2016.

7 Casson et al., 2015.

- Berau in Figures 2010 - 2018
- Berau's Budget Realization Report (Laporan Realisasi APBD) 2010 - 2017
- Area, production, productivity, labor and price of estate crops commodities 2010 - 2016
- Production and price of CPO and coal 2012 - 2016

Datasets were then analyzed in the following manner:

1. First, we looked at the contributing factors to both Berau's Gross Domestic Regional Product (GDRP) and fiscal revenue, its current values and historical growth trends. We looked closer at certain sectors, including palm oil, which displayed interesting trends (e.g. steep declines or steep growth). We then analyzed the causes -- and lessons to learn -- behind those trends;
2. Next, we parsed each fiscal revenue instrument and its performance to date in Berau to see where there might be under-performance, under-allocation, or imbalances between fiscal revenue and fiscal expenditure. This exercise aims to analyse whether Berau has the fiscal capacity to support its ambitions for sustainable growth;
3. Finally, to identify opportunities to optimize

economic resources in support of sustainable growth, we identified the most promising fiscal mechanisms that work to incentivize sustainable practices at the district level.

1.3 Report structure

This report provides new data and analysis to support district and provincial-level policymakers, as well as smallholder farmers and industry actors, to make more informed decisions about options for sustainable land management and economic development. Section 2 looks at the composition of Berau's economy, highlighting the historical reliance on mining and the recent emergence of the agricultural sector. Section 3 outlines a range of potential approaches for further developing the agricultural sector. For palm oil, this includes optimizing palm oil production and productivity within existing plantation areas and at the mill level, opening up refineries to allow local processing, RSPO-certification at the district-level, and the creation of value-added products. There are also opportunities to diversify beyond palm oil to other agricultural commodities, and to develop value-added products. Section 4 provides an overview of Berau's revenues and expenditures and highlights ways to better optimize both sides to encourage sustainable economic growth in the district.

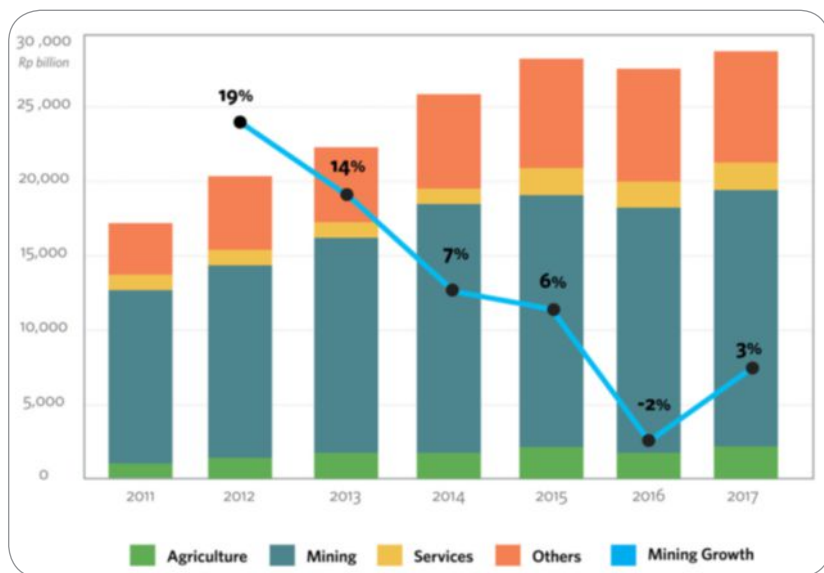
2. A Snapshot of Berau's Economy: A Lack of Sectoral Diversity

2.1 Berau's dependency on coal has exposed its economy to price shocks

Berau relies heavily on coal as a driver of economic growth and as the main source of fiscal stability. In each year between 2012 and 2017, coal contributed more than 60% to Berau's Gross Domestic Regional Product (GDRP). In the same period, through the central-to-regional fiscal transfer mechanism (Dana Bagi Hasil, DBH), it received coal royalties amounting to an average IDR 490.7 billion (USD 36.9 million), or 24% of its overall revenue.

However, coal sector performance has faltered over the last several years, largely due to unstable prices. Although coal maintained a steady contribution to Berau's GDRP, its growth rate has declined from 19% in 2012 to -2% in 2016. This has impacted Berau's fiscal balance making it fragile. Further, lower coal royalties in 2016 resulted in a 12% decline in their central-to-regional fiscal transfer. This led to an 8% decrease of overall revenue, shocking Berau into a budget deficit in 2015 and 2016.

Figure 1. Composition of Berau's GDRP at 2010 constant prices (IDR billion; % growth)



Sources: GRDP by Industry 2011-2015, 2012-2016, 2013-2017 BPS of Berau Regency.

The extent of Berau's dependence on coal has made it vulnerable to price shocks. Although domestic coal consumption has increased by 6.7% in 2017, the large majority continues to be exported. Furthermore, Indonesia's exports are concentrated around a few countries. China, for example, imported 28.9% of Indonesia's coal in 2017.⁸ Other key export destinations were India (25.3%), Korea (10.5%), and Japan (8.1%).⁹ Looking ahead, the International Energy Agency (IEA) expects global coal demand to remain stable through 2023, with declines in Europe and the United States, and growth in India and other Asian countries.¹⁰ China's demand, however, is expected to decline.¹¹ Overall, growth in renewables and natural gas will reduce coal's contribution to the global energy mix from 27% in 2017 to 25% through 2023.

Indonesia itself is making efforts to limit coal production, which beginning in 2019 is capped to a total of 400 million tons, unless domestic demand exceeds that figure.¹² Indonesia, generally, and highly coal dependent districts such as Berau, specifically, will need to diversify their economies to account for further price shocks that are likely to occur as demand diminishes over time.

2.2 Agriculture is on the rise, with palm oil edging out other estate crops

Since 2011, agricultural sector's GDRP has grown on an average of 5% per year. Although Berau's overall GDRP over the same period has averaged a 7% growth rate, in recent years the agricultural sector has outperformed; in 2017, the agricultural sector increased by 6% while overall GDRP increased by 3%.

The composition of the agricultural sector has transformed over time. Historically, forestry represented the lion's share of the agricultural sector's GDRP, with agriculture (e.g., food crops, estate crops, husbandry, agricultural services) second, and fisheries third. In 2012, agriculture surpassed forestry for the first

8 IEA, 2018.

9 IEA, 2018.

10 IEA, 2018.

11 IEA, 2018.

12 Based on National Energy Plan (Rencana Umum Energy Nasional - RUEN) projections issued by the Ministry of Energy and Mineral Resources, coal exports will be stopped by 2046 when domestic demand reaches the cap of 400 million tons.

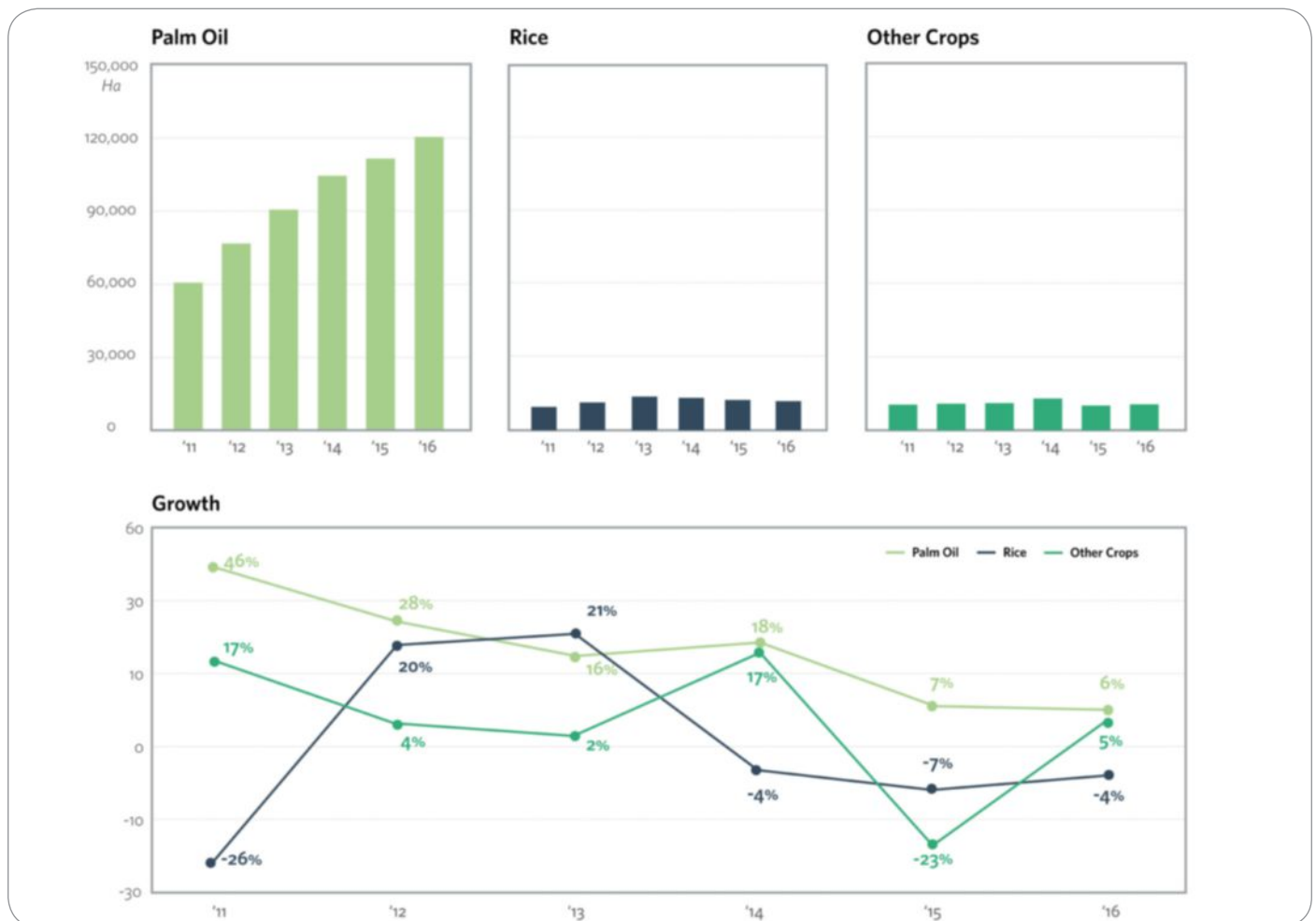
time and now represents 60% of the agricultural sector while forestry and fisheries represent 29% and 11%, respectively.

