Palm Oil, A Strategic Sector for Indonesia’s Economy

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Part 1
Palm Oil, Forest Area and Biodiversity in Indonesia
Republic of Indonesia at A Glance

- Population: **262 million**
- GDP: **USD 1,015 Billion**
- GDP Per Capita: **USD 3,876**
- Economic Growth: **5.1%**

*) Based on 2017 Data

- Provinces: **34**
- Cities/Districts: **514**
- Islands: **+17,000**
- Coastal Lines: **+100,000 Km**
- Time Zones: **3**
- Ethnic Groups: **+300**
- Language: **+700**
More Than 60% of Indonesia Total Land Are Still Forest Area

Indonesia is managing a very strict forest conservation policy to maintain its forest as the biggest portion of its land. With total forest area of 120.6 Million Ha, Palm Oil Plantation Shares only 7% of total land, way less than production forest (36%), Protection Forest (15.7%) and Conservation Forest (11.7%).
Part 2
The Importance of Palm Oil Sector for Indonesia
Palm Oil Is Indonesia’s Most Strategic Sector

As a labor intensive industry, Palm Oil Sector contribute significantly to the Economy. This sector drives economic growth, increases export and trade balance, reduces inflation and substitutes fossil fuel with renewable energy to strengthen national energy security.

**Industry Profile**
- Labor Intensive

**Export Value**
- Total Export Value
  - USD 21.4 Billion (Year 2018)

**Energy Security**
- Replace the use of Diesel Fossil Fuel
  - 9.1 Million KL
  - Through biodiesel mandatory program since 2015

**Economic Share**
- 3.5% of National GDP

**Trade Balance**
- 0.63% [+]

**Inflation**
- 1.75%

**Government Expenditure**
- 1.74%

**Real Capital Return**
- 0.62% [+]

*) Source: Stanford University & The National Team For The Acceleration of Poverty Reduction (TNP2K), 2016
We care about sustainability more than others

More than any other countries, Government of Indonesia has implemented all necessary measures to ensure sustainability management of its palm oil sector, because we care about our palm oil sustainability more than others, because it’s our life. And the efforts still continue.

- Implementation of Indonesia Sustainable Palm Oil (ISPO) Minister Regulation No. 19/2011
- Moratorium and improvement of management of Primary Forest and Peatland Presidential Instruction 10/2011
- Management of Forest Fire Prevention Presidential Instruction 11/2015
- Moratorium and improvement of management of Primary Forest and Peatland Presidential Instruction 8/2015
- FLEGT License Indonesia is among the first country to implement Voluntary Partnership Agreement with EU
- Launch of smallholders Replanting Program
  By President Joko Widodo. National target 2.4 Million Ha in 20 Provinces
- Launching of Single Map Portal
- On going regulation
  1. Strengthening ISPO
  2. Continuous Moratorium for Primary Forest & Peatland
  3. Etc
Part 3
Smallholders Farmers
Smallholders Farmers Play Significant Role in Indonesia Palm Oil Sector

Smallholders farmers share almost half of Indonesian palm oil plantation. They exist in every island of the country. Sumatera and Borneo share are the biggest, but eastern part islands of Sulawesi, Maluku and Papua also have significant share.

Smallholders Farmers Share Almost Half of the Plantation

- Total Plantation: ± 14.3 Million
- Private Companies: 53% (7.7 Million)
- State Owned: 6% (0.71 Million)
- Smallholders Farmers: 41% (5.8 Million)

Total 2.6 Million Farmers Employing 4.3 Million Plantation Workers

- Sumatera: 1,976,773
- Borneo: 449,000
- Sulawesi: 140,879
- Java: 6,076
- Papua & Maluku: 35,914

Source: Ministry of Agriculture, 2018
Who are Indonesian Smallholders Farmers?

Most of smallholders farmers are from mid-to-low income family. They control less than 4 Ha of land. They consist of both local and transmigrant people with low level education. However, they can have decent work in Palm Oil Plantation and has been in this job for around 10 years.

