

Country Programme Evaluation Series

Evaluation of FAO's contribution to the Republic of Indonesia

2016–2020

Annex 2. Value chain development

Abstract

The value chain is formed when all actors in the chain work in such a way as to maximize the formation of value along the chain. It is quite intuitive referring on a series of activities needed to present a product (or services) starting from the conceptual stage, followed by several stages of production, up to delivery to end consumers.

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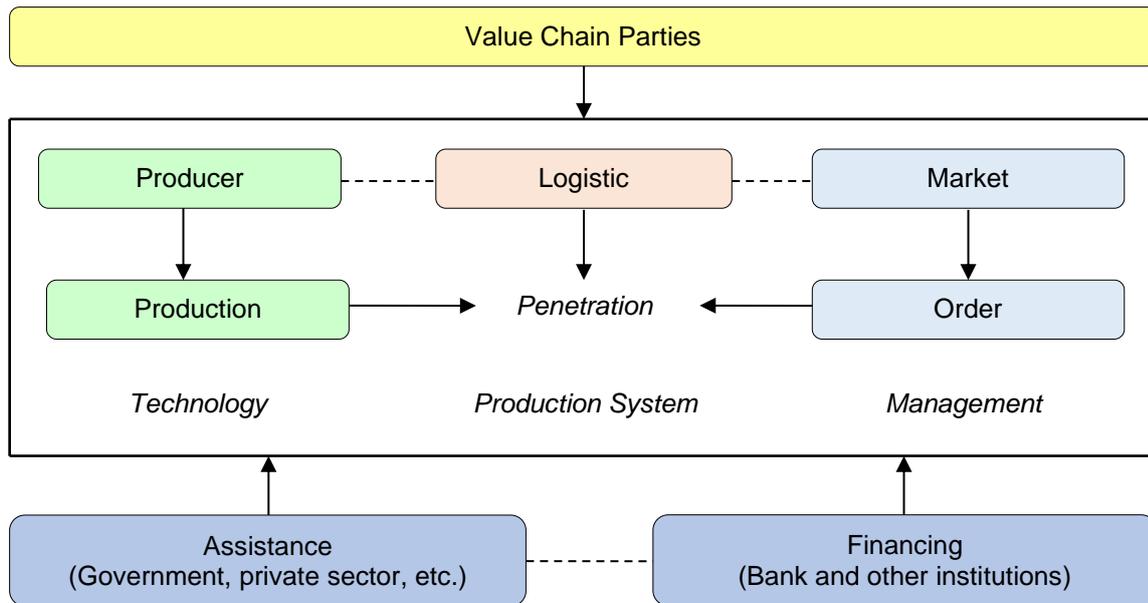
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1. Agricultural value chain

1. The value chain of agriculture in Indonesia is facing at least three issues. **First**, unsustainable production, low productivity and quality, low technology and investment, as well as limited management. **Second**, low farmer terms of trade and labour regeneration congestion. **Third**, price fluctuation, low competitiveness and high yield losses. Consequently, there is a need for an intervention towards agricultural value chain development in the country (Figure 1).

Figure 1. Agricultural value chain development in Indonesia



Source: adopted from Perdana, 2015a.

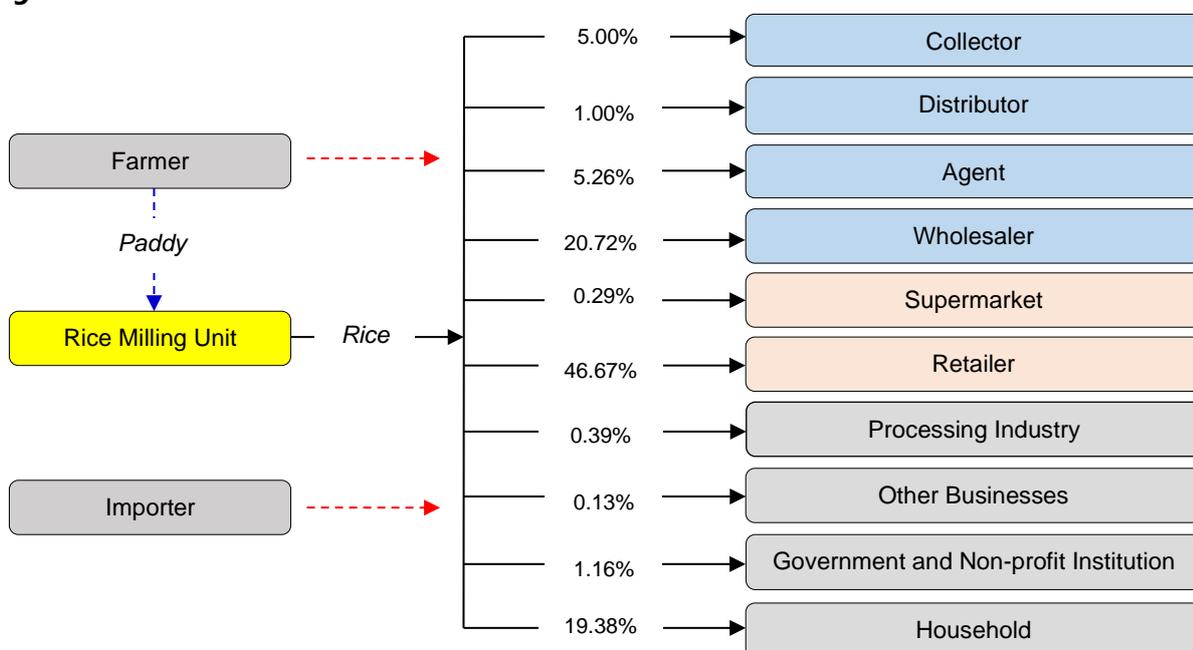
2. Food crops value chain

- High disparity prices between producer and consumer levels as well as a lack of product availability at the time needed has effects on the commodity distribution in Indonesia. Apart from that, there is a limited alternative choice, uneven sense of satisfaction, and lack of performance of business institutions between producers and consumers. This part focuses on three strategic and leading food crops commodities namely rice, corn, and soybean. Due to huge production areas of these commodities, the analysis deliberately concerns specific issues in certain locations.

2.1 Rice value chain

- Generally, rice value chain involves producers (farmers and rice milling units), intermediaries (collectors, distributors, agents, wholesalers, retailers, and supermarkets), and consumers (processing industries, government and non-profit institutions, other businesses, and households). The market distribution of rice in Indonesia is presented in Figure 2.

Figure 2. Rice market distribution in Indonesia



Source: BPS, 2016.

- It was noted that North Kalimantan was the largest dependency province on rice from outside provinces, namely about 99.76 percent. Conversely, Central Sulawesi distributed about 84.77 percent to other provinces. Meanwhile, South Sulawesi was the highest network distributing rice to other ten provinces in Indonesia.
- It was perceived that the main parties playing an important role in rice trade were wholesalers and retailers. Therefore, these parties obtained high extent of rice trade margins, namely 9.84 percent and 11.35 percent respectively. The highest margin was in West Papua province while the lowest margin was in Aceh province (Table 1).

Table 1. The extent of rice trade margin in Indonesia (%)

Location	Wholesaler	Retailer	Aggregate
Aceh	4.38	3.92	4.14
West Papua	18.65	21.06	19.82

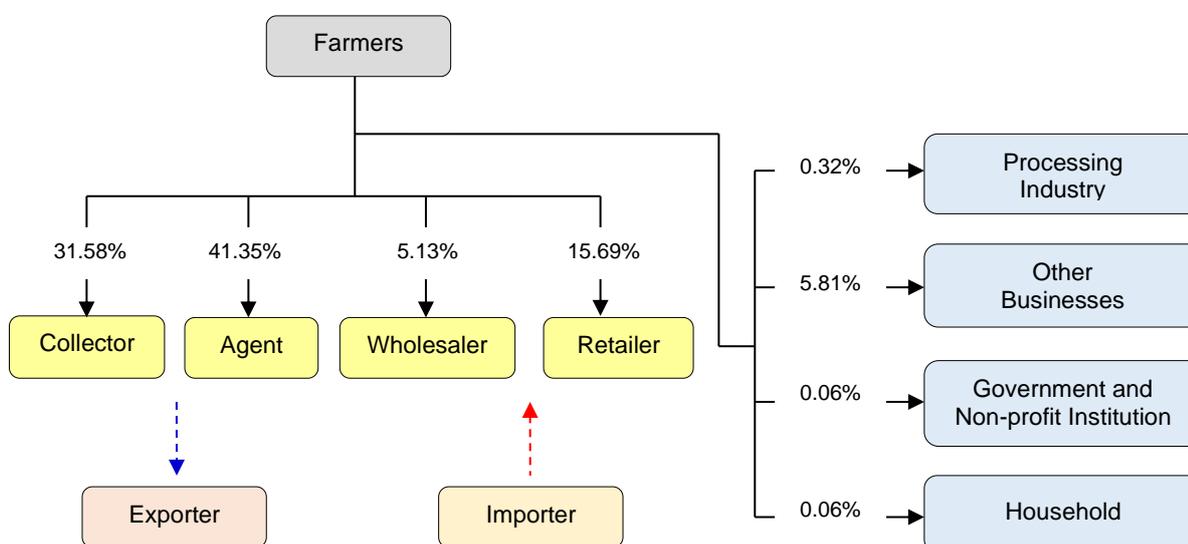
Indonesia	9.84	11.35	10.57
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Source: BPS, 2016.