The composition within agriculture has also evolved. Palm oil production has undergone rapid expansion — in land area, workforce, and production — resulting in the contraction of other estate crops. In terms of land area, palm oil plantations tripled from 40,000 ha in 2011 to 120,000 ha in 2016, and currently accounts for roughly 90% of the planted area (luas tanam), and 31% of the plantation land (lahan perkebunan) in the district.

working population in Berau.

In terms of production, palm oil output has grown exponentially. The production of Fresh Fruit Bunches (FFB) increased by 340% between 2011 and 2016, from 276,000 tons to 1,220,000 tons. The largest year-on-year percentage growth came from 2011 to 2012, when FFB production jumped from 276,000 tons to 616,000 tons. Over the same six-year period (2011 to 2016), the resulting raw Crude Palm Oil (CPO) produced by nearby mills rose from 55,000 tons to 244,000, the same 340% increase seen in FFB production. This implies that the

Figure 2. Estate crop land coverage (hectares; % growth)



Sources: Dinas Perkebunan Kabupaten Berau 2016 and Berau in Figures 2011, 2012, 2013, 2014, 2015, 2016, BPS of Berau Regency

Due to higher labor input requirements for palm oil as compared with other food and estate crops, the expansion in land coverage has led to an employment rise from 14,000 people in 2010 to nearly 43,000 people in 2016.¹³ This equates to roughly 46% of the overall

CPO yield from FFB remained constant; there were no extraction efficiency gains over this period.

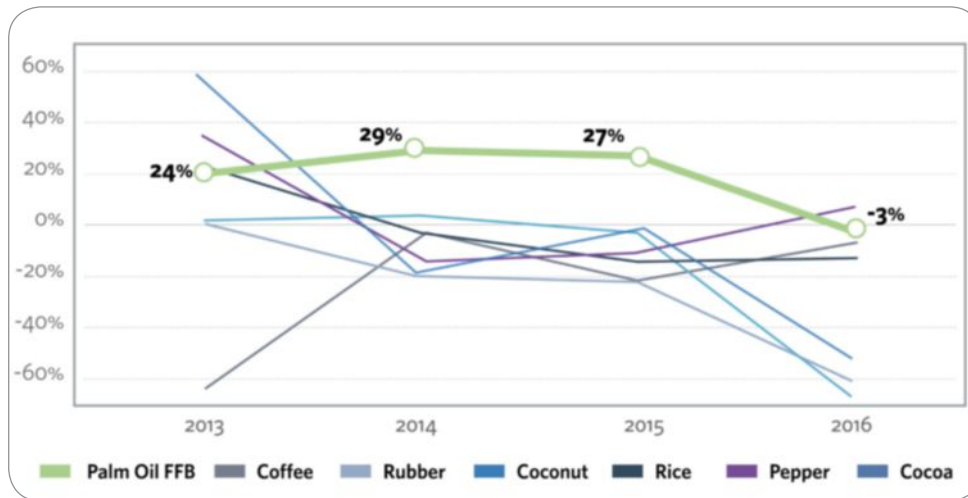
At the same time, most other estate and food crops have experienced declines in both total area and production. Coconut, rubber, and cocoa have witnessed the

13 Dinas Perkebunan Berau, 2017.

most prominent production declines. Pepper is starting to show positive momentum, and rice is slowly but steadily declining.

However, international demand for palm oil is slowing. Palm oil has long been subject to global criticism as many consider it one of the main drivers of deforestation and biodiversity loss. The European Parliament recently called for the use of palm oil in biofuels to be banned from 2030 onward,¹⁶ and many of the world's largest food and drink companies are aiming to procure only certified sustainable palm oil.

Figure 3. Year-on-year commodity production growth rates



Sources: Dinas Perkebunan Kabupaten Berau 2016 and Berau in Figures 2011, 2012, 2013, 2014, 2015, 2016, BPS of Berau Regency.

Looking ahead, Indonesia's domestic demand for palm oil should grow stronger following recent regulatory changes. For example, Indonesia recently announced that all diesel fuel must contain at least 20% bio content, and that use of biodiesel blended fuels would be compulsory for all vehicles and heavy machinery.¹⁴ This policy is expected to reduce Indonesia's import of crude oil and will lead to an annual savings of approximately USD 5.6 billion.¹⁵

The edging out of food crops in particular are a troubling sign that Berau is shifting from a food secure region with enough staple food such as rice to self-subsist, to becoming a region increasingly reliant on imports of food crops from other regions for food security.

Given the shifting composition of global palm oil demand, we recommend Berau to be wary of placing too much emphasis on palm oil plantations. Berau's historical emphasis on coal should also serve as a warning; shifting from a focus on one extractive commodity to mono-cropping palm oil may not enable sustained economic growth. Overall, a more diversified approach is likely more promising.

14 Munthe, 2018; The Star Online, 2018

15 Silaen, 2018.

16 The Straits Times, 2018.

3. Opportunities to Diversify Economic Activities

3.1 Devising a non-expansionary strategy for the palm oil sector

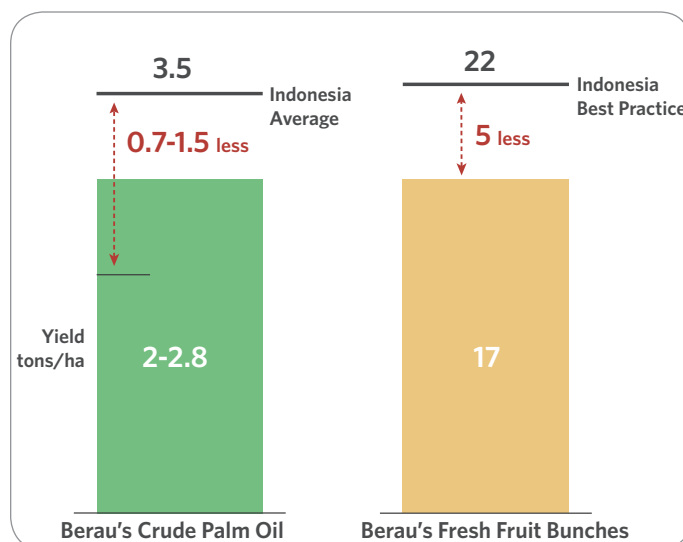
While the palm oil sector is an important and promising one for Berau, it has long been subject to global criticism as it is considered one of the main drivers of deforestation and biodiversity loss. In fact, the province of East Kalimantan has the third-highest GHG emissions in Indonesia (251 MtCO₂ per year), with a large proportion coming from forest loss for palm oil plantations.¹⁷ These issues have not gone unnoticed by the Indonesian government. In September 2018, the President of Indonesia, Joko “Jokowi” Widodo, issued a three-year moratorium on palm oil plantation permits and other policy measures to improve governance and palm oil productivity.¹⁸