Profile of Smallholders Farmers in Seruyan and Kota Waringin Barat District, Central Kalimantan

<table>
<thead>
<tr>
<th>Profile</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land ownership</td>
<td></td>
</tr>
<tr>
<td>Inherited land</td>
<td>37</td>
</tr>
<tr>
<td>Certificate</td>
<td>63</td>
</tr>
<tr>
<td>Land size</td>
<td></td>
</tr>
<tr>
<td>1 - 2 Ha</td>
<td>63</td>
</tr>
<tr>
<td>2 - 4 Ha</td>
<td>37</td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
</tr>
<tr>
<td>Elementary to Junior High School</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>26 - 58</td>
<td></td>
</tr>
<tr>
<td>Year to start</td>
<td></td>
</tr>
<tr>
<td>2008 - 2010</td>
<td></td>
</tr>
</tbody>
</table>

Profile of Smallholders Farmers in 13 Districts in 6 Provinces

<table>
<thead>
<tr>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male 70%</td>
</tr>
<tr>
<td>Family Size</td>
</tr>
<tr>
<td>3 - 4 Individual</td>
</tr>
<tr>
<td>Land size</td>
</tr>
<tr>
<td>2 Ha</td>
</tr>
<tr>
<td>Level of Education</td>
</tr>
<tr>
<td>Elementary School</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>≤ 49</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>10 Year ≤</td>
</tr>
</tbody>
</table>

Source: INOBU, 2016

Source: Yanto Santosa, Bogor Institute of Agriculture, 2017
Smallholders Farmers Earn More Than Minimum Wage

Despite having low level education, income of most of Indonesian Smallholders Farmers are higher compare to the national average of minimum wage, ensuring a good living for the smallholders farmers and their family members.

Smallholders Farmers Average Income*

IDR 4 Million
Minimum Income

Minimum Wage#

IDR 2.5 Million
National Average 2019

#) Source: Ministry of Manpower
*) Source: Yanto Santosa, Bogor Institute of Agriculture
Solutions for Smallholders Farmers

To support the smallholders farmers, Indonesian solution is through its massive smallholders replanting program which aim to assist smallholders farmers to renew its oil palm plantation with a more sustainable and higher quality of oil palm and reducing the risk of illegal land clearing (Land Use, Land-Use Change and Forestry-LULUCF).

- **Legality**
  The replanting program is following sustainability principles, which include: land, conservation, environment and institution.
  Smallholder farmers that participate in this program should be following land legality aspect. Those who are not, will receive entitlement assistances.

- **Productivity**
  Productivity standard for replanting program 10 ton of fresh fruit bunch/ha/year. Plant Density < 80 tree/ha.

- **Sustainability Principle**
  To ensure sustainability principle, participants of this program are required to get Indonesia Sustainable Palm Oil (ISPO) certification in the first harvest.

- **ISPO Certification**
The Launch of Smallholders Replanting Program

The smallholders replanting program has been officially launched by President Joko Widodo in Musi Banyuasin, South Sumatera; Serdang Bedagai, North Sumatera; and Rokan Hilir, Riau. The program will continue to cover 2.4 Million Ha of land in 20 Provinces.
Part 4
Palm Oil Sector Contribution to SDGs Achievement
The Role of Palm Oil Sector To Achieve SDGs

Oil Palm Sector contribute to the achievement of SDGs in Indonesia

- **1. No Poverty**
  - Support the reduction of poverty and inequality

- **10. Reduced Inequalities**

- **7. Affordable and Clean Energy**
  - Support national energy security by increasing renewable and clean energy use

- **2. Zero Hunger**
  - Support the providing of food and food fortification

- **13. Climate Action**
  - Play role in the development of renewable energy and emission reduction
  - Support the moratorium of primary forest
  - Support the prevention management of forest fire

- **8. Decent Work and Economic Growth**
  - Play significant role in the economic development, generating millions of employment and save foreign exchanges
Indonesia Has Successfully Reduced Poverty & Inequality

Poverty rate in Indonesia has seen a significant reduction from 60% in 1970 to only 9.66% in March 2018. In addition, GINI Coefficient also shrunk from 0.4 to around 0.3 in the last 3 years.