2.2 Corn value chain

- The marketing product of corn is in the form of shelled corn. It was generally noticed that each province received shelled corn from outer provinces. The main suppliers were East Java, Central Java, and West Java provinces. On the one hand, the domestic demand and export of corn has recently tended to increase. On the other hand, Indonesia still imports this commodity which indicates that the national corn production is still not sufficient to fulfil domestic demand.
- The majority of farmers sold corn to trader agents (41.35 percent) and collectors (31.58 percent). The rest was to wholesalers, retailers, and consumers. The consumers comprise processing industries, other businesses, government and non-profit institutions, and households (Figure 3).

Figure 3. Corn market distribution in Indonesia



Source: BPS, 2015.

- The extent of corn trade margin can be seen in Table 2. It reveals that wholesalers and retailers respectively obtained a quite high extent of corn trade margin of about 29.38 percent and 27.56 percent. Those were the average acquisition margins after deducting transportation costs.

Table 2. The extent of corn trade margin in Indonesia (%)

Item	Wholesalers	Retailers	Aggregate
Average sale value (IDR 000)	4 342 668	147 820	2 933 288
Average purchase value (IDR 000)	3 288 632	114 341	2 222 137
Average transportation cost (IDR 000)	131 430	3 165	90 405
Average trade and transportation margins (IDR 000)	1 054 036	33 479	711 151
Ratio of trade and transportation margins (%)	32.05	29.28	32.00
Average trade margin (IDR 000)	966 067	31 511	652 076
Ratio of trade margin (%)	29.38	27.56	29.34

Source: BPS, 2015.

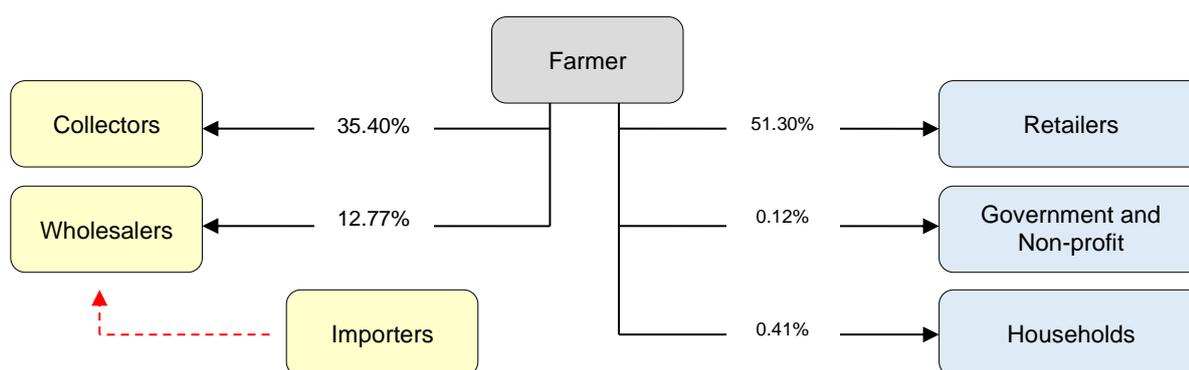
2.3 Soybean value chain

- There was a gap between price disparities between local soybean and imported soybean. The domestic soybean marketing was influenced by trader and consumer behaviours. Moreover, the

soybean consumption was amounted 26 million tonnes per year while the domestic production was only 600–800 tonnes annually. Indonesia still relies on imported soybean, especially for tofu and tempeh productions.

- In the case of East Java as the biggest central production area of soybean in Indonesia, the availability of this commodity derives from its own area (83.21 percent), and imported from the United States of America (15.72 percent), Central Java (0.68 percent) and West Nusa Tenggara (0.39 percent). All soybeans were used locally (98.71 percent) and the rest sold to Central Java (1.28 percent) and Bali (0.01 percent). The market distribution of soybean in the East Java province started from farmers who by majority sold it to retailers and collectors (Figure 4).

Figure 4. Soybean market distribution in East Java province



Source: BPS, 2013b

- On average, trade and transportation margins of wholesalers (IDR 310.76 million) were much higher as compared to retailers (IDR 33.84 million). However, wholesalers obtained an average profit of 5.92 percent, slightly lower than that of retailers (6.62 percent). Overall, both soybean traders gained trade margin of about 5.95 percent (Table 3).

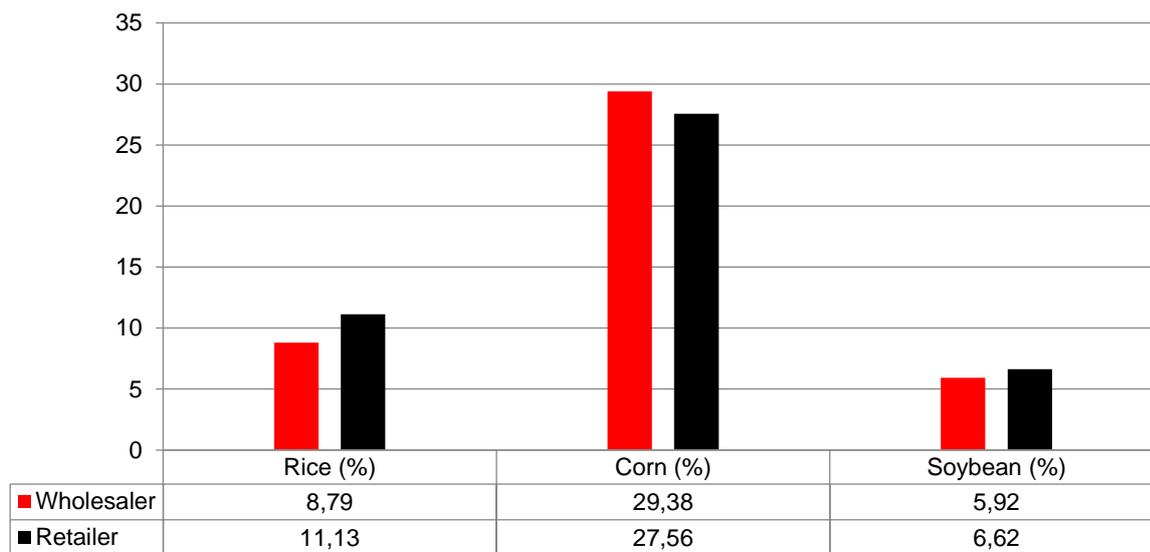
Table 3. The extent of soybean trade margins in East Java province (%)

Item	Large-scale traders	Retail traders	Aggregate
Average sale value (IDR 000)	5 561 707	545 393	4 086 321
Average purchase value (IDR 000)	5 250 949	511 551	3 857 008
Average trade and transportation margins (IDR 000)	310 759	33 842	229 312
Ratio of trade margin (%)	5.92	6.62	5.95

Source: BPS, 2013b.

- In can be generally concluded that the highest margin was in corn trade in which the trade margin of wholesalers was a little bit higher than that of retailers (Figure 5). However, a good distribution chain should be able to allocate a fair share of the total price paid by consumers to all parties, particularly to farmers as producers.

Figure 5. Rice, corn, and soybean trade margins of wholesalers and retailers in Indonesia



Source: Ministry of Agriculture, 2018.