First, the government will cease issuance of new permits for palm oil plantations and will not complete issuance for plantations that have obtained some but not all of the permits required to operate. Second, the government will review existing palm oil plantation licenses and permits (e.g., Location Permit (Izin Lokasi), Plantation Business Permit (Izin Usaha Perkebunan, or IUP), Cultivation Right (Hak Guna Usaha, or HGU), and Registration for Plantation Cultivation (Surat Tanda Daftar Budidaya Perkebunan, or STDB), and forest release permits). The review will assess whether the permit holder has fulfilled their obligations, including the allocation of 20% of the total plantation area to the development of High Conservation Value Forest (HCVF) areas. For the permit holders that are not in compliance, the government will require that they convert their land to forest areas and/or pay fines. Finally, the government will focus on enhancing land productivity, as opposed to land expansion, to ensure that industry has enough FFB.¹⁹

Given the palm oil plantation permit moratorium, if Berau is to rely on palm oil to partially drive economic growth, it will need to do so within the existing palm oil plantations as opposed to through land expansion. This is feasible. Based on CPI’s recent study on palm oil

productivity in Berau, there are several ways to secure productivity gains through existing palm oil plantations in Berau.²⁰ For example, Berau’s FFB yield per ha is currently less than 17 tons/ha, well below the national best practice of 22 tons/ha for crops of the same age range.²¹ This could be partially due to the fact that the palm oil plants are currently between the ages of four and nine years old, and peak productivity starts after year seven. Productivity will naturally improve as the plants continue to age. Another productivity gain will arise when company plantations plant on their remaining land; at present, approximately 41% of the total concession area given by the government to companies have been planted on.²² Within the remaining 59%, approximately 33,000 ha are classified as low conservation value and could be planted on.²³ Planting on this land would boost the total company planted area by more than 35%.

Figure 4. Berau falls short on palm oil production



Source: CPI Calculations.

Other downstream productivity gains are also possible. Mills in Berau have a combined total processing capacity of 2.8 million tons of FFB per year, but are currently operating at 44% capacity.²⁴ The supply of FFBs should increase as the plants at nearby plantations

17 Hovani et al, 2018.
 18 Presidential Instruction No. 8/2018.
 19 Saputra and Saif, 2018.
 20 Mafira, Rakhmadi, Novianti, C., 2018
 21 Mafira, Rakhmadi, Novianti, C., 2018.
 22 Mafira, Rakhmadi, Novianti, C., 2018.
 23 Mafira, Rakhmadi, Novianti, C., 2018.
 24 Mafira, Rakhmadi, Novianti, C., 2018.

age. Separately, current oil yields in Berau are estimated at around 2.0–2.8 tons/ha while the national average in Indonesia is 3.5 tons/ha.^{25,26} Palm oil yields vary based on several factors, including management practices, efficiency of the mill, genetics, and geography, and can range from one to more than seven tons of CPO per hectare.²⁷ In fact, Bambang Sugiharto, a Director at the Ministry of Agriculture, is of the opinion that oil yields could reach 8.45 tons/ha if palm oil plantations are managed well.²⁸ Best management practices include, for example, using high quality seeds, applying sufficient amounts of fertilizer, and controlling pests and diseases.²⁹

Optimizing production and productivity within the existing plantation areas and at the mill level would allow Berau to increase its FFB yields as well as its oil yields without having to expand into new areas.

3.2 Converting raw crude palm oil locally by opening new refineries

There is also an opportunity to capture more added value from Berau's palm oil products through the establishment of refineries. There are approximately 146 types of products that could be produced by the palm oil industry in Berau.³⁰ However, at present raw CPO from Berau mills are sent to eight refineries across Indonesia and Malaysia; Berau does not have a single refinery.³¹ This means that Berau fails to capture much of the potential added-value from processing CPO within the district.

In terms of implementation, there are two known potential locations for refineries in Berau. The first is the Labanan Port, strategically located on the Segah riverbank that leads out to the sea on Makassar Strait. It is within close proximity to the sub-districts of Kelay, Segah, Teluk Bayur, and Derawan, as well as the

neighboring district of Kutai Timur. Mills are currently utilizing the installed tanks as a temporary storage location before sending it outside of Berau, but there have been talks of upgrading the port to a refinery. The second potential location is in Tanjung Redeb, an area where the government is considering a refinery as part of the Palm Oil Green Economic Zone (POGEZ) development plan. The development of POGEZ is an initiative of the Government of Indonesia and Malaysia through the Council of Palm Oil Producing Countries (CPOPC)³², an intergovernmental organization committed to uniting the world's palm oil producers.³³

3.3 Seeking jurisdictional RSPO certification to benefit from price premiums

Another avenue for capturing greater value from existing palm oil land lies in Roundtable on Sustainable Palm Oil (RSPO) certification.³⁴ At present, several palm oil companies operating in Berau are members of RSPO, but few are certified, and the majority are neither members nor committed to “no deforestation.”³⁵

Globally, products with RSPO certification currently achieve a price premium of 1–4%.³⁶ Although there are costs associated with gaining certification and paying for ongoing audits and other logistics, the economics may be improving as demand for sustainable palm oil is on the rise. Several large food and drink companies are aiming to procure sustainable palm oil in the near term. For example, Nestle SA aims to procure 100% RSPO-certified palm oil by 2023.³⁷ Meanwhile, RSPO-certified palm oil currently constitutes less than 20% of world palm oil production.³⁸

In terms of potential revenue, RSPO-certification at the district level could lead to an estimated IDR 31–158 million (USD 2,331–11,880) increase in added value per

25 A range is given because the exact oil yield depends on the amount of planted land that is productive (i.e., producing FFB).

26 Oberthür et al., 2012.

27 WWF, 2012; Oberthür et al., 2012.

28 Julianto, 2017.

29 Saleh et al., 2018.

30 Prokal.co, 2017.

31 Mafira, Rakhmadi, Novianti, 2018.

32 The CPOPC focuses its cooperative efforts around six themes: sustainability of palm oil; productivity of smallholders; research and innovation; industrial cooperation toward value added production; technical regulations and standards; and trade policy issues.

33 Julianto, 2016.

34 This section refers specifically to RSPO and not to ISPO (Indonesia Sustainable Palm Oil Certification) because while ISPO is mandatory under Indonesian law, it does not generate any price premiums for certified palm oil.

35 Hovani et al., 2018.

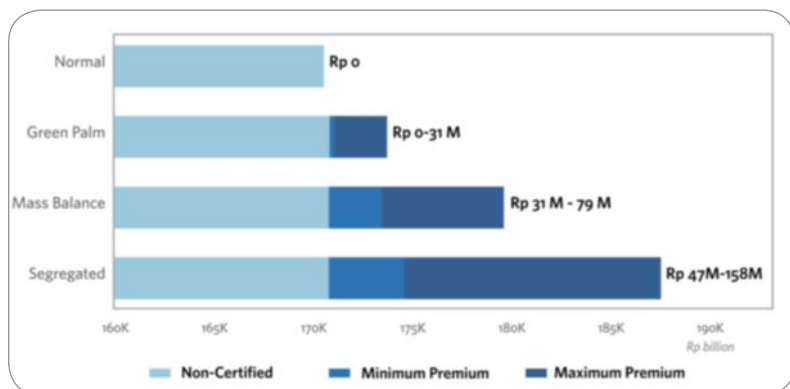
36 Rietberg, 2016.

37 Raghu, 2019.

38 Corley, 2018.

year. Market research estimates that RSPO-certified products fetch premiums ranging from US\$0 to \$10 for low-tier certification, US\$10 to \$25 for middle-tier certification, and US\$15 to \$50 for the most stringent level of certification (i.e. segregated palm oil) (WWF, 2012).³⁹ By combining these price premiums to palm oil production rates in Berau, we find that the potential for Berau producers to gain price premiums is quite significant as shown in Figure 5.

Figure 5. Potential premium price from RSPO-certified palm oil based on Berau production in 2016 (IDR)



Source: WWF 2012, CPI calculation.

In addition to the direct added value from RSPO-certification, the associated uptake of good management practices required for certification is likely to

increase income for industry and smallholders. Research has shown that good management practices can increase yields by 12 to 30%.⁴⁰

The district government could also become more actively involved in supporting palm oil producers to gain certification by facilitating a single certification which declares the entire district to be deforestation-free (jurisdictional certification). The idea of a jurisdictional approach is not new to Berau; the Berau Forest Carbon Partnership (BFCP) demonstrated how a jurisdictional program can help to enable sector-wide transformation.⁴¹ Lessons learned from the BFCP experience could help to inform further jurisdictional approaches for palm oil and other agricultural commodities.