Palm Oil Sector has played a significant role in poverty reduction since 2000.

Indonesia Poverty Rate 1970 - 2018

Indonesia GINI Coefficient 2015 - 2018

Source: National Statistics Agency 2019
How Indonesia Palm Oil Support the Reduction of Poverty and Inequality

Since 2000, Indonesian Palm Oil Sector has helped 10 million people out of poverty because of the factors related to palm oil expansion and at least 1.3 million people in rural area lifted out of poverty line directly because of palm oil expansion.

Regions with palm oil expansion have more significant reduction of poverty compare to other region and national.

Source: Ryan B. Edwards, Center on Food Security and the Environment, Stanford University & The National Team For The Acceleration of Poverty Reduction (TNP2K), 2016
Indonesia Palm Oil Sector Support in Creating Decent Work & Economic Growth

As a labor intensive industry, millions of Indonesians depend on Palm Oil Sector. More than 16 million people work in Palm Oil Industry, in addition to 2.6 million smallholders farmers.

**Palm Oil Industry**

- **4.2 Million** Direct Employment
- **12 Million** Indirect Employment

**Palm Oil Smallholders**

- **2.6 Million** Smallholders Farmers
- **4.3 Million** Individuals Employing
Indonesia Palm Oil Support Climate Action

Part of Climate Action, Emission Reduction is Indonesia’s main priority based on Paris Agreement. The emission reduction target is difficult to be achieved without direct contribution from oil palm sector.

### Oil Palm Sector Initiatives

- **Smallholders Replanting Program** to increase productivity and reduce illegal land clearing, implementation of ISPO, Moratorium primary forest & peatland
- **Forest Fire Prevention Management** and increase people’s participation for forest conservation
- **Implementation of Biodiesel Mandatory program** to increase the use of renewable energy and reduce emission, as well as development of Palm Oil to Bio-Hydrocarbon Fuel Program
- **The use of POME (Palm Oil Mill Effluent)** to increase electrification ratio in rural area. POME has potential of electrifying 1.4 million households and capable of reducing 9.8 Million Ton CO2

### Indonesia Emission Reduction Target by 2030

<table>
<thead>
<tr>
<th>Unconditional</th>
<th>With International Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>41</td>
</tr>
</tbody>
</table>
To Support The Emission Reduction, Palm Oil Based Biodiesel Mandatory Program Has Been Launched Since 2015

The program successfully increase the use of renewable energy, reduce CO\textsuperscript{2}, creating jobs, and improve smallholders farmers income.

Impact of Biodiesel Mandatory Policy
August 2015 to December 2018

- Reduce Greenhouse Gas Emissions (GHG): 13.6 Million Ton CO\textsubscript{2}e
- Use of Palm Oil Based Biodiesel For Domestic Use: 9.12 Million KL
- Tax Paid To The Country: IDR 2.47 Trillion
- Foreign Exchange Saved due to less fossil fuel imported: USD 3.82 Billion

Implementation of Biodiesel Mandatory Program also helps to generate jobs in biodiesel industry as well as in the oil palm plantation sector. It increase demand of CPO, stabilize CPO price and improve smallholders farmers income with the increase of Fresh Fruit Bunch (FFB) Price.
President Joko Widodo has called for the immediate implementation of a plan to widen the use of biodiesel in all sectors, including Non-PSO Transportation.
Palm Oil for Renewable Energy: Next Program

In addition to existing Biodiesel Program using FAME, Indonesia is now developing new plan to convert Palm Oil into Bio-Hydrocarbon Fuel to produce Green Diesel, Green Gasoline and Green Fuel Jet.