13. It was noted that in many cases farmers frequently obtain low margins in agricultural trade particularly due to a low bargaining position. It is suggested that the agricultural marketing chains must be shortened, but it is a classical suggestion which is complicated to implement. The logical suggestions are farmers should transform from non-structured market to structured market-based market driven. This is anchored in management skills in determining market strategies and values to which it can further create profitability.
14. In line with the current development, e-commerce is one of prominent solutions. It is not only in line with shortening the marketing chains but also links to strengthening the dependency among trade parties. In essence, farmers have productions and traders as well as consumers require products in certain standard specifications. With regard to this, government plays a strategic role in terms of administering rules of the game such as setting regulations, supporting financial accessibility, providing information, facilitating training and education, as well as strengthening research and extensions in line with economic transformation-based good agricultural practices.

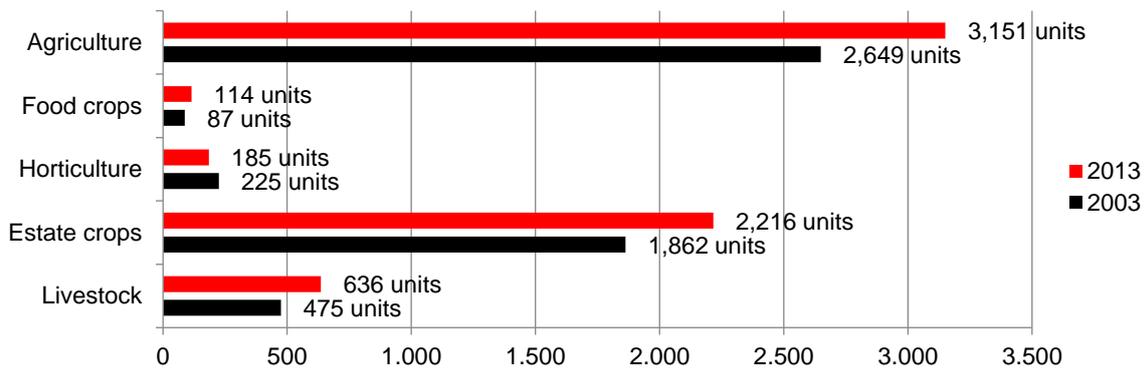
3. Agricultural market

15. It is believed that agricultural marketing plays an important role in stimulating production and encouraging consumption as well as in accelerating the swiftness of economic development. Its dynamic functions are of primary importance in achieving marketable surplus and improving income of farmers. This may include the role of producers, business delivery systems, logistic facilities, market transparency, market initiative, market competitiveness, and export/import.

4. Role of producer

16. In Indonesia, agricultural business is dominated by household farming. The significant share of corporate agriculture companies is only for a number of estate crops and livestock such as oil palms and poultry.
17. Based on the Agricultural Census (BPS, 2013a), there were 3 151 units of corporate agriculture companies (legal entities) in Indonesia. The number increased about 18.95 percent within ten years (2003–2013). The highest number was in the estate crops sub-sector, while the largest growth was in the livestock sub-sector (Figure 6).

Figure 6. Number of corporate agriculture companies (legal entities) in Indonesia 2003 and 2013



Source: BPS, 2013a.

18. Even though the majority of the number of agricultural producers was small-scale farmers, the extent of its role was quite low. Small-scale farmers tend to be individuals in marketing agricultural products, particularly cash crops. The bargaining position of these producers is quite feeble. In other words, small-scale farmers are likely price takers which must accept the prevailing market price for its products. Farmers are still unable to trade the commodities collectively due to weakness of farmer's organization. In fact, there are plenty of farmer's groups in Indonesia which are "established" and tend to gather farmers particularly in relation to the implementation of development program. These groups have a tendency to disregard institutional aspects such as organizing farmers in marketing the agricultural products.

5. Business delivery system

19. As a tropical country with rainy and dry seasons, Indonesia has a potential to support agricultural activities. However, unpredictable climate affects agricultural production including its business delivery system in the country.
20. It was noted that the agricultural business delivery system in Indonesia is quite complex by which it has specific characteristics which require certain management arrangements influenced by the production system, the nature of products, and the preference of consumers. It involves various parties through transaction processes forcing the high price of agricultural products.
21. Some problems identified in the agricultural business delivery system, particularly for producers (farmers), include: i) limited land ownership; ii) ignorance of farmers towards the demand of consumers as well as a lack of coordination between producers and market players; iii) long distances from producer gate to the market place; iv) constraints of handling, staging, and storage; v) problems with the cooling processes (cold storage) during the postharvest phase; vi) handicapped packaging, tracking, and inventory control; and vii) unequal position along the business delivery system as well as uncertainty (asymmetric) about price and services information (Lokollo, 2012 and Perdana, 2015b). As a result, the ideal business delivery system is mostly carried out by large-scale companies through operational management mechanisms efficiently towards high competitiveness and play a significant role as price makers in marketing agricultural products.
22. It was noted that the Government of Indonesia has established at least two fundamental institutions supporting the agricultural business delivery system in Indonesia, namely *Sub-terminal Agribisnis/STA* (Agribusiness Sub-terminal)¹ and *Sistem Resi Gudang/SRG* (Warehouse Receipt Scheme).² Nonetheless, both institutions are not running relatively well.
23. In fact, there are some solutions to support small-scale producers in the business delivery system. Among other things are through identifying: i) the creation of value-added; ii) the role of services; iii) the determination of price; iv) the equivalence relationship among parties; and v) the influential key decision-makers supported by appropriate regulations as well as infrastructure and facility developments. Nevertheless, the implementation of those solutions is typically slow and discontinued. Therefore, it is suggested to begin on a small-scale to be replicated on a large-scale.

Box 1. Opportunity of small-scale farmers in the agricultural business delivery system

It has uncommonly been assumed that small-scale farmers are able to get involved in the agricultural business delivery system such as export, modern retail and food services. In spite of having limited, fragmented, and scattered land sizes, farmers can be essentially involved in structured market through specific management based on the real field fact. It is reasonable since agriculture is more complex, non-linear, and dynamic. The solution is not only connecting producer supply and market demand but also reducing market price fluctuation. It is commonly perceived that price is set by traders, but the stability of price is also affected by the availability of products since farmers are not consistent in accomplishing the market demand. Thus, farmers must consider cropping patterns and sustainable production towards increasing the bargaining position and improving income through a well-ordered agricultural business delivery system (Perdana, 2015b).

¹ STA is simply defined as a marketing facility that is specifically developed to serve and carry out the agricultural business delivery system from the source of production to market destination of product.

² SRG is an activity related to the issuance, transfer, assurance, and transaction of warehouse receipt as ownership of evident document of the goods stored in the warehouse.

6. Logistics facility

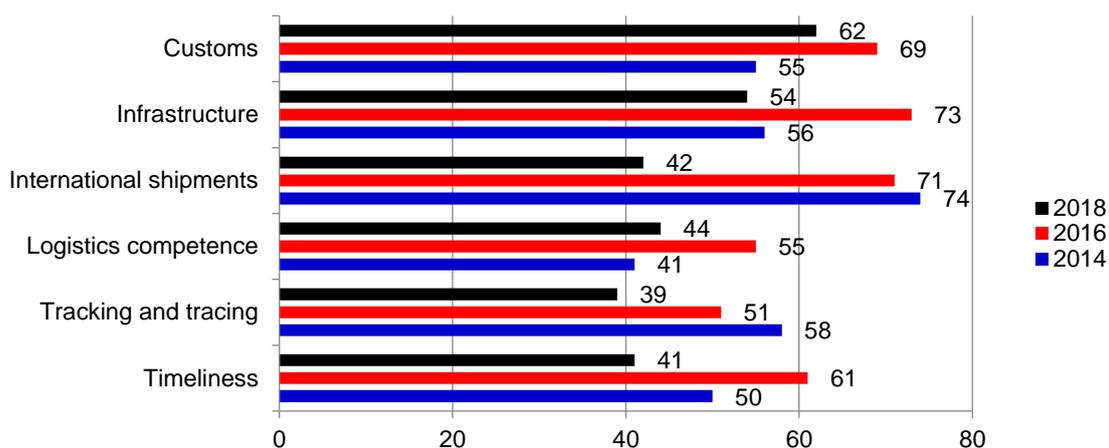
24. Indonesia is the largest archipelago country in the world which has interconnection through inter-island marketing, including agriculture. Since the agricultural commodities have specific characteristics of being bulky and perishable, the logistics is a significant component within its system as a whole. It is a physical entity comprising procurement, supply, storage, transportation, loading and unloading, sorting, packaging, distribution, marketing, recycling and information control.
25. At present, the average national logistics cost of Indonesia is 17 percent of production costs or about 27 percent of gross domestic product (GDP) (Nasution, 2017). It is quite higher than those of Malaysia (8 percent), the Philippines (7 percent), and Singapore (6 percent) of their respective GDPs. However, the national logistics costs of Indonesia were currently improved as compared to 2013, namely about 24 percent of GDP. Anecdotal evidence shows that during that time (2013), shipping costs from Jakarta to the United States of America or Europe was cheaper than to eastern parts of Indonesia, particularly Maluku and Papua, for instance (Box 2).

