Green financing for supporting sustainable agriculture in Indonesia

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Abstract. Sustainable finance is the overall support of the financial services sector to create sustainable economic growth by harmonizing economic, social and environmental interests. It is designed to meet the needs of achieving the Sustainable Development Goals (SDGs) as well as the Paris Agreement on Climate Change (PACC) 2015-2030. The international development financial institutions have committed to transforming their funding to support the SDGs and PACC. In Indonesia, the implementation of sustainable financial policies began with the Financial Services Authority Regulation number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Service Institutions, Issuers and Public Companies and Its regulation number 60/POJK.04/2017 concerning the Green Bond, so they have the opportunity to diversify funding sources as well as an instrument for de-risking when financing projects that support to solve the social inequality and environmental damage issues. Present green finance practices in agricultural sector as implementation of sustainable finance policy in Indonesia seems to be very limited. The limited green financing practices in Indonesia, such as for supporting sustainable food crops farming system, sustainable animal husbandry, sustainable fisheries, sustainable plantations, sustainable industrial forests, and organic food and beverages development projects, etc. The financial sources for implementing green financing are from national budgeting, the CPO export levy funds, low interest loan, and corporate social responsibility of Financial Service Institutions, Issuers and Public Companies.

1. Introduction
The present global issues are sustainable development issues contained in Sustainable Development Goals (SDGs) 2015-2030 and climate change issues contained in the Paris Agreement on Climate Change (PACC) 2015-2030. In the last five years, the dominant development issues are social inequality and environmental damage. Indonesia has ratified the global agreement stated in Law number 16 of 2016 concerning the PACC and Presidential Regulation number 59 of 2017 concerning the implementation of the achievement of SDGs. Two important regulations have been issued by the Indonesia Financial Services Authority, namely the Regulation number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Service Institutions, Issuers and Public Companies [15] and the Regulation number 60/ POJK.04/2017 concerning Issuance and Requirements for Securities Effect Environmental Friendly Debt or Green Bond [16]. The implementation of this regulation will gradually begin in 2019 until it is expected that they will start implementing sustainable finance in 2025.
The role of private sector, especially the financial services sector, is highly expected in resolving these development issues. International development finance institutions such as the World Bank, Asian Development Bank, Islamic Development Bank, International Finance Corporation, French Development Agency, and Kreditanstalt Fuer Wiederaufbau have committed to transform their funding for supporting the SDGs and PACC. Developing countries such as China, Nigeria and Bangladesh are countries that actively encourage the role of financial service institutions to innovate sustainable products/investments. The Singapore Capital Market Authorities have also advocated the submission of Sustainability Reports for each SGX Issuer. The financial sector institutions such as LJK, Issuers, and Public Companies in Indonesia have the opportunity to diversify funding sources as well as instruments to de-risk while financing projects that support SDGs and PACC.

In realizing sustainable development in Indonesia, priority sectors are set including food sovereignty, energy sovereignty, marine and maritime affairs, as well as tourism and industry. Sustainable business activities obtain financing from financial services institutions if in the business process prioritizes efforts to improve the efficiency and effectiveness of sustainable use of natural resources; prevent, limit, reduce, or repair environmental damage, increasing pollution, and waste to ecosystems, and social inequality; and/or provide solutions for people facing the impacts of climate change. This study aims to describe the implementation of sustainable financial policy in agricultural sector in Indonesia.

2. Materials and Methods

2.1 Scope and Location of the Study
The scope of study is the implementation of sustainable financial policy by the Financial Services Institutions, Issuers and Public Companies for supporting sustainable agriculture development in Indonesia. The sustainable business activities in agricultural sector including sustainable food crops farming system, sustainable plantation, sustainable industrial forests, sustainable fisheries, and organic food and beverages development projects, etc.

2.2 Data Collecting and Analysis Method
The both primary and secondary data were used in this study. The primary data such as general information of green financing in Indonesia collected through Focused Group Discussion (FGD) on July 9th to 11th, 2019 facilitated by Indonesia Financial Services Authority at 16th floor of Wisma Mulia 2 Building Jakarta. The 1st day FGD involved 43 participants from the financial services institution (bank and non-bank) association representatives. The 2nd day FGD involved 16 participants consisted of 10 persons of government representatives and six persons from private sector. The last day FGD involved eight persons of international finance institution representatives and 15 persons from the university, NGO, and bank development institute representatives. The available and appropriate literatures related to the sustainable finance policy and green financing practices in agricultural sector were critically reviewed in order to find out the appropriate secondary data. Qualitative method was used to analyse the available data descriptively.

