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### **Innovative Financing Scheme for Small-holder Oil Palm Farmers in Indonesia<sup>1</sup>**

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To achieve Sustainable Development Goals (SDGs), the private sector could support an innovative business model including new technologies, investments and broader participation among stakeholders. The aim of this study is to use a private practitioner's approach to design an innovative business model for the development of palm oil production in Indonesia. Indonesia recovered from the 1998 financial crisis with a 5-6%/year GDP growth. While the country's economy has relied on oil and gas since 1970, the depleting oil reserves and imbalance between oil consumption and production changed Indonesia's status from net oil exporter to net oil importer in 2004. This made the palm oil sector grow rapidly, since the government tries to shift to export from other sectors than oil and gas. Addressing global environmental challenges, such as food security, climate change, clean energy, biodiversity loss, and ecosystem changes, is essential for promoting sustainable development. Furthermore, different stakeholders' participation and collaboration are indispensable to achieve sustainable development. Cooperation among multiple stakeholders, from academia, industry and politics requires the bridging of different disciplines from the sciences, technology, and policy studies to the social sciences. The palm oil industry needs to change urgently to sustainable production practices whilst still achieving economic growth and protecting the environment, i.e. 'green economy'. In order to enable green economy, experts knowledgeable of sustainable development, environmental governance and biodiversity issues are invaluable. This essay tries to highlight the inclusive business model to help the smallholder in palm oil financed their plantation.

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## Innovative financing for palm oil farmers

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**T**he sustainable development concept was defined by the Brundlandt Commission (formally known as the World Commission on Environment and Development) in its 1987 report, “Our Common Future,” as “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.”

The concept became a landmark in development thinking and a major part of the international agenda. The first significant international meeting on the issue was held in Rio de Janeiro in 1992: the United Nations Conference on Environment and Development. By contrast somewhat, in 2000, the UN General Assembly declared the Millennium Development Goals (MGDs), setting a target to halve global poverty by 2015. Despite its weaknesses, the MDGs constitute a manageable number of straightforward goals that are easy to understand and measure.

## **Unlike other emerging economies, such as China and India, most of Indonesia's greenhouse gas emissions are not from industrial activities but peat fires and deforestation.**

And while important progress has been made towards achieving the MDGs by 2015, there is an urgent need to improve upon them given the current global situation. The Rio+20 conference on sustainable development, held in 2012, already identified this by proposing Sustainable Development Goals (SDGs) as a new tool to pursue the post-2015 development agenda. The new goals should incorporate core poverty measures (income and hunger) along with climate change and human development indicators such as education and overall well-being. In general, the MDGs focus more on developing countries while the SDGs would be universal. This is to accommodate emerging economies, as most global economic growth is driven by them rather than developed countries.

Progress toward these new Sustainable Development Goals needs to be monitored by clear targets and indicators, while taking into account national circumstances, capacities and levels of development. The task is complex, but indicators compiled during the last 20 years by the Organization for Economic Cooperation and Development, UN Office for Sustainable Development, UN Environmental Program and World Bank could be used as a solid foundation (Pinter, 2013). And the concept of sustainable development, and the idea to use an integrated approach, could be taken from the water-energy-food security nexus.

To achieve SDGs, the private sector also

should support innovative business models including new technologies, investment and broader participation among stakeholders (UN, 2013). The aim of this essay is to use a private practitioner's approach to discuss an innovative business model for palm oil production in Indonesia.

### **Indonesia and climate change**

Indonesia recovered from the 1997-1998 Asian Financial Crisis and eventually reached 6 percent economic growth between 2010 and 2012. While the country's economy has been heavily reliant on oil and gas since about 1970, declining reserves and imbalances between oil consumption and production changed Indonesia's status from a net oil exporter to a net oil importer in 2004. This enabled the palm oil sector to grow rapidly, since the government tried to expand exports to other sectors besides oil and gas.

Addressing global environmental challenges such as food security, climate change, clean energy, loss of biodiversity, and ecosystem changes is essential for promoting sustainable development. Furthermore, stakeholder participation and collaboration is crucial in achieving sustainable development.