Box 2. Comparison of shipping costs from Jakarta to the United States of America or Europe and to Maluku or Papua

The domestic logistics costs were quite more expensive than those abroad due to limited infrastructure facilities. As an illustration, shipping costs from Jakarta to Ambon (USD 2 000/tonne) was higher compared to the United States of America or Germany (USD 1 100/tonne). This condition affects the high shipping costs from Java and the expensive prices in eastern parts of Indonesia. Consequently, imported commodities were cheaper than domestic commodities from Java. Hence, one important solution for this problem is through developing infrastructure including sea toll transportation facilities (Detik, 2013).

26. In the last five years (2014–2018) there was a significant improvement of logistics facilities in Indonesia. According to the World Bank (Indonesia-Investment, 2018), Indonesia managed to rise sharply in the ranks of the latest Logistics Performance Index (LPI). The rank of Indonesia increased from 63rd in 2016 to 46th in 2018 among 167 countries (Figure 7). It is released by the World Bank based on surveys conducted every two years.
27. The LPI can help countries to identify challenges and opportunities and improve the logistics performance. It is based on six indicators, namely: i) **customs** (efficiency of the clearance process including speed, simplicity and predictability of formalities); ii) **infrastructure** (quality of trade and transport related to infrastructure including ports, roads, railroads and information technology); iii) **international shipments** (ease of arranging priced shipments competitively); iv) **logistics competences** (quality of logistic services including transport operators and customs brokers); v) **tracking and tracing** (ability to track and trace consignments); and vi) **timeliness** (shipments in reaching destination within the scheduled or expected delivery time).

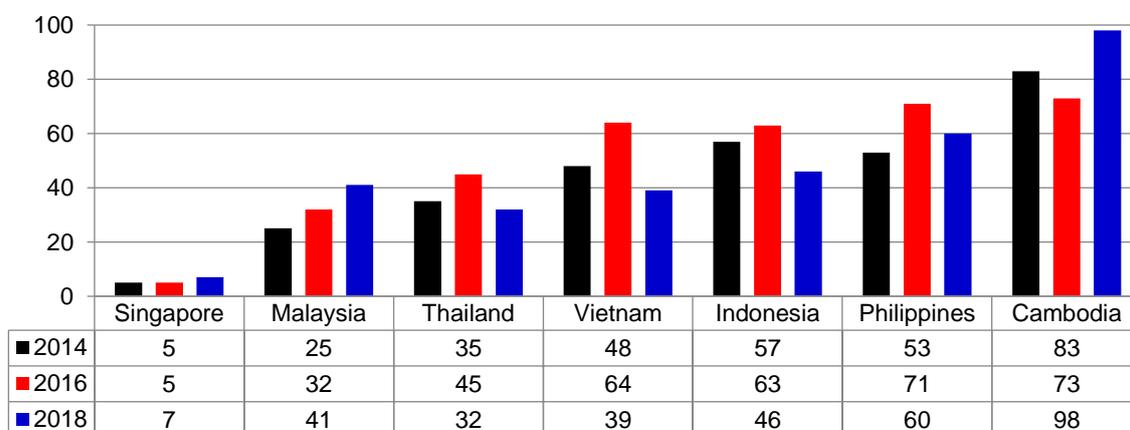
Figure 7. Logistics Performance Index of Indonesia in 2014, 2016 and 2018



Source: Indonesia-Investment, 2018.

28. It is interesting to note that Indonesia made significant progress in all six indicators. This performance is in line with the programme of the Government of Indonesia for infrastructure development and other related substances such as the improvement of dwell time in Indonesian ports. However, comparing to other countries of the Association of Southeast Asian Nations (ASEAN), the LPI of Indonesia is still below the LPIs of Singapore, Malaysia, Thailand, and Viet Nam (Figure 8). This indicates that Indonesia is still facing weak connectivity causes, relatively high logistic costs and less competitive particularly to those countries.

Figure 8. Logistics Performance Index of ASEAN countries in 2014, 2016 and 2018



Source: Indonesia-Investment, 2018.

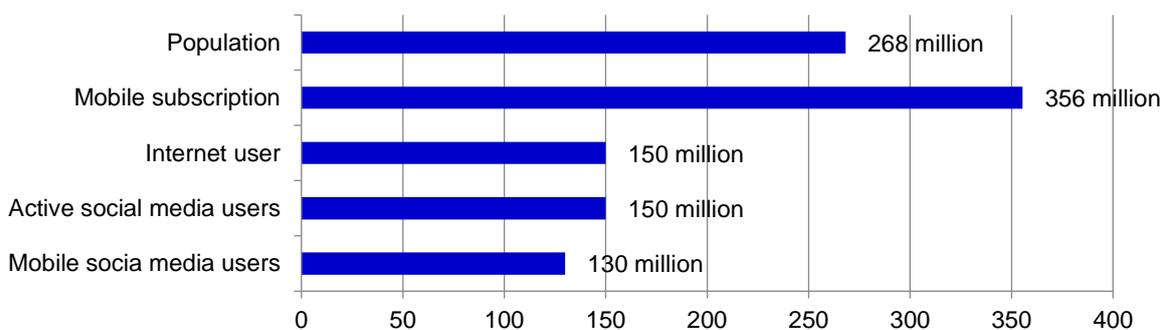
7. Market transparency

29. Essentially, market transparency is related to the availability of relevant market information to market participants in terms of increased efficiency of markets, reduced asymmetric information, and supporting evidence-based policymaking. This can potentially exist in a structured market compared to an unstructured market.
30. On the one hand, structured markets have rules of game encompassing some components at least in terms of: i) quantity (sufficient); ii) quality (required); iii) continuity (stable); iv) commitment (agreement); and v) transparency (who gets what). On the other hand, unstructured markets are usually associated with law in nature.
31. Since numerous agricultural products are marketed in unstructured markets, particularly smallholders with cash crops, market transparency is difficult to realize. Farmers are consequently as price takers with a lack of information regarding price forecasting and price determination. It is classically frequent in Indonesia while the agricultural products, mainly food crops, increase during major holidays especially in *Ramadhan* and *Eid Mubarak*.
32. The increase in agricultural prices during certain times is due to reasons such as lack of stock, weakness of supporting data and traders intervention. These must be controlled towards assuring the stock and stabilizing the price as well as regulating market operations properly.
33. It was noted that the Government is relatively unable to regulate the distribution of agricultural products comprehensively and the reference prices are less effective as well. Therefore, supervision is a matter of priority without accusing and impeding business activities. Apart from that, farmers should link to structured markets to obtain market transparency-based market initiatives.

8. Market initiatives

34. Apart from government intervention, in fact there are some agricultural market initiatives based on e-commerce set by non-government institutions (private sector). Among other things were *8Villages, CI-Agriculture, Crowde, Eragano, Habibi Garden, iGrow, Karsa, Kecipir, Limakilo, Pandawa Putra, PanenID, Pantau Harga, Petani, SayurBox, Sikumis, Simbah, and Tanihub* which are generally managed by youth based-agribusiness applications.
35. E-commerce is quite prospective in Indonesia. It is not only to facilitate farmers in marketing agricultural products but also to attract the interest of young generations in agriculture. This business type might be able to assist farmers to go through structured market based-transparency. It is quite promising since there are numerous mobile subscriptions in Indonesia (Figure 9). Mobile phones could be a breakthrough for farmers where used for agricultural marketing and can create awareness on the market prices as well as the demand of agriculture produce.