Current Program
- **FAME**
  - Biodiesel
  - Pilot Project in 2019

Future Program
- **Bio-Hydrocarbon Fuel**
  - Green Diesel
  - Green Gasoline
  - Green Fuel Jet (Avtur)

Preparation of IVO (Industrial Vegetable Oil)
- **Technology**
  - Research and development to develop catalyst is now underway
- **Plantation**
  - Planning to allocate dedicated plantation for energy around 8.8 Million Ha from existing palm oil plantation
- **Special Seed**
  - Development of special variety seed of Palm Oil
- **2nd Generation Industrial Palm Oil Treatment Plant**
  - Incentive to invest 2nd Generation Industrial Palm Oil Treatment Plant (IPO - TP = Oil Extraction & degumming)
Big Production, Sufficient for Food Demand

With current average growth and the on-going smallholders replanting program, we expect more than 50 million ton of Palm Oil to be produced in 2025.

This will give more supplies for food industry, include cooking oil and palm oil-based food.

**Indonesian Palm Oil Production Projection 2018 - 2025**
(Million Ton)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Million Ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>41.67</td>
</tr>
<tr>
<td>2019</td>
<td>42.14</td>
</tr>
<tr>
<td>2020</td>
<td>44.63</td>
</tr>
<tr>
<td>2025</td>
<td>55.28</td>
</tr>
</tbody>
</table>

**Indonesia Domestic Palm Oil Consumption (As Cooking Oil) 2002 - 2016**

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption (Liter/Per Capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>5.48</td>
</tr>
<tr>
<td>2001</td>
<td>5.42</td>
</tr>
<tr>
<td>2002</td>
<td>5.84</td>
</tr>
<tr>
<td>2003</td>
<td>6.00</td>
</tr>
<tr>
<td>2004</td>
<td>6.00</td>
</tr>
<tr>
<td>2005</td>
<td>7.40</td>
</tr>
<tr>
<td>2006</td>
<td>7.98</td>
</tr>
<tr>
<td>2007</td>
<td>8.19</td>
</tr>
<tr>
<td>2008</td>
<td>8.24</td>
</tr>
<tr>
<td>2009</td>
<td>8.92</td>
</tr>
<tr>
<td>2010</td>
<td>9.21</td>
</tr>
<tr>
<td>2011</td>
<td>9.44</td>
</tr>
<tr>
<td>2012</td>
<td>9.60</td>
</tr>
</tbody>
</table>

Average Growth: 4.3%

Source: BPDPKS, TNP2K 2018

Palm Oil Sector Support Stunting Prevention

Indonesia has high stunting prevalence with 7.4 million children below 5 years old (30%) is stunted#. Indonesian Government has launched a massive stunting prevention through many interventions include Food Fortification.

Indonesia Palm Oil Sector fully support the cooking oil fortification with vitamin A. In 2017, 35 of 48 cooking oil brands has been fortified with sufficient vitamin A standard.

![Number of Palm Oil Based Cooking Oil Brand Fortified with Vitamin A*)](image)

- **19** 2015
- **35** 2017

* Source: KFI - Indonesia Nutrition Foundation For Food Fortification, 2017

- Food Fortification is part of National Stunting Prevention Strategy. It reduces micro malnutrition, including vitamin and minerals, specifically for child and pregnant woman
- Fortified Cooking Oil can reduce 25% of infant and child mortality because of infection
- Vitamin A in Cooking Oil help children from Poor Family from risk of blindness.

#) Source: Basic Health Survey (Riskesdas), 2018
Involvement in Partnership for Poverty Reduction, Health, Education, and Basic Infrastructure

Palm Oil Companies in Indonesia have also actively involved in the Partnership with Government, Local Government, Civil Society Organizations (CSOs), and Communities as mandated in SDGs Goals No.17.