Cooperation among multiple stakeholders from academia, industry and government requires bridging different disciplines together

## Existing Oil Palm in Indonesia (estimated)

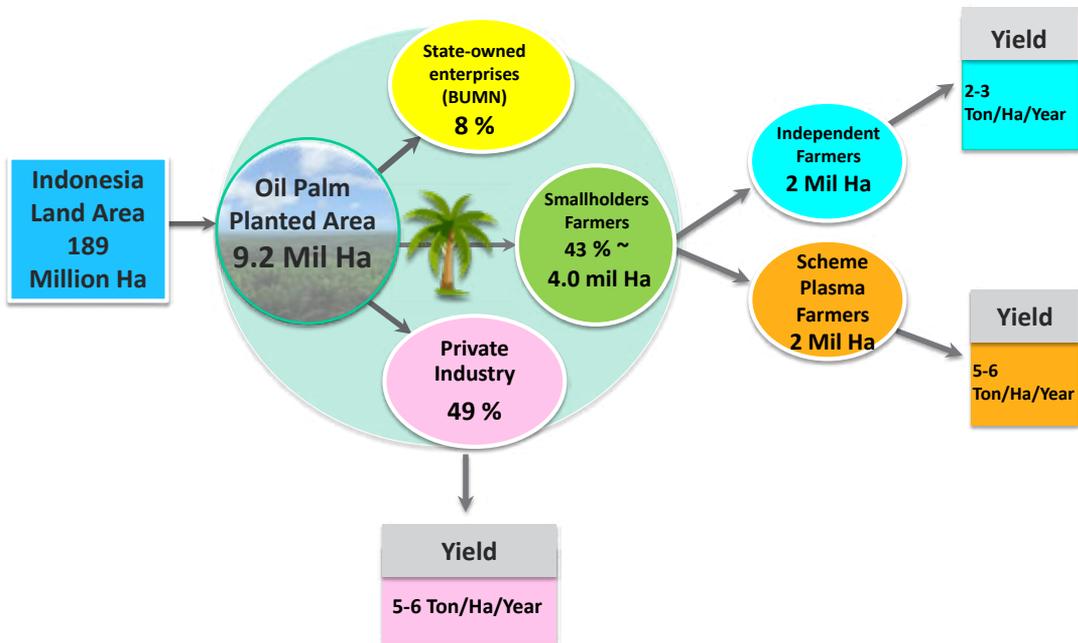


Figure 1 above shows the window of opportunity to increase productivity at smallholder palm oil plantations, which have not been intensively managed and at present show a significantly lower yield than commercial plantations. Common best practices can help maximize yields during harvest by maintaining a clean area underneath the plant canopy through the collection of loose fruits, proper pruning, removing abnormal and disease-infected plant parts, and managing nutrient availability and soil moisture.

including science, technology, policy studies and social science.

When considering the massive challenge of climate change it is important to note Indonesia's important role as the world's fourth-most populous country and home to its third-largest stands of remaining tropical forests. Indonesia's economy in the last 10 years has shown consistent growth between

5 percent and nearly 7 percent per year.

However, while the country only comprised 0.6 percent of global gross domestic product, it emitted about 2.1 gigatons of Co<sub>2</sub> in 2005, which was 5 percent of total global greenhouse gas emissions. Unlike other emerging economies, such as China and India, most of Indonesia's greenhouse gas emissions are not from industrial activities but peat fires and



deforestation.

The expansion of agricultural products such as palm oil, which contributed 5 percent to Indonesia's gross domestic product in 2009, will lead to deforestation and accelerate climate change, biodiversity loss and ecosystem changes. The palm oil industry needs to shift urgently to more sustainable production practices while still achieving economic growth. In other words, the industry needs to create a "green economy." And to do so, environmental governance and biodiversity are invaluable.

### Rapid development, environmental issues

Indonesia's palm oil industry started in 1911 with the establishment of commercial plantations in northern Sumatra. These evolved slowly up to the mid-1970s, after which growth

became rapid due to government support. One of the support schemes was the introduction of nucleus estates in which big companies took a primary role, not only to promote themselves but also to develop estates run by smallholders. In 2006, Indonesia surpassed Malaysia as the top palm oil producer in the world, with a global market share of 47 percent.

Palm oil is now the most important agricultural commodity in Indonesia and plays a significant

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role in the country's development. In 2012, the palm oil sector produced 24.4 million metric tons of crude palm and 5.3 million tons of palm kernel oil, employed five million people and generated exports of \$19.1 billion. Smallholders own 45 percent of Indonesia's palm oil plantations, with private companies owning 47 percent and state-owned companies running 8 percent. While palm oil production has a positive impact on employment and income, deforestation in Indonesia has mostly been caused by land-use conversions to palm oil plantations.

Between 2005 and 2010, 26 percent of deforestation in Indonesia was attributed to the expansion of palm oil plantations. Since 2011, palm oil expansion has slowed due to the Indonesian government's forest moratorium policy. In 2013, the government expanded palm oil utilization from only food supply to energy in the form of biofuels. This new energy policy will both enable palm oil to be part of Indonesia's domestic energy supply as well as boost palm oil prices in the global market.

In 2011, the United States Environmental Protection Agency announced a Notice of Data Availability that greenhouse gas emission reductions from palm oil-based biofuels were only 17 percent compared to conventional diesel fossil fuels. Thus, palm oil production in Indonesia was not sustainable, since it does not comply with a threshold of 20 percent. In October 2012, the government of Indonesia responded by announcing mandatory sustainability certification of all palm oil plantations regardless of whether production is for food or biofuels, which must be implemented by January 2015.