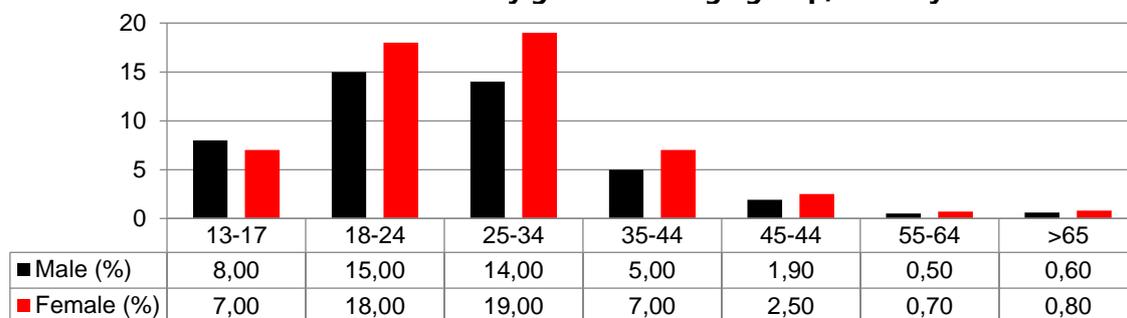
Figure 9. Number of mobile subscriptions, internet, and social media users, January 2019



Source: Websindo, 2019.

36. In fact, the social media audience in Indonesia is dominated by people within the age group between 18-34 years old (Figure 10) representing the "gadget generation". It is expected this generation is able to assist the old generation in agriculture rather than using social media for unproductive purposes. Hence, a positive campaign is required to encourage youth involved in agriculture based-contemporary models.

Figure 10. Profile of social media audience by gender and age group, January 2019



Source: Websindo, 2019.

9. Market competitiveness

37. The improvement of agricultural competitiveness is imperative for Indonesia, with large and growing population needing agricultural products. Therefore, an effort to enhance the agricultural competitiveness through improving the capacity of producers towards the preference of consumers is required.
38. Agricultural competitiveness usually determines employing the domestic resource cost ratio (DRC) for comparative advantage and private cost ratio (PCR) for competitive advantage analyses.³ Based on this, Table 4 shows the comparative and competitive advantages of rice, corn, and soybean as strategic and leading commodities in Indonesia. It reveals that the comparative and competitive advantages of rice are relatively low. However, the comparative advantage of this commodity can still be transformed into competitive advantage since there is government protection both in the form of input subsidies and through rice import tariff policies. Moreover, corn commodity had better comparative and competitive advantages. Meanwhile, soybean commodity had no comparative and competitive advantages.

Table 4. Comparative and competitive advantages of rice, corn, and soybean in Indonesia

Commodity	Comparative Advantage (DRC)	Competitive Advantage (PCR)
Rice	0.70-0.96	0.68-0.88
Corn	0.41-0.57	0.66-0.83
Soybean	0.84-1.07	0.97-1.05

Source: Rachman et al., 2004 and Rusastra et al., 2004.

39. In terms of location, regencies in certain provinces were classified as high, middle, and low agricultural competitiveness (Table 4 and Figure 5). In aggregate, all regencies were categorized as sustainable competitiveness which had a scale of 54.30 percent or above the multidimensional scaling (MDS)⁴ of 50 percent (Dermoredjo, 2018).

Table 5. Agricultural competitiveness regency-based at provincial level in Indonesia

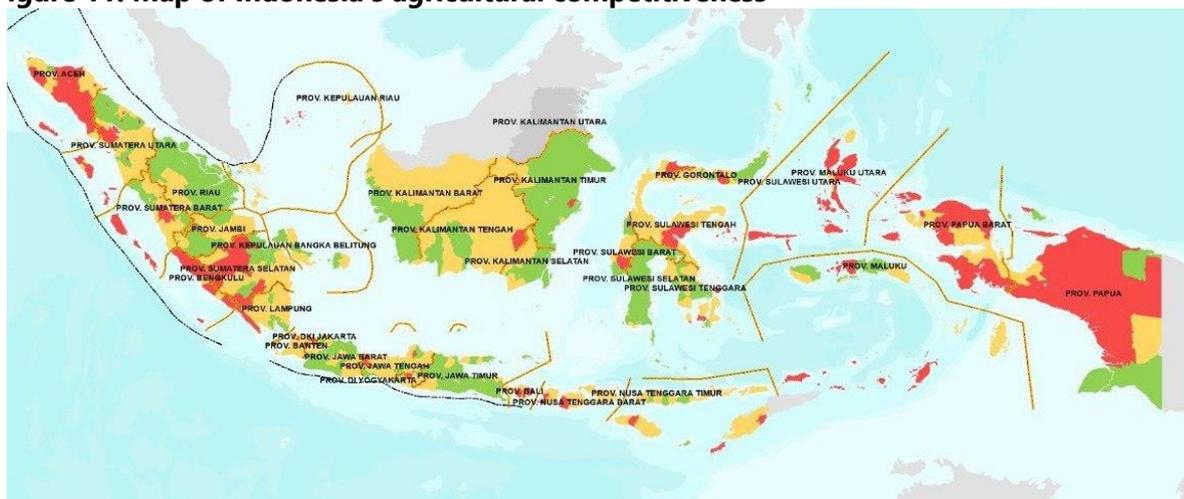
Level of Competitiveness	Location
High competitive	East Java, South Sulawesi, North Sulawesi, Riau, East Kalimantan, Bangka Belitung, and West Sulawesi
Middle competitive	Central Java, West Java, East Nusa Tenggara, North Sumatra, Lampung, Central Kalimantan, Central Sulawesi, South Kalimantan, Southeast Sulawesi, West Kalimantan, West Sumatra, South Sumatra, West Nusa Tenggara, Jambi, Bali, Maluku, Banten, Riau Islands, Gorontalo, and Yogyakarta.
Low competitive	Papua, Aceh, West Papua, Bengkulu, North Maluku, and Jakarta

Source: Dermoredjo, 2018.

³ Comparative advantage signifies that to produce value-added output at social prices requires an additional cost less than one (DRCR<1), while competitive advantage indicates that to produce value-added output at a private price requires an additional cost less than one (PCR<1)

⁴ Classified typology of inequality or gaps based on special characteristics of regency related to its competitiveness.

Figure 11. Map of Indonesia's agricultural competitiveness



Legend (general):

- Regency boundary
- Provincial boundary
- - - - Exclusive Economic Zones boundary

Legend (agricultural competitiveness):

- High competitive
- Middle competitive
- Low competitive

Note: The boundaries and names shown and the designations used on these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

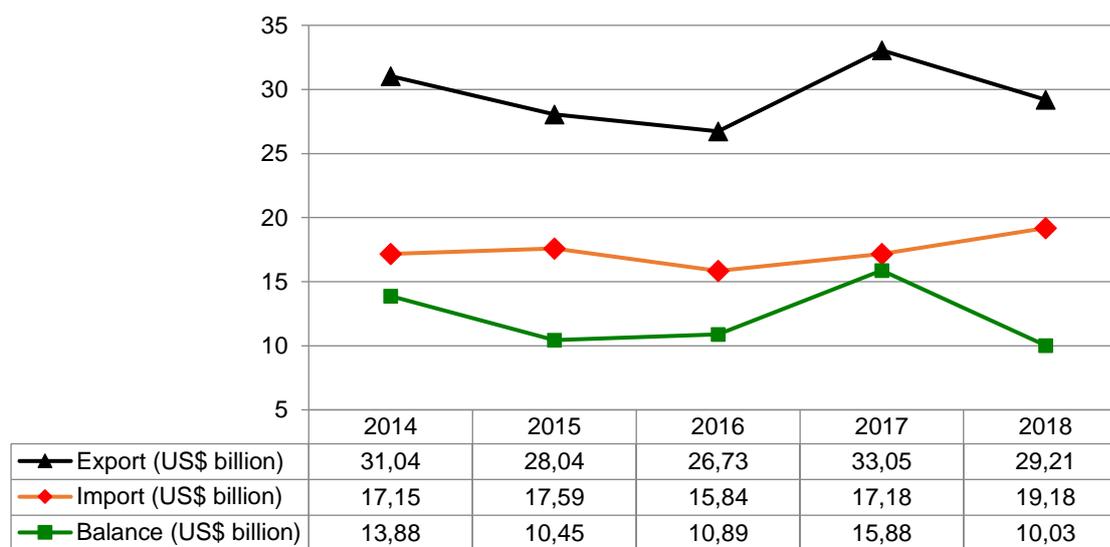
Source: ICASEPS, 2016 in Dermoredjo, 2018. Map conforms to Map No. 4170 Rev. 19. United Nations.