3. Results and Discussion

3.1 Agricultural Insurance in Food Crops, Animal Husbandry, and Fisheries
The agricultural insurance program is mandated by Law No. 19 of 2013 concerning protection and empowerment of farmers. The law requires the central government and regional governments to provide protection to farmers against crop losses. It was began implemented in collaboration with PT. Asuransi Jasa Indonesia (Jasindo) who was appointed as the executor of the Rice Farming Insurance after the issuance of Minister of Agriculture Regulation No. 40 of 2015 concerning agricultural insurance facilitation [4]. Its facilities provided include ease of registration to become a participant, easy access to insurance companies, the socialization of the insurance program to farmers and insurance companies, and/or premium payment aid [18].
Table 1. Characteristic of rice farm insurance (RFI) and cattle business insurance (CBI)

| No | Program Characteristic | RFI | CBI |
|----|------------------------|-----|-----|
| a. | Premium (IDR/Ha/season) | 180,000 | 200,000 |
|    | Government subsidy (80%) | 144,000 | 160,000 |
|    | Paid by farmer (20%) | 36,000 | 40,000 |
| b. | Coverage value (IDR/Ha/season) | Max 6,000,000 | Max 10,000,000 |
| c. | Criteria of farmer/breeder | Farm operator or farm land owner (max farm size 2 Ha) | Small scale breeder |
| d. | Criteria of land/cow | Irrigated land or land nearest the water resource | Healthy female cow with clear identity and minimum 1 year old |
| e. | Claim | Paddy age >10 d.a.p or >30 d.a.p for tabela/gogo rancah | Loss is due to die giving birth, sick, accident, stolen |
|    | Damage intensity ≥75% due to flood, drought, pest attack with damage area ≥75% for each natural plot |

Source: [13].
Note: *d.a.p = day after planting
*tabela = planting seeds directly

Products of agricultural insurance that have governmental support include the Rice Farming Insurance (RFI), the Cattle Business Insurance (CBI), and the Fishermen’s Insurance (FI). The RFI program provides protection to farmers from the risk of crop failure due to the floods, droughts, and plant diseases and pest attacks. The CBI program provides protection to cattle growers from the risk of death from childbirth, disease, accidents and loss due to theft. The FI program provides protection to fishermen from the risk of death both during fishing activities and outside the activities. The characteristics of both RFI and CBI programs can be seen in Table 1. Furthermore, a FI premium of IDR175,000 is totally paid by Government with accident compensation benefits for maximum fishermen aged of 65 years old who have both a valid fishing card and a saving account as well as a maximum fishing capacity of 10 GT [13].

The realization of RFI starting in 2015 reached 233,500 hectares with a claim land area of 3,492 hectares. In 2016, the RFI reached 307,217 hectares with a claim area of 11,107 hectares. In 2017, it mostly reached the RFI target, that is 997,961 hectares, and loss claims were recorded at 25,028 hectares, while in 2018 the RFI realization was around 806,199.64 hectares (80.62%) of the RFI target with a loss claim of 12,194 hectares. The realization of the CBI program also shows a progress trend. For example in 2016, the number of new registered cattle was 20,000 with a total loss claim of 697. In the following year, it rose to 92,176 with 3,470 claims, and in 2018 there were 88,673 registered cattle with 1,736 claims [14]. To facilitate administration and access to the FCI program during registration to claim stages, Jasindo has prepared the SIAP Application, which is a web-based Agricultural Insurance Information System that is optimistic to pursue the RFI target in amount of one million hectares annually [10].

The RFI bears the Peasant Group (POKTAN) consisting of smallholder farmers or farm operators. The object of coverage will be borne by the Jasindo is a paddy field which is cultivated by the POKTAN members. Each insured gets one insurance policy with an overview containing the insurance coverage data of its members. The time period used in the RFI program is one planting season (four months) starting from planting to harvest. The insurance price is IDR 6,000,000 per hectare with IDR 180,000 of premium payment. The premium is 80% subsidized by the government and the rest of it is paid by the farmer. Bali Province is one of the provinces that has implemented the RFI program since October 2015 with insured land area per regency shown in Table 2.
Table 2. Registered land for rice farm insurance in Bali Province 2016 - 2017

| No | Regency/City | Planting Area per Phase (Ha) | I       | II      | III     | IV     |
|----|--------------|-------------------------------|---------|---------|---------|--------|
| 1  | Denpasar     |                               | 279.00  | 1.131.72| -       | 2.224.96|
| 2  | Gianyar      |                               | 2.978.74| 5.150.14| 1.490.32| 3.782.81|
| 3  | Tabanan      |                               | 143.94  | 4.313.21| -       | 1.281.62|
| 4  | Buleleng     |                               | 1.982.71| 2.013.40| -       | 1.068.38|
| 5  | Jembrana     |                               | 187.45  | 1.131.72| 4.062.42| 5.150.14|
| 6  | Karangasem   |                               | 2.224.96| 1.486.92| 3.782.81| 1.281.62|
| 7  | Klungkung    |                               | 277.77  | 1.000.00| 1.490.32| 1.349.14|
| 8  | Badung       |                               | 10      | 13.66   | 126.22  | 143.21  |
| 9  | Bangli       |                               | 1.000.00| 1.000.00| 1.000.00| 1.000.00|

Bali Province | 6.087.84 | 21.510.25 | 1.657.19 | 14.699.70 |

Source: [22].