- **Partnership Causes:**
  - **Education**
    - Rehabilitation of school
    - Teacher Development
  - **Health**
    - Health Promotive and Prevention
    - Primary Healthcare Support
  - **Poverty Reduction**
    - Stunting Prevention
  - **Basic Infrastructure**
    - Sanitation
    - Clean Water
    - Basic Electricity

Public Private Partnership For Stunting, coordinated by Office the President and Vice President. Focusing in 100 Cities and Districts, with specific and sensitive intervention.
Part 5
Palm Oil and Other Vegetable Oils
Palm Oil is The Most Sustainable Vegetable Oil

Land Productivity of Vegetable Oil Commodities

<table>
<thead>
<tr>
<th>Vegetable Oil Commodities</th>
<th>Total land use (Mil. Ha)</th>
<th>Productivity of World Vegetable Oil (199 mill ton)</th>
<th>Productivity/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean</td>
<td>122</td>
<td>45.8 mill ton</td>
<td>0.4 Ton/ Ha</td>
</tr>
<tr>
<td>Sunflower</td>
<td>25</td>
<td>15.9 mill ton</td>
<td>0.6 Ton/ Ha</td>
</tr>
<tr>
<td>Rapeseed</td>
<td>36</td>
<td>25.8 mill ton</td>
<td>0.7 Ton/ Ha</td>
</tr>
<tr>
<td>Palm oil</td>
<td>16</td>
<td>65 mill ton</td>
<td>4 Ton/ Ha</td>
</tr>
</tbody>
</table>

Palm Oil productivity can reach approximately up to 4 ton/Ha. This number is much higher than rapeseed (approx. 0.7 tons/ha), sunflower (approx. 0.6 tons/ha), and soybean (approx. 0.4 tons/ha).

From the productivity per Ha, it can be seen that palm oil commodity needs the least of land use for producing vegetable oil.

Replacing Palm Oil with other vegetable oil will require massive land clearance.
It is projected that the need of the world edible oil will keep increasing in accordance with the increase of the human consumption and predicted to be 361 million ton in 2050.

Additional production of commodities options to overcome the future need of vegetable oil is required, and palm oil is the most feasible commodity to meet this need as it requires the least additional land.

### The Need of the World Vegetable Oil Projection
Period of 2015-2050

<table>
<thead>
<tr>
<th>Year</th>
<th>Million Ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>182.4</td>
</tr>
<tr>
<td>2020</td>
<td>209.2</td>
</tr>
<tr>
<td>2025</td>
<td>226.7</td>
</tr>
<tr>
<td>2030</td>
<td>254.6</td>
</tr>
<tr>
<td>2035</td>
<td>282.3</td>
</tr>
<tr>
<td>2040</td>
<td>309.8</td>
</tr>
<tr>
<td>2045</td>
<td>339.7</td>
</tr>
<tr>
<td>2050</td>
<td>361.3</td>
</tr>
</tbody>
</table>

### Strategy in Fulfilling the Need of Vegetable Oil

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Additional Area to fulfill future demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm oil</td>
<td>45 Million Ha</td>
</tr>
<tr>
<td>Soybean oil</td>
<td>447 Million Ha</td>
</tr>
<tr>
<td>Rapeseed oil</td>
<td>255 Million Ha</td>
</tr>
<tr>
<td>Sunflower oil</td>
<td>298 Million Ha</td>
</tr>
</tbody>
</table>
Palm Oil Save More Water

Sugar Cane and Oil Palm use less water to produce bioenergy compared to other commodities.

The use of water to produce 1 gigajoule bioenergy

<table>
<thead>
<tr>
<th>Commodity</th>
<th>M3/Gj</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapeseed</td>
<td>184</td>
</tr>
<tr>
<td>Coconut</td>
<td>126</td>
</tr>
<tr>
<td>Cassava</td>
<td>140</td>
</tr>
<tr>
<td>Corn Soybean</td>
<td>105</td>
</tr>
<tr>
<td>Canola</td>
<td>87</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>75</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: Gerbens-Leenes et al., 2009
Thank You

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