40. Conclusively, there is a need for strategic policy intervention towards improving agricultural competitiveness in Indonesia (Daryanto, 2009). It includes: i) increasing productivity through technical change and efficiency as well as economy of scale in line with agricultural revitalization; ii) enhancing investment based-regulation, good governance, property rights, and law enforcement; iii) implementing agricultural transformation to reduce pressure on the agricultural sector in gradual, sustainable, structured and measured manners in time dimension according to its priorities and interests based on appropriate technology, flexible rural institutions and market orientation benefitting farmers; and iv) facilitating the system to decrease market distortion supported by increasing incentives, financial accessibility, market information, technology innovation, business capacity, as well as research and extension.

10. Export and import

41. An important factor to foster economy in the nation is encouraging export and managing import for the benefit of the country. During the last five years (2014–2018), the highest export and import of Indonesian agriculture was in 2017 and 2018 (Figure 12). The growth of export values slightly decreased, namely -0.58 percent per year, while the annual growth of import value was about 3.18 percent. It shows no significant trend of agricultural export and import from 2014 to 2018.

Figure 12. Value of Indonesian agricultural export and import, 2014–2018



Source: Pusdatin, 2019

42. As per sub-sector, the highest export was from estate crops, particularly oil palms (Table 6). As the biggest country producer in the world, Indonesia exported palm oil of 28 million tonnes in 2014 up to 34 million tonnes in 2018 or increased 6.13 percent per year with the value of USD 18.93 trillion on average. The largest share of export destination was to India, China and European countries. It was noted that the export of corn increased significantly about three times due to increase in production. It predominantly exported to the Philippines (over 80 percent).

Table 6. Selected agricultural commodity export and import, 2014-2018 (tonnes)

Sub-sector	2014	2015	2016	2017	2018
Rice:					
Export	3 026	1 962	2 538	4 350	3 998
Import	815 307	874 426	1 283 183	307 525	2 254 521
Corn:					
Export	44 843	250 831	41 875	47 002	341 523
Import	3 296 106	3 500 103	1 331 574	714 504	1 150 225
Soybean:					
Export	51 184	13 935	13 797	56 473	15 397
Import	5 786 446	6 416 821	6 333 785	7 068 121	7 407 520
Palm oil:					
Export	28 026 621	32 534 712	28 489 471	33 519 211	34 597 004
Import	4 845	11 101	5 256	5 779	3 549
Garlic:					
Export	301	248	349	440	45
Import	494 631	482 665	448 881	559 728	587 942
Beef:					
Export	3	7	15	29	14

Import	76 858	50 309	116 761	118 647	164 261
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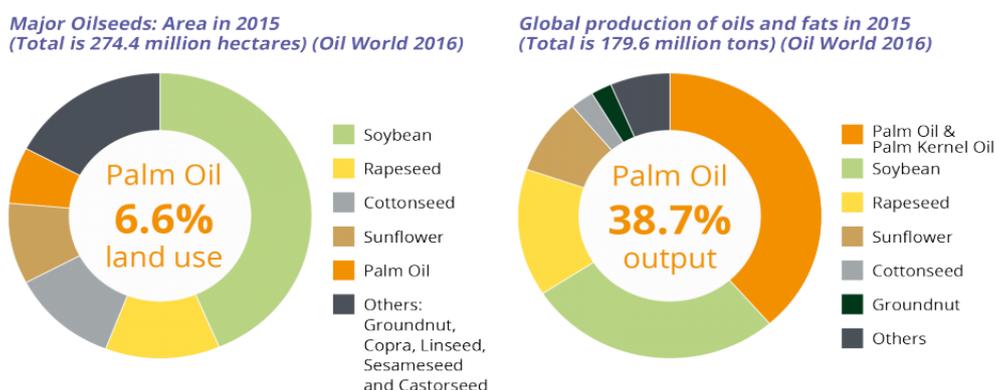
Source: Ministry of Agriculture, 2019.

43. The highest import was from the food crops sub-sector, especially rice and soybean. In 2018, the volume of rice import was 2.25 million tonnes or increased more than twice comparing to 2014 (0.8 million tonnes). Rice is not only a staple food but also an economic, social, and political commodity. Import for this commodity is a must in order to maintain the national stock reserves principally related to natural disasters and crop failures. It is also aimed at stabilizing the domestic market price. Moreover, the volume of soybean import was 6.60 million per year with the growth rate of 6.5 percent annually. Indonesia still depends on imported soybeans from time to time. Apart from that, Indonesia relies on imports of garlic and beef. The main country origin of Indonesian commodity imports was Thailand and Viet Nam (rice); United States of America, Brazil and Argentina (soybean); China (garlic); as well as Australia, India, and New Zealand (beef).

11. The palm oil economy

44. The area of palm oil plantation has grown very rapidly, especially in the last decades, and reached 14.7 million hectares in 2019. The production of crude palm oil (CPO) has reached 44 million tonnes and will rise to over 50 million tonnes in 2020. The surge in CPO production to close to 50 million tonnes is more due to the increase in the area of oil palms which exceeds 16 million hectares. Indonesia's CPO exports in 2018 have reached 35 million tonnes and will still increase again in 2019, although the CPO market in the European Union is still considered discriminatory. The new CPO markets in Eastern Europe, Central Asia and South Asia have grown rapidly in recent years and the CPO market in China and East Asian countries is also large. Malaysia's CPO production is in the range of 22 million tonnes, and is expected to grow slowly, because opportunities for oil palm expansion in Malaysia have become increasingly limited. Now, quite a number of Malaysian palm oil companies are expanding into Indonesia, by partnering with local Indonesian companies, taking over or buying Indonesian palm oil companies, especially those which are overwhelmed by problems. Other CPO producing countries are still quite small because they are developing, such as Thailand's CPO production of only 2 million tonnes, Colombia 1.1 million tonnes and Nigeria 950 thousand tonnes.
45. In Indonesia, oil palms have absorbed a workforce of around 6 million people, with around 2.5 million being small-scale oil palm farmers, who have been enjoying the economic benefits of palm oil. If it is considered, as many workers from the derivative sector and other related sectors, palm oil has absorbed a workforce of around 20 million people. The economic strength of Indonesian and Malaysian palm oil production is more than 85 percent, which should be able to affect the global CPO market and its derivative products. Indonesian and Malaysian CPO exports to the global market have reached 90 percent, which should dominate the global market of palm oil in the near future.
46. Palm oil has dozens of high value-added derivative products, not only CPO, but, carotene, toposerol, olein, stearin, free fatty acids, bar soap and others. In fact, olein and stearin alone can produce 54 types of downstream products ranging from fatty alcohols (esters), and other fatty acids. Indonesia is somewhat behind in the development of this downstream product from CPO compared to Malaysia and even European countries and the United States of America that have used its downstream products for food and energy, such as super edible oil, golden nutrition, bio-plastic, bio-surfactant, green fuel and others. Palm oil is regarded as the most efficient oil-producing plant in the world, compared to soybeans that produce soybean oil, canola into canola oil, and sunflower into sunflower oil. Data from Oil World (2016) shows that the total land used to produce major oil seeds in 2015 was 274.4 million hectares which produced oil and fat production of 179.6 million tonnes. The total area of soybean plants around the world is 120.3 million hectares (43.8 percent of total oil crops) succeeded in producing soybean oil by 41.3 million tonnes (23 percent and total edible oil production worldwide). The area of oil palms is only 18.1 million hectares (6.6 percent) but has succeeded in producing 69.5 million tonnes of palm oil (38.7 percent). The efficiency of palm oil production is much higher compared to palm oil which reached production of 23.3 million tonnes (13 percent) coming from 35.7 million hectares (13 percent) of canola plants.