3.4 Looking beyond palm oil to other estate crops

The current composition of Berau’s agricultural sector extends beyond palm oil to other commodities. Nonetheless, unstable commodity prices lead to macro-economic instability, especially in countries and regions whose economies are highly dependent on export commodities to drive and sustain economic growth.

Table 1. Estimated estate crop production value per hectare (IDR)

NO	ESTATE CROP	2010	2011	2012	2013	2014	AVERAGE
1	RUBBER	907,794	3,632,904	3,047,879	2,379,930	1,162,349	2,226,172
2	COCONUT (KOPRA)	927,169	805,001	748,565	840,363	1,019,691	868,158
3	PALM OIL (FFB)						
	SMALLHOLDERS	3,000,000	11,051,801	16,800,000	16,798,814	20,799,279	13,689,979
	PRIVATE COMPANIES	14,050,996	19,306,988	21,000,641	21,360,077	34,241,585	21,992,057
4	COCOA	7,614,082	9,917,843	9,088,720	15,047,905	18,541,732	12,042,056
5	PEPPER	48,735,770	27,480,355	34,782,690	44,450,753	58,450,315	42,779,977
6	COFFEE	5,777,667	5,845,151	7,506,523	2,763,740	3,376,038	5,053,824

Source: CPI calculation.

³⁹ Low-tier certification refers to the “Book and Claim” method of RSPO certification, where palm oil is not traceable but producers can purchase credits (so-called “GreenPalm Certificates”) to meet their certification needs. Middle-tier certification refers to the “Mass Balance” method of RSPO certification, where sustainable palm oil has been mixed with conventional palm oil in the supply chain. “Segregated” certification is also known as “Identity Preserved” certification, where the product is sourced sustainably and kept separate from conventional palm oil throughout the supply chain.

⁴⁰ Rietberg, 2016.

⁴¹ Hovani et al., 2018.

Greater allocation of land to palm oil — or any homogenous mono-cropping approach — further exposes the economy to potential instability. Diversification across multiple agricultural commodities can help to protect against commodity price variability over time. It can actually allow for further upside, in many cases, as prices for some commodities often outperform expectations.

Recognizing that historical prices are not necessarily a predictor of future prices, analysis of Berau estate crop production values per hectare between 2010 and 2014 shows that other crops may be more profitable than palm oil FFB. Cocoa production values per hectare have exhibited an upward trend and are roughly in line with palm oil FFB smallholders. Pepper values have remained reasonably stable over the period and have consistently outperformed palm oil FFB smallholders and private companies. On average, pepper production value per hectare has been more than three times palm oil FFB smallholders and nearly double palm oil FFB private companies.

and 14 years after planting, pepper hits maximum yield in year seven, suggesting that the crop cycles can alternately complement each other.⁴² However, in recent years, despite these harvesting profiles and estate crop production values, most have experienced declines in both total area and production (See Figure 3). Further efforts are required to encourage the growth of estate crops beyond palm oil FFB, especially high production value crops such as pepper.

3.5 Developing downstream agricultural industries to capture the benefits of value-added products

Developing the downstream industry is also important in order to gain maximum value from the raw materials produced in Berau. At present, as in the rest of Indonesia, Berau's agricultural commodities are primarily exported raw due to a lack of value-added services.⁴³

Looking at palm oil, there are a number of downstream pathways that the industry and smallholders could pursue. According to the Head of the Chamber of

Table 2. Estimated estate crop production value per capita of smallholder farmers (IDR)

NO	ESTATE CROP	2010	2011	2012	2013	2014	AVERAGE
1	RUBBER	1,317,219	5,324,771	4,749,891	36,27,550	21,33,058	34,30,498
2	COCONUT (KOPRA)	726,609	652,014	650,655	722,304	964,504	743,217
3	PALM OIL (FFB) SMALLHOLDERS	704,268	3,404,181	37,999,031	9,660,716	9,156,848	12,185,009
4	COCOA	6,701,232	10,288,487	9,327,836	15,443,802	15,712,966	11,494,865
5	PEPPER	50,742,358	25,532,180	32,360,216	41,465,871	51,401,273	40,300,380
6	COFFEE	4,733,702	5,172,408	8,289,628	3,610,097	4,437,506	5,248,668

Source: CPI calculation.

The estimated production value per capita of smallholder farmers lends to the same narrative: pepper is by far the most valuable estate crop on a production value basis, and cocoa is nearly equal to palm oil FFB. The harvesting profile for pepper also highlights its potential role within Berau's diversification strategy: while palm oil trees hit their peak production between 7

Commerce and Industry (Kadin) Berau, Fitriah Noor, there are approximately 146 types of products that could be produced by the palm oil industry in Berau.⁴⁴

These generally fall into three categories: oleo food products (e.g., palm cooking oil, margarine, vitamin A, vitamin E, ice cream, creamer), oleochemicals (e.g., bio-surfactant products, bio-lubricants, and

42 AKO, undated; IFC, 2013

43 Oxford Business Group, 2018.

44 Prokal.co, 2017.

Case study: A look at two social enterprises that utilize Indonesia's raw agricultural commodities to capture added value and drive sustainable economic growth

The number of social enterprises operating in Indonesia have been rapidly growing. According to a report by the Boston Consulting Group, as of 2015, approximately 450 social enterprises or organizations have a business model that delivers social or environmental impact as a core objective, and that reinvests profits in the model. There are a number of social enterprises focused on adding value to raw agricultural commodities produced in Indonesia. Two are highlighted here.

East Bali Cashews

The rural villages of East Bali rely heavily on agriculture for livelihood and subsistence. Historically, the raw cashews harvested by the communities were sold at low prices for processing in nearby countries. In 2012, East Bali Cashews developed Indonesia's first vertically integrated cashew processing business to offer small-scale cashew tree plantation owners a stable, fair source of income. The social enterprise also trains farmers and helps them to adopt sustainable farming techniques and improve crop productivity. East Bali Cashews sells raw cashew nuts as well as other value-added products such as flavored cashews and granola, both domestically and internationally. The business has performed well so far, seeing an average revenue growth of 80% year-on-year.

Krakakoa

Krakakoa, a craft "farmer-to-bar" chocolate company, was founded in 2013 with a mission to improve the livelihoods of Indonesian cocoa farmers and the sustainability of cocoa farming. The partnership between Krakakoa and its partner farmers goes well beyond providing a fair and stable price for raw cocoa; Krakakoa provides farmers with an 8–16 week training on good agricultural practices and sustainable farming methods, and also equips them with the tools they need. So far, Krakakoa has trained about 1,000 farmers living in Lampung, Sumatra, and in West Sulawesi. The company produces chocolate bars, gourmet cocoa nibs, and other added value products from the cocoa it buys from its farmers at a price of up to IDR 60,000/kg.

Sources:

The Boston Consulting Group, 2015.

Minh, T.C., undated.

Krakakoa.

bio-materials), and biofuel complexes (e.g., biodiesel, biogas, bio premium).⁴⁵

Recognizing that the required capital investments for some forms of processing would be higher than others, the added value captured could be significant; bio-surfactant products, for example, could lead to an added value of more than 350%.⁴⁶

It may be prohibitively expensive to set up the infrastructure for biodiesel production, but biofuel complexes are likely to exhibit positive price momentum given recent regulatory change. The domestic demand for palm oil is set to increase significantly as Indonesia

now requires that diesel fuel contain at least 20% bio content, and that all vehicles and heavy machinery utilize biodiesel blended fuels.⁴⁷

There are also opportunities beyond palm oil. Recently, small home industries have shown an interest in developing consumer products from cocoa and pepper. These need to be supported and scaled. Small businesses operating in other parts of Indonesia have been successful in these and other sectors. For example, the case study below looks at two social enterprises that utilize Indonesia's raw agricultural commodities to capture added value and drive sustainable economic growth.

45 Silaen, 2018; The Head of Regional Investment and Permittance Board of East Kalimantan, undated.

46 The Head of Regional Investment and Permittance Board of East Kalimantan, undated.

47 The Star Online, 2018.

4. Optimizing Government Revenue and Spending

4.1 Current revenue largely originates from central government transfers, and operational expenditures dominate spending

Looking at government revenue, although not a perfect barometer for the status of economic development, is helpful for a few reasons. First, understanding the overall composition of the revenue sources can identify areas of risk (e.g., due to a reliance on a few key sources), or potential for future growth (e.g., due to potential policy changes or other structural adjustments). Second, looking at revenue trends over time helps to understand the overall health of the economy and its current trajectory. Finally, analyzing the expenditure side highlights the re-investment priorities and potential for future revenue gains within target sectors.

District governments currently receive revenue from a range of sources. A small percentage of revenue originates from regional taxes, levies, and investments (i.e. Own-Source Revenue), and the vast majority of revenue comes from transfers from the central government.