By the end of this year, the government

will start a mandatory certification scheme via the Indonesian Sustainable Palm Oil (ISPO) organization to stringently ensure a sustainable nationwide industry.

In addition to environmental concerns, there are claims that palm oil also does not bring significant economic benefits to smallholders (Rist et al, 2012). Farmers have limited funding resources and are only able to harvest four years after planting, the argument goes.

### Energy in the mix

Yet palm oil is undeniably useful. Crude palm oil has many applications, notably as a cooking oil and for biofuel, while palm kernel oil is a common ingredient in processed foods, soaps and personal care products. The average yield of palm oil ranges from 6 million to 7.5 million tons per hectare, up to 18, 15 and 11 times higher than the yield for soybean oil, rapeseed oil and sunflower oil, respectively. Five percent of palm oil produced globally is used as feedstock for biodiesel. The projected global demand for palm oil products will grow 186 percent between 2010 and 2025.

The significant role of palm oil cannot be

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overstated. In addition to local uses, Indonesia exports palm oil to countries around the world including Africa, where palm oil originated. In addition to the increasing global demand for edible palm oil and as a component in numerous products, its demand as an energy source is rising. Just recently, several Indonesian companies signed a deal with PT Perusahaan Listrik Negara (PLN), Indonesia's state electrical company, to supply palm oil for power generation. The present contracted palm oil supply to PLN is around 7,000 tons. Should PLN adopt "B50" (50 percent biofuel, 50 percent fossil fuel) to replace the 8.2 million kiloliters of fossil fuel it used in 2012, about 16 percent of Indonesia's current palm oil production would be needed for fuel.

Because palm oil is highly efficient in terms

of land use it is extremely valuable and strategic. Only 1 million hectares of land would be required to develop enough palm oil to meet Indonesia's potential oil demand for energy, compared to 8.5 million hectares for any other potential oil crop.

### **Coping with crisis**

**T**he world is facing mounting, interconnected crises. It continues to experience a global financial lag, a food crisis, volatile oil prices, decreasing ecosystem services and extreme weather events due to climate change. We have also witnessed growing income inequality caused by the lack of job opportunities and social security. In today's world, sustainable development is no longer





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simply an academic notion. Many countries are already implementing policies and programs to integrate social development, economic growth and environmental sustainability, in what we call a “triple win” initiative. In the case of palm oil, expert agronomists say that when a plantation is well managed, it can sustain these

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three key factors.

Palm oil, with its extremely high yield, is an exemplary crop that could fulfill increasing global demand for food and fuel. With finite land and resources, effective management of palm oil is important for long-term viability. At the same time, the industry must do its utmost to protect our natural resources and minimize environmental impact. This in turn would involve integrating palm oil development with technological, policy and social reforms to achieve sustainable production. Agriculture is essential for inclusive development because it provides food as well as economic and social benefits for many of the world’s poorest people. Income is generated through agricultural development, while better

## **Smallholder farmers in most of the cases do not have the required capital and have limited access to sources of funding.**

health care, education and infrastructure enhance the quality of life. The industry and economy also benefit from greater investment in environmentally sound practices.

### **Funding for sustainability**

Currently, smallholder plantations represent 43 percent of total palm oil cultivation in Indonesia. On average, the annual palm oil yield of smallholders is two tons per hectare, while that of well-managed commercial plantations is over seven tons per hectare each year. The lower productivity of smallholders, especially independent ones, is mainly due to the use of low-yield seeds, a lack of fertilizer and poor plantation management. Their limited access to financial support, technological know-how and extension services also impact current practices and productivity levels. For the industry to grow further, it is important that various stakeholders come together to narrow this productivity gap and help smallholders gain access to financial and knowledge support.

The Indonesian Chamber of Commerce and Industry (KADIN) has initiated an innovative financing scheme for one million independent palm oil planters to boost productivity. Through the scheme, KADIN will support independent farmers by arranging funding from financial institutions through cooperatives, which in turn will provide loans at affordable interest rates to farmers seeking

working capital or investment to replant their plantations. This financial support will help sustain the smallholders in the initial four years before their oil palms reach maturity.

KADIN expects that the scheme will help to increase current annual oil yield from two to three tons per hectare a year to five to six tons per year. With a replanting area of two million hectares, this scheme would generate additional production of five to six million tons of crude palm oil, and an additional income of approximately \$4 billion to \$5 billion a year, based on a price of \$800 per ton. And through this scheme, we could possibly avoid opening one million hectares of new land for palm oil development, thus saving precious carbon resources.