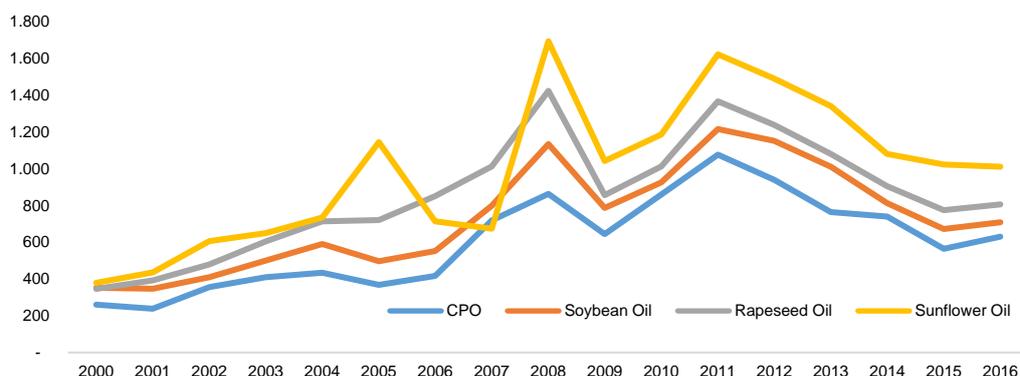
Figure 13. Palm oil land use and output



Source: Ministry of Agriculture, 2017.

47. Palm oil is the most efficient and highest productivity type of vegetable oil (ratio of product to area), especially when compared to soybean oil, palm oil, sunflower oil, etc. Palm oil has been able to replace soybean oil and sunflower oil in global trade, giving rise to heightened tensions between Indonesia and the countries producing these vegetable oils, especially the European Union and the United States of America. Although the practice of oil palm exploitation is still not fully in line with sustainable principles, the kinds of negative campaigns and ill-treatment of Indonesian palm oil abroad are certainly very likely to be related to the global competition and geo-political map.

Figure 14. Prices of seed oils (2000–2016)



Source: Ministry of Agriculture, 2017.

48. The price of CPO is the cheapest compared to three other vegetable oils: sunflower oil, rapeseed oil and soybean oil. CPO prices at the global level are the most stable, compared to the prices of the three global vegetable oils above. However, Indonesian and Malaysian palm oil have long been subjected to negative treatment and negative campaigns abroad, particularly in the health and environmental aspects. Palm oil is considered a source of saturated fat which has a negative effect on health. Palm oil is also considered damaging to the environment because it is produced by converting natural forests and peatlands, which often causes recurrent fires, especially in climate change and extreme weather seasons as in the case of El-Niño in 1997, 2010 and 2015.

49. The contribution of palm oil to the Indonesian economy has been well-known, absorbing labour, increasing income, moving the regional economy, becoming a major foreign exchange earner and helping to save Indonesia's balance of payments. The role of oil palms in poverty alleviation in Indonesia is often claimed to be big, but there are also those who say it is not too big. The rapid development of oil palms during the last two decades is not comparable with the decline in poverty that has begun to slow down. In cases of oil palm expansion that are filled with socio-economic conflicts, especially due to land disputes in Sumatra and Kalimantan, the presence of oil palms is not really expected by the surrounding community. In fact, the increase in oil palm area has a negative impact on the lives of local people. By taking the sample from West Kalimantan, West Papua and Papua, the studies by Obidzinki *et al.* (2010) finds that oil palms cause deforestation, and other external impacts such as water pollution, soil erosion, air pollution. The exploitation of oil palms in frontier areas does not have multiple impacts, and only benefits migrants with education and skills from the local community.
50. However, oil palm farmers face uncertain market access and fluctuations in the purchase price of fresh fruit bunches (FFB) that are unstable, uncertain, and a host of other uncertainties (Vermeulen and Goad, 2006). Palm farmers generally depend on companies or middlemen who buy directly into the field. Small scale oil palm farmers experience a lack of capital to apply the principles of good agricultural practices (GAP). Palm farmers who partner with large companies are relatively more resistant to price changes, but still vulnerable to changes in production disruptions. In short, although partnership oil palm farmers enjoy the positive impact of increased income, those who are small in scale are still vulnerable to poverty if the external disturbance is large enough.
51. The roles of palm oil in improving the livelihood of independent and plasma oil palm farmers and regional economic development have been well documented (Susila, 2004, Arifin, 2015). However, these studies are generally a casuistic in nature and delivered in local and regional scope. Likewise, studies on the impact of oil palm exploitation on welfare are still ambiguous. In the cases of oil palm expansion that are filled with socio-economic conflicts, especially due to land disputes in Sumatra and Kalimantan, the presence of oil palms is not really expected by the surrounding community. Obidzinki *et al.*, (2010) explicitly suggest that the area of oil palm land has a negative impact on the livelihood of local people, and palm oil production does not have a significant impact on household consumption. The economic benefits of palm oil are more enjoyed by plantation workers, and households that participate in planting oil palms, but are not enjoyed by traditional communities. The presence of oil palms also triggers land scarcity (for food), land price increases, and land conflicts that are increasingly open everywhere. In the next article, Obidzinki *et al.* (2014) applied input-output analysis in the three provinces and found more varied results. Palm oil in aggregate is able to improve the regional economy at the provincial level, create jobs and increase income, especially for employees of plantations and palm oil mills. However, the exploitation of oil palms in these frontier areas did not have multiple impacts, and only benefited migrants with education and skills from the local community.
52. Studies by Susila (2004) found that the palm oil industry increased the welfare of farmers, and even contributed to improving income distribution. However, because oil palms are monocultural, farmers rarely pass on crop diversification, which is needed as a deterrent in difficult seasons, especially when production disruptions occur due to extreme weather changes and fluctuations in CPO prices in the global market. When global CPO prices fall, the price of FFB also falls, leaving farmers vulnerable to falling into poverty, because they only rely on one source of household income. Alwarrtzi *et al.*, (2015) found that an increasing number of farm households that are working on oil palms are related to household financial capacity, partnership schemes with large companies and proximity to markets. Increasing household income from oil palms and

increasing household expenditure is one of the empirical evidences that oil palms contribute to the expansion of employment opportunities and poverty alleviation in Indonesia.

53. The most recent and comprehensive econometrics study on the socio-economic impact of poverty on farmers' welfare was conducted by Edwards (2015). Edwards used district-level observation units in Sumatra, especially in North Sumatra, West Sumatra and Riau. By comparing the results of the regression with ordinary least squares (OLS) and instrumental variables, Edwards found that an increase in oil palm land use by 10 percentage points would encourage a reduction in the poverty rate by 40 percent. In his research in the ten regencies in Sumatra, Edwards concluded that at least 1.3 people got out of poverty due to the development of the palm oil industry or exploitation. The explanation also makes sense that many poor farmers grow oil palms or work in oil palm plantations and industries. Other poor people benefit from economic growth driven by oil palms.
54. The results of research conducted by Euler *et al.*, (2017) found that adoption of oil palms increased the welfare of smallholder households and the nutritional quality or consumption of farm households. Adopter or oil palm farmers tend to increase the area of their plantations, compared to increasing productivity or the level of profitability of their businesses, because the exploitation of oil palms is relatively easier than rubber, for example. Those who shift their business from rubber to palm oil still have extra labour, generally using it to work in other sectors, while waiting for the oil palms to produce. The issue of heterogeneity of data was analysed by quintile regression, and Euler *et al.*, (2017) found that "additional income" has been used on household expenditure for food and non-food. Interestingly, the increase in income is greater in the rich farmer groups, so this has the potential to increase income inequality in Indonesia, which is currently quite large with the Gini coefficient reaching 0.39.
55. Another study on the socio-economic impact of oil palms and their derivatives on rural development and poverty alleviation is carried out by Oktaviani *et al.*, (2017) using computable general equilibrium (CGE) models. Palm oil increases employment, improves the trade balance, and improves other sectors that have links to palm such as edible oils, soaps and cosmetics. Palm oil contributes to poverty alleviation in rural areas, even to farm laborers and all household categories, including in urban areas. The study also found that not all sectors benefit from trade liberalization, such as the coffee and cocoa processing industry, even tea and tea products.
56. Palm oil production in Indonesia is conducted by large private companies (52 percent), state companies (7 percent) and small farmers (41 percent) (Plantation Statistics, Ministry of Agriculture, 2018). These three groups of actors have contributed to CPO production, with the largest share in private companies being 57 percent, state companies 8 percent, and small farmers 36 per cent. The low contribution of these small farmers is due to differences in productivity with private companies which are increasingly widening. Small farmers are only able to produce CPO productivity of around 3 tonnes per hectare, while large companies have been able to produce CPO productivity of 5 tonnes per hectare. Many forms, formats and patterns of relationships between smallholders and industrial-based economic actors generally do not empower farmers significantly. This time palm oil business needs to meet the sustainability requirements from the framework of the Indonesian Sustainable Palm Oil (ISPO) or voluntarily through the global scale Roundtable Sustainable Palm Oil (RSPO).
57. Empirical research suggests that oil palm farmers face uncertain market access and fluctuations in the purchase price of FFBs that are unstable, uncertain, and a range of other uncertainties (Vermeulen and Goad, 2006). In selling FFBs, oil palm farmers generally depend on companies or middlemen or collectors who buy directly into the field. These small farmers usually experience a