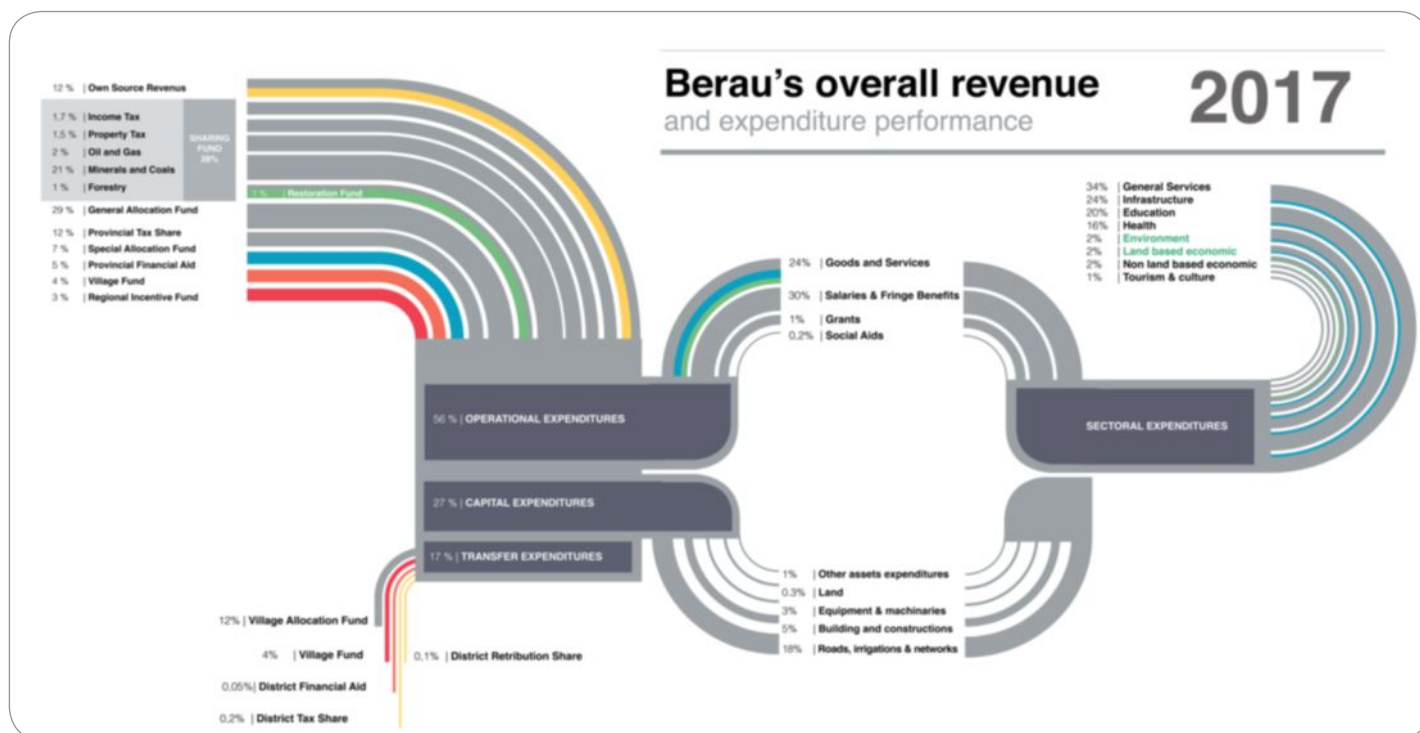
Own-Source Revenue (OSR), is generated within and retained by the district (e.g., ground water tax, local land and building tax, hotel tax, restaurant tax, asset

management interest). In 2017, OSR accounted for 12% of Berau’s revenue. The Provincial Tax Share (e.g., revenue generated from Provincial taxation—Motor Vehicle Tax, Vehicle Transfer Tax, Vehicle Fuel Tax, Surface Water Tax, and Cigarette Tax—that is shared with the district governments) also represented 12% of Berau’s revenue in 2017.

The majority of revenue originates from fiscal transfers received from the central government via several fiscal transfer instruments. The largest contributing instruments are the General Allocation Fund (Dana Alokasi Umum, DAU), the Special Allocation Fund (Dana Alokasi Khusus, DAK), and the Revenue Sharing Fund (Dana Bagi Hasil, DBH). In Berau, these represented 64% of the government’s revenue in 2017: 29% from DAU, 7% from DAK, and 28% from DBH. Nearly 75% of the DBH transfer originated from coal and mineral royalties. The other central-to-regional transfers include Provincial Financial Aid (5%), the Regional Incentive Fund (DID) (3%) and the Village Fund (4%). The latter is distributed based on a formula built on the principles of equity and equality.

Turning to the expenditure side, majority resources were channeled to operational expenditures to cover salaries and benefits (30%) and goods and services (24%).

Figure 6. Berau’s overall revenue and expenditure performance in 2017



Source: Laporan Realisasi APBD (LRA) Kabupaten Berau 2017.

Within the sectoral expenditures originating from the operational expenditures, 34% is going to general services and 24% to infrastructure, while a combined 4% is being spent on the environment and land-based economic development. Capital expenditures accounted for 27% of Berau's spending, including 18% for much-needed infrastructure (e.g., roads, irrigation).

Around the world, it is generally understood by policy makers that public infrastructure stimulates economic growth. This is especially true in Indonesia, where construction of ports, bridges, highways, and airports are necessary to establish connectivity between regions, reduce logistical and transportation costs, and allow efficient exporting of goods. According to the Global Competitiveness Report 2016–2017, Indonesia's infrastructure ranked 60th out of 138 countries.⁴⁸ Two critical components—roads and ports—ranked 75th.⁴⁹ The Jokowi administration acknowledges the infrastructure gap and has prioritized infrastructure upgrades in recent years.

Berau appears committed to upgrading its infrastructure, but there is more room to grow, especially for irrigation and other services that would support the agricultural sector. In 2017, more than 80% of Berau's capital expenditures for infrastructure was for roads and bridges. Irrigation, water, waste, and electricity made up the rest. The focus on transportation infrastructure also shows that there was less priority to direct revenue spending towards supporting environmental and sustainable land use programs.

4.2 Palm oil growth has not translated into government revenue growth

Although palm oil has seen rapid expansion in recent years, Berau has not experienced a similar boost in terms of government revenues. Berau's palm oil sector contributed an estimated IDR 559 billion (USD 42 million) to central government revenue in 2016. This included Value Added Tax (VAT), corporate tax, personal income tax, and land and building tax. Collectively, the estimated revenue secured from palm oil in Berau represents a mere 0.04% of total domestic revenue.

Only IDR 9.77 billion (USD 734,955), or 2% of their total tax contribution, went back to Berau via the DBH (IDR 1.8 billion from personal income tax and IDR 7.94 billion from the land and building tax). The small contribution of palm oil to Berau's transfer of DBH is systemic; given the current regulation that defines DBH formulas—Government Regulation No. 55/2005 concerning Balancing Funds—palm oil does not receive the same special sectoral treatment as do forestry, energy and mineral resources, and fisheries. As a result, the only components of palm oil taxes that flow from Berau to the central government, get partially channeled back via DBH are personal income tax and land and building tax. In 2016, an estimated 3.2% of palm oil taxes from Berau were from these categories, with the bulk originating from VAT (86.7%) and corporate tax (10.1%).

At the same time, palm oil does not contribute much to Berau's OSR. Approximately 80% of Berau's OSR from taxes and retribution are originated from service-related industries (e.g., restaurants, hotels, healthcare, and

Table 3. Estimated taxes from palm oil in Berau and the amount returned to Berau via DBH

PALM OIL TAXES	2016 (IDR)	PROPORTION	SHARE TO NATIONAL INCOME (PDN)	SHARED TAX FROM PALM OIL TAXES	REMARKS
VAT	427,422,470,500	86.67%	0.0284%	NOT DIRECTLY SHARED	ASSUMING OF 8.4% LOCAL GOV SHARE ACCORDING TO PP 55/2005
CORPORATE TAX	97,999,013,050	10.14%	0.0065%	NOT DIRECTLY SHARED	
PERSONAL INCOME TAX	21,283,615,975	0.02%	0.0014%	1,837,333,342	ASSUMING 90% OF TOTAL SHARED PBB PERKEBUNAN FOR BE-RAU. TOTAL PLANTED AREA OF PALM OIL IS ESTIMATED AT 90%.
LAND & BUILDING TAX	12,249,334,722	3.17%	0.0008%	7,937,568,900	
TOTAL	558,954,434,247	100.00%	0.04%	9,774,902,242	2%

Source: CPI calculation.