In 2011, during the launch of the “Partnership for Sustainable Indonesian Agriculture” (PISAgro) program at an East Asia meeting of the World Economic Forum in Jakarta, Indonesia’s giant Sinar Mas Agro Resources and Technology (SMART), one of the world’s biggest palm oil producers, proposed another innovative financial scheme to support smallholders. Under its scheme, the company would be the guarantor for credits given by state-owned banks to smallholders, with a 6 percent interest rate for the initial four years and 10.5 percent afterwards. Training in best management practices will be provided to help smallholders reduce greenhouse gas emissions. This effort will also lead to increased yields, through its “20-20-20” goals:

## Oil Palm Business Model

### Innovative Financing Scheme *Nucleus – Independent* through Cooperatives

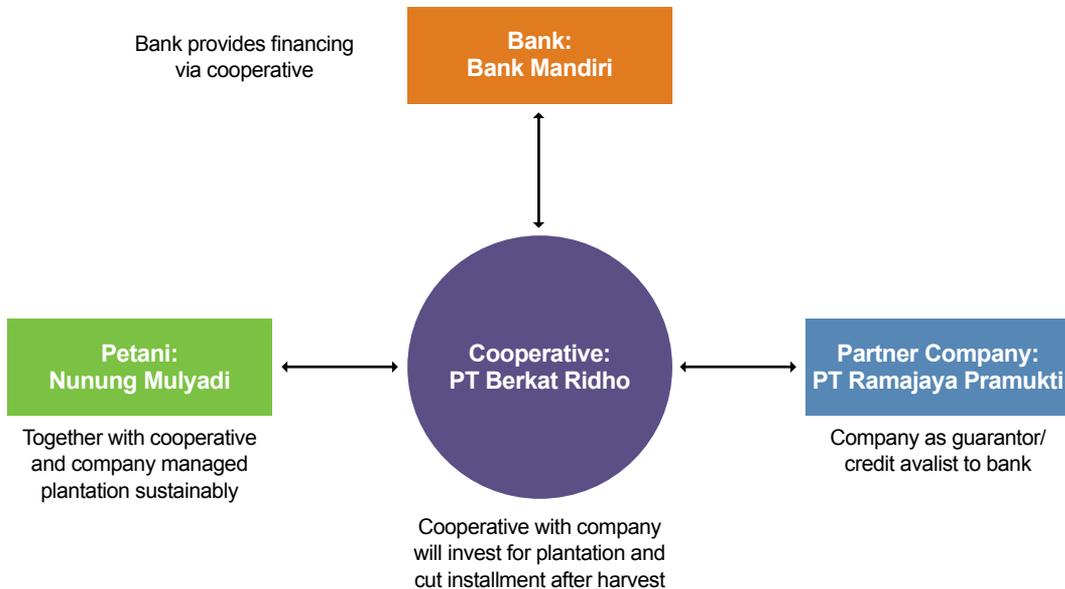


Figure 2 depicts the innovative financing model involving financial institutions, cooperatives, partner companies and farmers. Any extra agronomic and management efforts will require additional production costs. Smallholders in most cases have limited access to funding. Also, they may not have bankable assets or appropriate legal documents for their assets. Therefore, an innovative financing scheme is needed to resolve this problem. This financing system should fit into inclusive development scenarios that have been promised by government.

a productivity increment of 20 percent, poverty reduction by 20 percent and reduction of CO<sub>2</sub> emissions by 20 percent. In return, Sinar Mas will be allowed to collect harvests from smallholders under a price mechanism monitored by local governments.

The participation of the private palm oil sector is crucial in achieving sustainable development goals. The Sinar Mas scheme

benefits both the company and smallholders, with yield projected to increase by 117 percent, from 12 tons per hectare per year to 26 tons. Thus, farmers should enjoy increasing revenues, from \$1,199 per hectare a year to \$4,028. This business model can act as a collaborative platform incorporating all stakeholders - government, smallholders and private companies - to achieve sustainable palm oil production.

## The way forward

Suitable land for agriculture is limited and tends to decrease due to conversion to more profitable nonagricultural uses. Consequently, land will become scarcer in the near future, so the only viable option to increase production of palm oil is to increase land productivity. Expanding land area for palm oil plantations will face ecological, social and legal constraints, and with green development policies in place, plantation expansion at the cost of reducing forest cover will create conflict.

There are windows, however, for increasing palm oil plantation productivity in Indonesia.

Even at large commercial plantations, productivity can be increased by implementing best management practices, which have been described as the most cost-effective and practical methods to reduce the gap between actual and potential yield while minimizing the impact on the environment by using external inputs and production resources efficiently.

For this to happen, the emerging partnership represented by these innovative funding schemes can be crucial. It will take all stakeholders – farmers, private business, environmentalists and government – to make Indonesia's palm oil industry efficient, sustainable and productive.