lack of capital to apply the principles of good crop cultivation (Brandi *et al.*, 2013). In theory, the involvement of smallholders in sustainable certification schemes and partnering with large plantation companies is expected to accelerate the transformation towards sustainable palm oil production systems and improve the living standards of smallholders, socially and economically. However, empirically the impact of sustainability certification on smallholders is still unclear and inconclusive (Bitzer, 2012).

58. Studies that quantify the socio-economic impact of palm oil sustainability certification for smallholders in Indonesia are still very limited. The performance of small-scale oil palm farmers and their vulnerability trapped in poverty if there were external disturbances, such as changes in world CPO prices. Scheme of partnership oil palm plantations (contract farming) compared to independent oil palm farmers or not in partnership with field observations in the Jambi Province. Oil palm farmers who partner with large companies are relatively more resistant to price changes, but still quite vulnerable to changes in production disruptions. In short, although partnership oil palm farmers enjoy the positive impact of increasing incomes from oil palms, those on a small scale are still vulnerable to poverty if the external disturbances are large enough. An in-depth search of oil palm exploitation produced several interesting findings, including that sustainable certification does not directly improve market access and vulnerability of smallholders, but indirectly the participation of smallholders with a certification program increases social capital in institutional and farmer group organizations and increase productivity of oil palms per hectare. The certification scheme is not very well-institutionalized within farmers' organizations, so farmers can easily change the pattern of oil palms cultivation in ways that they think are more profitable.

12. Issues of indirect land-use change

59. The issues of indirect land-use change in the palm oil industry have obtained new attention as the European Union imposed a renewable energy policy⁵. This high-risk course, including the conversion of natural forests into plantations and agricultural land, is considered to be able to increase greenhouse gas emissions. Indonesian palm oil will be banned from the European Union, because it is considered to be a source of deforestation of up to five million hectares in the period 2008–2016.
60. The European Union seems to be looking for new cases with Indonesian palm oil. In 2018, Indonesia won the case at the Dispute Panel Assembly at the World Trade Organization (WTO) and at the European Union High Court (the European Court of Justice) for the imposition of anti-dumping duties by the European Union on Indonesia's biodiesel imports. The European Union has again made it difficult for Indonesia's palm oil exports to European countries with the new Renewable Energy Directives (RED II) policy, as explained. Indonesia is busy enough to combat and refute these high-risk Indirect Land Use Change (ILUC) allegations, that not only is the area of palm oil growing, but the area of soybean and rape seed (sunflower seed) and palm oil also increases. In 2018, the total area of global vegetable oil plants has reached 170 million hectares with a very rapid increase. The area of vegetable oil plants reached almost one third of the total acreage of grain plants which is only 670 million hectares, a development that needs attention. The increase in the area of soybean has now been nine times greater than the area of oil palms. The argument for involving phenomena that occur in other countries makes it quite difficult to convince the European Union that Indonesia is not a lone contributor to the high-risk ILUC.
61. Indonesia is also trying to improve the map of oil palms land area. Currently, Indonesia still has three versions of data on oil palms land area: 15.4 million hectares by the Ministry of Environment and Forestry, 14.3 million hectares by the Ministry of Agriculture, and 16.8 million hectares in accordance with the Corruption Eradication Commission study, along with 20 million hectares of oil palm areas in accordance with the permit or right to cultivate that has been issued. At the very least, the Government hopes that with one data policy, the allegation of deforestation rates of up to five million to eight years by the European Union can be refuted more objectively. Some people doubt that the European Union will simply believe the Indonesian side's argument.
62. The RED II policy is actually flexible, where the negotiation between the European Union and Indonesia and other suppliers of bioenergy raw materials has been taking place for a while. European Union countries can import vegetable oil sourced from commodities with high risk ILUC, but it is not counted as part of the agreed renewable energy source target of 32 percent by 2030. On 22 May 2019, the European Union convened to take a decision that RED II be binding on all its member countries, so that Indonesia must take bilateral diplomacy, which is rather tiring. Spain and Italy are two European countries which import a lot of Indonesian palm oil, both as food and bioenergy. Switzerland, which is not part of the European Union, is quite friendly with Indonesian palm oil and may become a trade hub towards the European Union palm oil market. However, it might be that Switzerland will also follow the trend of policy development in the European Union, if Indonesia does not make comprehensive policy improvements at home.
63. The European Union currently consumes 5.1 billion litres of crude oil, 2.3 billion litres of palm oil, 680 million litres of soybean oil and 243 million litres of solar oil (USDA, 2018). Most palm oil (USD 1.68 billion) is now used for industrial needs, including the bioenergy industry, and only

⁵ Renewable Energy Directive (RED) II, which prohibits raw materials for biofuels, bio-liquids and others deemed to have a high risk of indirect land use change. Indirect Land Use Change (ILUC) concept.

USD 672 million is used for food. After the victory of the case at the WTO and the European High Council, European Union biodiesel imports from Indonesia have jumped significantly in 2018, reaching USD 594 million from only USD 22.4 million in 2017. It is not surprising that the European Union is once taking an economic diplomacy on palm oil, as it is indeed far more efficient in producing oil, both as food products, and as bioenergy. Palm oil has become a major competitor of rape seed oil which is widely produced in Europe.

64. The loss of the European Union in 2018 in the anti-dumping issue of biodiesel imports at the WTO and the European High Court might be very offensive, especially for the European Parliament. It has been a while since the European Union has imposed anti-dumping duties on biodiesel imports because it accuses Indonesian biodiesel producers of getting very large subsidies, resulting in very low production costs. Indonesia is accused of selling biodiesel prices below market prices because of the government's "partiality". Indonesia did not accept the accusation and submitted a case to the Dispute Panel Assembly at the WTO. Indonesia's exports dropped dramatically from USD 649 million in 2013 to USD 150 million in 2016, even reaching a low of USD 68 million in 2015.
65. The panel of judges of the WTO Dispute Panel Assembly in January 2018 ruled in favour of Indonesia which had been proven harmed by the European Union's policy. In its ruling, the Dispute Panel Assembly stated that the European Union implemented protectionism and discrimination against Indonesian palm oil. Interestingly, the European Union Supreme Court in March 2018 strengthened WTO's decision and ordered the European Union to revoke anti-dumping duties on biodiesel imports from Indonesia, which ranged from 8.8 to 23.3 percent. As a result, Indonesia's biodiesel exports to the European Union soared in 2018 and reached USD 594 million mentioned above.
66. Economic diplomacy, of course, still depends on the expertise of the negotiators, the consistency of policies in the country, and the support of all parties to behave according to what is championed. The meaning of diplomacy in the international arena becomes very naïve and apparent when the policies of the Government specifically allow control of oil palm land to a handful of economic actors, through a conglomeration process that is far from civilized. Palm oil diplomacy is not a linear process, but is more often winding and sometimes tiring. The options of positive campaign about the role of oil palm in the domestic economy, regional development, poverty alleviation and others could be developed. This step can be taken through a series of ordinary economic diplomacy matters by ambassadors, but can also be taken by academics, researchers and other stakeholders through objective and accountable scientific publications. Government and the business world can continue to negotiate on various individual levels bilaterally and/or through the European Union, such as the EU-Indonesia Comprehensive Economic Partnership Agreement. The "take and give" strategy that was discussed at the official forum may be added to it by a little bluffing, for example about trading in automotive and aircraft products.

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