48 Tarahita and Rakhmat, 2017.

49 Tarahita and Rakhmat, 2017.

financial markets). Despite the strong focus on agriculture and mining, currently, little revenue is secured from land licenses or permits for agriculture or mining.

Another reason to temper expectations about the role of palm oil in terms of Berau's government revenue — especially as it relates to serving as a replacement for coal — is that CPO production values are quite small, especially when compared with the coal production values. The following figure illustrates how unrealistic it would be to expect palm oil to replace coal revenues. For the same amount of production capacity, the production values differ so greatly between palm oil and coal.

4.3 Improving revenue sharing transfers to incentivize sustainable land management

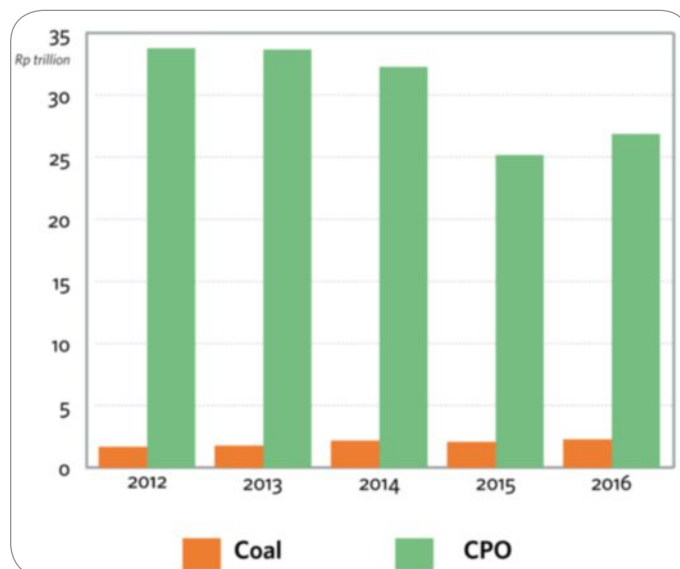
Potential from Central-to-Regional Government Transfers

As elaborated in section 4.1. above, there are a number of central-to-regional fiscal transfer mechanisms in place. Small policy adjustments to the allocation methodologies deployed by some of these could lead to higher transfers to the government of Berau, and other districts committed to sustainable land management.

Past CPI studies have looked at each fiscal transfer mechanism in detail to determine their potential to be reformed to incentivize sustainable regional land use practices (CPI, 2015-a). One of the main conclusions was that the major instruments for reform are the General Allocation Fund and the Revenue Sharing Fund, but it would be challenging to achieve reform.

The General Allocation Fund has very little flexibility due to its pre-determined allocation and rigid formula as mandated by the law. One of the main variables determining allocation of the General Allocation Fund is the region's fiscal need. Fiscal need is determined by a number of indicators such as the region's expenditure, population, development, GDP, and land area. The calculation of land area indicator consists of terrestrial and marine area.⁵⁰ Recent efforts have explored ways to insert forest cover as a new indicator, with the idea that the more forest cover a region has and is able to maintain, the more General Allocation Fund it should be entitled to receive as an incentive to protecting that forest cover.⁵¹ Achieving such a reform would require a technical amendment to high-level laws requiring

Figure 7. CPO production value versus coal production value (IDR trillion)



Source: CPI Analysis, 2018.

cross-ministerial and possibly parliamentary approval. It would also require an amendment to the principle purpose of the General Allocation Fund, which is to achieve equity across all regions, instead of preferential treatment to a few regions with specific characteristics (such as high forest cover). It is unclear whether there is any political will at the moment to pursue this.

The Revenue Sharing Fund has also been identified as an instrument with high potential to incentivize sustainable land use practices (CPI, 2015-a). It requires the central government to share the income from natural resources with provincial and district governments. Law No. 33/2004 outlines the revenue sharing formulas (see Figure 8) spanning the forestry, mining, geothermal, oil, gas, and fisheries sectors.

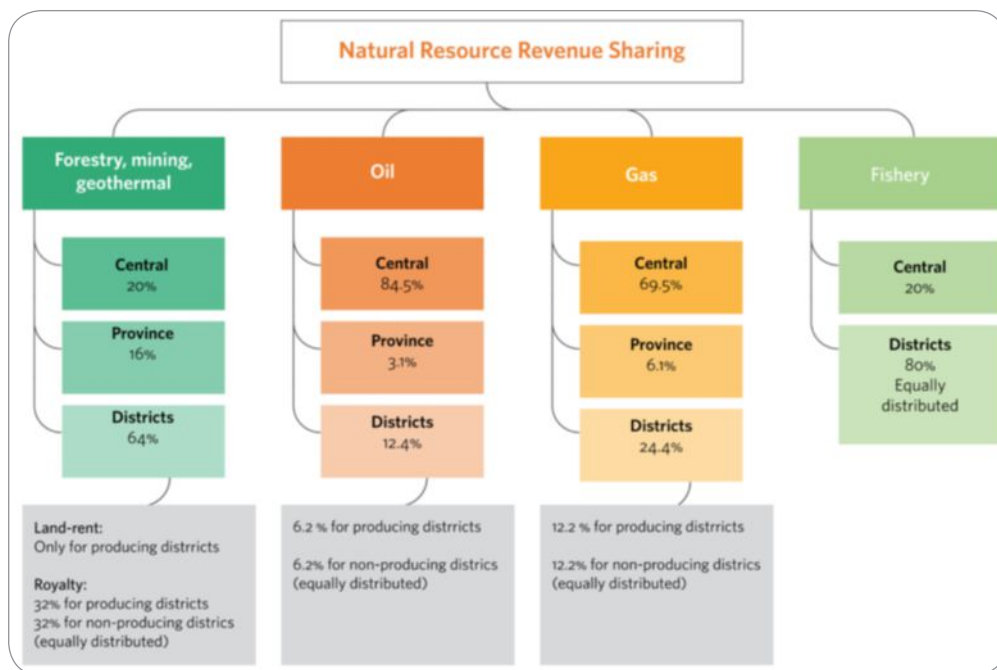
For forestry, mining, geothermal, and fisheries, regional governments retain 80%; for gas this drops to 30.7%; and for oil to 15.5%. In most cases, the district allocations are further differentiated between producing districts and non-producing districts; assuming there are fewer producing districts than non-producing districts, each producing district will secure a proportionately higher amount than each non-producing district.

Interestingly, agriculture in general including palm oil (e.g., palm oil FFB and/or CPO) was not included as a sector in the revenue sharing mechanism. Discussions have been held around the idea that, since palm oil has seen rapid expansion in the last 15 years and has contributed significantly to domestic revenues, it should be

50 Mumbunan, 2012.

51 Mumbunan, 2018.

Figure 8. Natural resource revenue sharing arrangements per Law No. 33/2004



Source: Agustina et al., 2012 p.14.

subject to revenue sharing mechanisms as well. This would incentivize palm oil producing regions to meet recent domestic regulatory changes requiring diesel fuel to contain at least 20% bio content, and also provide “capital” for regions to invest in sustainable palm oil. However, reforms to the Revenue Sharing Fund are also difficult to achieve. Similar to the General Allocation Fund, it would require amendments to high-level regulations and to some basic principles of the instrument. In 2011 the Parliament initiated a discussion for CPO to be included as a benefit sharing scheme within the Revenue Sharing Fund, however this discussion never gained the necessary traction and has since been shelved.⁵²

Two other fiscal transfer instruments have been identified as having potential to incentivize sustainable land use practices, namely the **Special Allocation Fund (DAK)** and the **Regional Incentives Fund (DID)**. Although minor in size compared to the General Allocation Fund and Revenue Sharing Fund, these funds have more flexibility in terms of how they are allocated and can adapt better to new needs.

The avenue that could be explored is how to further embed sustainability metrics or criteria into the allocation formulas for the DAK and the DID. In fact, these

52 <https://finance.detik.com/berita-ekonomi-bisnis/d-1756710/dpr-usul-ada-jatah-dana-bagi-hasil-sawit-buat-daerah>

53 Financial Note (Nota Keuangan) of APBN in Chapter 5 sub chapter DID

54 UNDP, 2016.

55 BIOFIN, undated.

56 BIOFIN, 2018.

instruments already incorporate some degree of direct or indirect ecological dimensions. For example, the DAK allocation includes measures relating to water quality and pollution control, and a recent 2019 addition to the DID formulation actually provides incentives to local governments to manage waste more effectively, including through waste reduction and waste recycling.⁵³

The creation of further ecological fiscal transfer mechanisms requires modifying existing intergovernmental fiscal transfer formulas according to a set of ecological principles and priorities. For example, adding conservation indices (e.g., size/

quality of protected areas) to the formula to reward investment in conservation.⁵⁴ The DID appears to show particular promise; it is structured in such a way that it could accommodate ecological components into its disbursement requirements.⁵⁵

The Biodiversity Finance Initiative (BIOFIN) is looking into how the DID could finance biodiversity restoration activities based on metrics such as conservation and areas under sustainable management. Mr. Parjiono, Head of the Center of Climate Change and Multilateral Policy within the Ministry of Finance, agrees that there is potential to implement new indicators related to biodiversity.⁵⁶

If forest conservation and sustainable land use metrics were integrated into the DID or DAK, Berau would stand to secure larger allocations assuming it remained committed to conservation and sustainability. In this way, Berau would be incentivized to ensure that palm oil plantations and other agricultural lands are managed sustainably. This would in turn help smallholders and industry to improve their management practices and maximize yields.

Potential from Province-to-District and District-to-Village Government Transfers

Regional-level government transfers also have potential to be modified to incentivize sustainable land use. As illustrated in Figure 6 above (Section 4.1.), a portion of Berau’s revenue comes from Provincial Financial Aid, and a significant aspect of Berau’s expenditure goes into transfers to villages in the form of a Village Allocation Fund and District Financial Aid. The methods for allocation of these transfer mechanisms are flexible enough to allow for new criteria to be inserted which rewards sustainable practices at the district and village level.

A new initiative is being developed by The Asia Foundation to insert ecological variables into fiscal transfer mechanisms, as follows:

- Ecology-based Provincial Budget Transfer (Transfer Anggaran Provinsi berbasis Ekologis - TAPE), which is a fiscal transfer mechanism between provinces to districts; and
- Ecology-based District Budget Transfer (Transfer Anggaran Kabupaten berbasis Ekologis - TAKE), which is a fiscal transfer mechanism between districts to villages.

The initiative is being researched and to some extent piloted in regions with high forest cover, namely Papua, Riau (Central Sumatra), South Sumatra, North Kalimantan, and East Kalimantan.

The TAPE framework envisions funds to be delivered out of the Provincial Financial Aid fund (Dana Bantuan Keuangan Provinsi) using a formula for allocation that rewards the protection of forests. The indicators used to calculate TAPE are specific to forest cover and forest changes. The basic formula being developed is as follows:

Table 4. TAPE Formula

TAPE = BASIC ALLOCATION + INCENTIVES
BASIC ALLOCATION
Basic Allocation is calculated as the proportion of forest cover in the district relative to the total forest cover of the entire province. The total Provincial Financial Aid is distributed to districts in proportion to the forest cover proportion of that district.
INCENTIVES
Incentives is calculated as the change of forest cover in the district relative to its forest cover in the previous year. If forest cover goes up, the Incentive amount increases. If forest cover goes to zero, the district will lose both the incentive fund and the basic allocation fund.

TAPE funds are transferred in the form of a block grant and specific grant. The block grant is non-earmarked, meaning that the district / city is free to determine its allocation and spending. The specific grant is limited to being spent on activities to protect the environment. The transfer scheme options depend on the budgeting policy of each province.

However, these formulas are still being discussed and are continuously being developed and modified for different provinces. The fact that the formula only considers forest cover as a variable also discriminates against districts that do not have any forest cover at all, but may have policies supporting sustainability (such as urban park initiatives or sustainable marine areas). The province of North Kalimantan is developing a draft governor’s regulation based on the TAPE initiative, and is including other variables apart from forest cover. As the regulation has not been issued yet it merits a closer look at what the incentives formula will be.

A similar idea to TAPE is being developed for TAKE, which is a proposed fiscal transfer mechanism from districts to villages. The TAKE initiative has been piloted at the District of Pelalawan, Riau Province through a change in the formula for Village Allocation Funds (Alokasi Dana Desa - ADD). The ADD formula from district to village was amended to add an extra variable on areas where there are oil & gas and/or forestry activities. The use of Forestry ADD is prioritized for forest and land protection.

However, the TAKE framework developed for Pelalawan is structured as a revenue sharing scheme rather than an incentives scheme for a certain environmental performance. As with the TAPE formula, the TAKE is also still being discussed and continuously developed to fit the purpose of different district and village needs. Although still being developed, these innovative fiscal transfer mechanisms are within regional government authority to explore and enact, and thus merit a closer look in future studies.

4.4 Berau’s Own-Source Revenue continues to increase, and has further room to grow

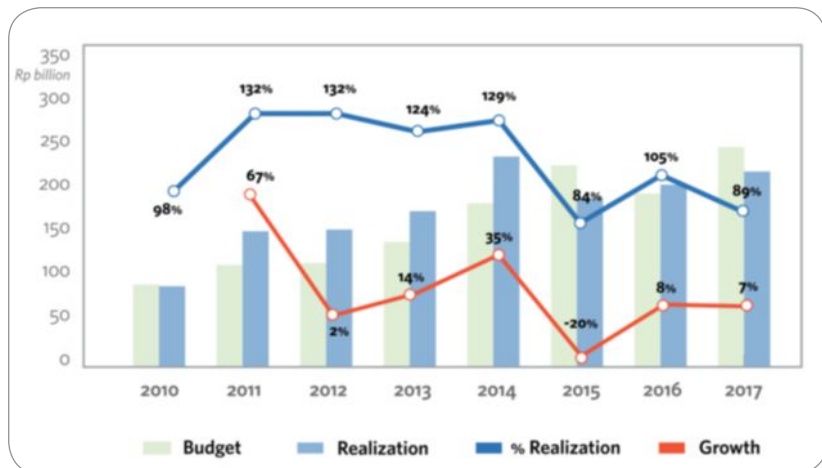
One area that Berau could focus on to boost revenue is its OSR. Their 2017 OSR came from 28 different taxes and levies. Eight of these originated from Berau’s own initiative. The other 20 are supported by Law No. 28/2009 on Regional Taxes and Levies, which outlines 28 potential taxes and levies. In other words, there are eight additional taxes and levies that Berau could

implement per Law No. 28/2009 on Regional Taxes and Levies. This would help to boost overall OSR and maintain the positive growth rate seen in recent years. Continuing to enhance OSR is important for Berau's overall development as measured by the Human

- Optimizing OSR by investing in productive activities such as regional/village-owned companies.

These additional revenues could be reinvested into infrastructure and services that support sustainable agriculture in Berau.

Figure 9. Berau's Own-Source Revenue (IDR; % growth and realization)



Source: Laporan Realisasi APBD (LRA) Kabupaten Berau 2010-2017

Development Index (HDI)—a summary measure of average achievement in key dimensions of human development related to longevity and health, knowledge, and standard of living. The Indonesian Central Bureau of Statistics relies on HDI to determine the ranking or level of development in each region, and also as an input to the allocation calculation for the DAU.

A recent study by Mutiha showed that regional OSR has a positive impact on the HDI, while the General Allocation Fund (DAU), Revenue Sharing Funds (DBH) and Special Allocation Funds (DAK) have significant negative effects on the HDI.⁵⁷ These findings highlight the importance of continuing to strengthen Berau's OSR. Specific ways in which Berau could enhance its OSR include:

- Adding to the list of retributions items, such as IMB refinery permits, port permits, refining plant permits, and jurisdiction certification service to boost OSR; and

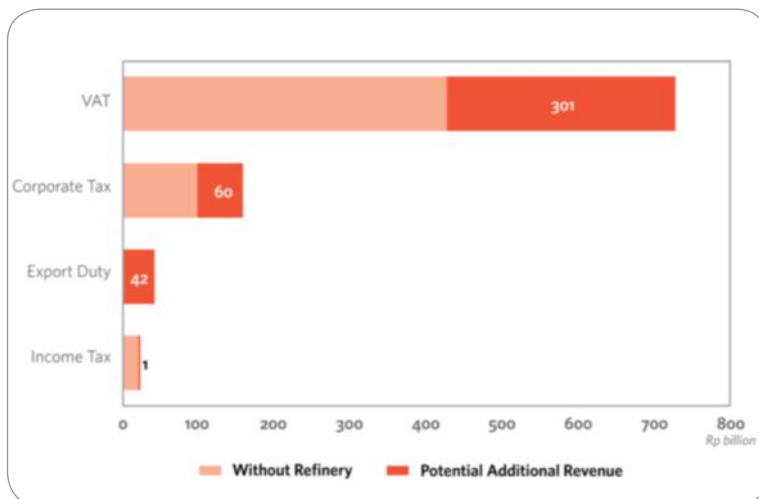
4.5 Income tax could be optimized by diversifying commodities and down streaming

As discussed in section 3, there are significant opportunities for Berau to extract further value from the existing palm oil land area and through the development of refineries, as well as via diversification into other commodities and the creation of downstream industries.

The opening of refineries would not only create more jobs and added value for the palm oil sector in Berau, but it would also boost Berau's government revenue.

Assuming all CPO could be refined in Berau, this would result in a boost of approximately IDR 405 billion (USD 31 million) to Berau's tax revenue. It would channel to the central government, but some would channel back to Berau via various fiscal transfer mechanisms. As with the additional OSR revenue, this additional revenue should be channeled to supporting sustainable agriculture in Berau.

Figure 10. Potential national income from palm oil refineries in Berau (IDR Billion), 2016

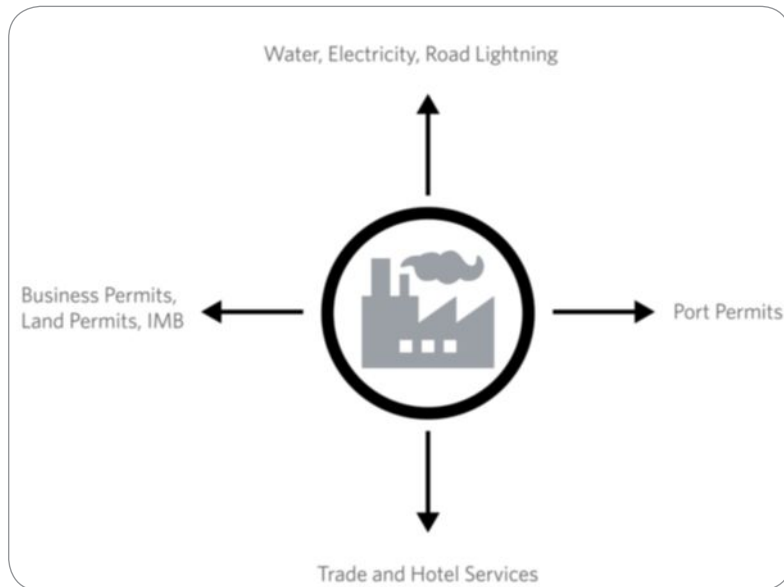


Source: CPI calculations, 2018.

57 Mutiha, 2018. The study does not provide conclusive reasons as to why these transfer mechanisms have a negative effect on HDI, but theorizes that it may be due to the fact that the funds are not earmarked to finance direct expenditure. The theory is that direct expenditure has a direct impact on maintaining public services, which leads to impact on improving the quality of human development.

Further, benefits to the government would extend beyond refineries. Refineries would open up new streams of revenue from permits, utility fees, and supporting service businesses. In other words, the development of a refinery or two would have a multiplier effect; the government of Berau's revenue would increase and the economy would see a boost beyond the palm oil sector.

Figure 11.



Source: CPI

4.6 Enhancing Berau's Village Fund utilization and priorities

In 2017, Berau's Village Fund budget was IDR 84.1 billion (USD 6.32 million) which translated to an average per village budget of IDR 0.84 billion (USD 63,238).⁵⁸

The actual realized amount was IDR 72.0 billion (USD 5.42 million) largely because of distribution/transfer delays (e.g., central to regional and regional to village), often due to missing or insufficient financial reports or plans. The majority of the funding was allocated to village development (92.7%), while the remaining went to community empowerment (6.1%), community development (0.7%), and village administration (0.6%).

The majority of the village development funding was channeled to infrastructure investments.

Within the community empowerment program, villages can utilize resources for Village-Owned Enterprises (Badan Usaha Milik Kampung, or BUMK)⁵⁹

across the following business types: social businesses (e.g., drinking water management, waste management), financial institutions, rental equipment, brokerage (e.g.

to serve as intermediaries for commodities produced by citizens to the wider market), joint venture, and contracting (e.g. for village projects). As village-owned enterprises, BUMK's business capital is generally sourced from village government investments and village community investments. It is possible for external parties (e.g., private sector, non-governmental institutions, donors, etc.) to invest in BUMK, but the modalities are limited at present. According to Ministry of Villages, Development of Disadvantaged Regions and Transmigration, there were 35,000 BUMK across Indonesia's 74,910 villages as of July 2018.

In Berau, only 15 out of the 100 villages allocated investment for BUMK in 2017. That said, the number of BUMK nearly doubled from 26 in 2016 to 42 in 2018. The government of Berau would like to increase the number of BUMK, especially the number of BUMK structured as financial institutions, to help develop community businesses from 99 in 2017 to 584 in 2021.

There is also the potential to develop BUMK that target the sustainable palm oil sector—or broader sustainable agriculture sector. In Berau, 3 out of the 42 existing BUMK already conduct some form of business related to palm oil. This includes, provision of seedlings and other supplies, provision of guaranteed purchaser services, provision of loans or other financial support for smallholders, and the development of companies that provide inputs to create added-value products, amongst others. (For an example, see **Case Study: Padangjaya Village, Kuaro District, Paser Regency, East Kalimantan**).

58 Sutiyono, G., Muluk, S., Mafira, T., Rakhmadi, R. 2018.

59 The more commonly used term is Badan Usaha Milik Desa (BUMDes), but Berau uses the local term Kampung for Desa.

Case Study: Padangjaya Village, Kuaro District, Paser Regency, East Kalimantan

Smallholder oil palm farmers in Padangjaya village used to rely on middlemen, offering unattractive terms, to sell their Fresh-Fruit Bunches (FFB). The Village Chief decided to help set up a BUMDes that could deploy its own capital to buy FFB from the smallholders, at fair value, and then sell them to nearby mills. The villagers of Padangjaya did not stop there; they have also setup BUMDes to address other challenges faced by smallholders. For example, they have BUMDes that sell oil palm seeds and fertilizers and provide loans to farmers that can be repaid at harvesting time.

Reference <http://www.berdesa.com/informasi-lengkap-tentang-bumdes-yang-harus-anda-ketahui/>

5. Conclusion: Transitioning from a mining to a sustainable cultivation-focused economy will require a multi-pronged approach

The District of Berau in Central Kalimantan still relies on coal mining as its main source of economic development. Coal contributes more than 60% to Berau's Gross Regional Domestic Product (GRDP), however, the growth rate of the coal sector has diminished in recent years and exhibited negative growth in 2016. Price uncertainty makes it challenging for Berau to rely solely on mining to drive development and provide fiscal stability. Growth in renewables and natural gas is set to reduce coal's contribution to the global energy mix from 27% in 2017 to 25% through 2023, and Indonesia itself is making efforts to limit coal production. The government acknowledges that its focus on resource extraction is not financially or environmentally sustainable, and is beginning to shift its attention from mining to cultivation, with an emphasis on palm oil.

In this study, however, we find that the focus on palm oil plantations comes with its own set of risks, and may not contribute as much as expected to Berau's fiscal and economic health. While sustainable palm oil does present opportunities for regional growth, other checks and measures are needed to ensure Berau does not fall into the same single-commodity resource trap it experienced with coal-mining.

Based on our findings, we have identified several challenges to developing sustainable palm oil in Berau as well as opportunities to both develop sustainable palm oil as well as bolster that development with other non-palm oil initiatives. Despite beginning with an analysis of palm oil's potential to build sustainable economic growth for Berau as a starting point, we are ultimately compelled to look beyond palm oil plantations and recommend a more diversified economy. Many of these findings are likely to apply to other districts in East Kalimantan and in areas whose economies are highly dependent upon agricultural commodities, especially palm oil.

In particular, this study finds:

- 1. With palm oil edging out other estate crops, Berau's economy currently lacks diversity and is unsustainable.** Financially, the dependency on one single commodity exposes Berau to risks from palm oil price and demand fluctuations. Overall, a more diversified approach is likely more promising.
- 2. Sustainable palm oil can be a starting point for economic growth, but needs to be hedged by alternative economic growth pathways.** These should include prioritizing efficiency over expansion, diversification into value-added products, and diversification into other crops.
- 3. Berau's economic health can be supported by sustainable agriculture, but there are a variety of measures that need to be taken up by government to improve overall fiscal health.** Revenue sources for government need to be optimized, budget allocations need improvement, and innovative fiscal transfer mechanisms need to be developed to better support a sustainable economic and fiscal situation for Berau.

Each of these measures provides a promising path forward, but need to be pursued in tangent for Berau to see its overall economic and fiscal situation improve in a sustainable manner. In further CPI studies, we will look more deeply at what the incentives formula might be for these transfer instruments, and how to deploy them effectively. We also look forward, more generally, to engaging with Berau stakeholders to create a strategy for agriculture growth that prioritizes efficiency over expansion from palm oil, as well as diversification into other crops and value-added products, as well as support both regional and national leaders in improving revenue mechanisms.

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