Note: I = 1st phase (October 2015 to March 2016)
II = 2nd phase (April 2016 to September 2016)
III = 3rd phase (October 2016 to March 2017); and
IV = period of April 2017 to September 2017

Table 2 shows the insured rice field area for some phases from October 2015 to September 2017. It was fluctuated during this period. In 2nd phase, it was seen that the insured rice field area was 21,510.25 hectares, the most extensive compared to other periods, while in period III it was shown the lowest one.

The RFI claim payment was since 2016 with various causes contained in the list of risks guaranteed by the RFI program. Risks guaranteed by the RFI are floods, droughts and certain pest attacks. The data on the RFI claims in the Bali Province can be seen in Table 3.

Table 3. The claim of rice farm insurance in Bali province 2016-2017

| Regency/City | Claim RFI in 2016 (IDR) | Remark | Claim RFI as of September 18th, 2017 (IDR) | Remark |
|--------------|--------------------------|--------|-------------------------------------------|--------|
| Denpasar     | 25,740,000 (4.29 Ha)     | Rat and Brown Planthopper attack | 4,200,000 (0.70 Ha) | Brown Planthopper attack |
| Gianyar      | -                        | -      | -                                         | -      |
| Tabanan      | 1,622,520,000 (270.42 Ha) | Rat and Blast attack | 1,919,170,000 (319.86 Ha) | Rat, Blast and Tungro attack |
| Buleleng     | 35,053,200 (5.84 Ha)     | Blast attack | -                                         | -      |
| Jembrana     | 40,440,000 (6.74 Ha)     | Blast and Brown Planthopper attack and drought | -                                         | -      |
| Karangasem   | -                        | -      | -                                         | -      |
| Klungkung    | 6,180,000 (1.03 Ha)      | Blast attack and drought | 82,488,000 (13.75 Ha) | Tungro, Blast and Stem borer attack |
| Badung       | 140,810,000 (23.47 Ha)   | Rat attack | 96,420,000 (16.07 Ha) | Rat, Tungro, Brown Planthopper attack |
| Bangli       | -                        | -      | -                                         | -      |

Total | 1,870,743,200 | 2,102,278,000 |

Source: [22].
The Aquaculture Insurance (AI) program starts at the end of 2017, and Jasindo has successfully penetrated 22 provinces. The requirement for farmers to receive governmental subsidy premiums is the maximum of fishponds owned by customers is five hectares with a traditional cultivation system. The AI starts in December 2017 with shrimp commodity that provide risk protection to farmers for diseases that cause the death of insured shrimp or business failure or are caused by natural disasters that result in damage to aquaculture facilities reaching greater or equal to 50%. The government provides a 100% premium subsidy for the AI program. Based on Indonesia Financial Services Authority (OJK) statistics (December 2017-October 2018), the premium value for shrimp farming insurance was IDR 1.485 billion for the protection of 3,300 hectares of fishponds and 2,004 fish growers. In 2018, the insured fishery commodity will be expanded with a premium ranging from IDR 90 thousands to IDR 225 thousands per year in accordance with the unit area of cultivated land. The types of commodities protected are shrimp, catfish, brackish tilapia, fresh tilapia, milkfish and polyculture. Later, farmers will get compensation in the event of a claim with a maximum value per year starting from IDR 1.5 million to IDR 7.5 million in accordance with the unit area of cultivated land. In 2018, the AI for small size of fish farming provided protection for 6,914 fish growers with an area of 10,220.6 hectares and a premium value of the state budget subsidy of IDR 2.987 billion [19].

3.2 Green Financing for Sustainable Plantation

Indonesia has diverse plantation commodities, such as palm oil, rubber, cocoa, coffee, coconut, clove, pepper, cashew, tea, sugar cane, cotton, tobacco, sago, nutmeg, ratchouli, etc. From those commodities, palm oil, rubber, coconut, coffee, and cocoa are the top five foreign exchange earner (see Table 4), and palm oil is the biggest foreign exchange earner in agricultural sector.

### Table 4. Indonesian plantation commodity and export value in 2017

| No | Plantation Commodity | Export Volume (Ton) | Export Value (000 US$) | Percentage (%) |
|----|----------------------|---------------------|------------------------|----------------|
| 1  | Palm Oil             | 29,135,179          | 20,802,708             | 69.33          |
| 2  | Rubber               | 2,991,909           | 5,100,920              | 17.00          |
| 3  | Coconut              | 1,875,215           | 1,368,678              | 4.56           |
| 4  | Coffee               | 467,790             | 1,186,886              | 3.96           |
| 5  | Cocoa                | 270,172             | 646,335                | 2.15           |
| 6  | Others               | 694,367             | 899,509                | 3.00           |
| Total |                      | 35,434,632          | 30,005,036             | 100            |

Source: [3].

### Table 5. Distribution of palm oil in Indonesia

| Region            | Area (Ha) | TBM | TM | TTM/TR | Total | Percentage (%) | Production (ton) | Productivity (Kg/ha) |
|-------------------|-----------|-----|----|--------|-------|----------------|------------------|---------------------|
| SUMATERA          | 2,012,532 | 6,379,501 | 153,710 | 8,545,743 | 59.65 | 24,412,345 | 3,827            |
| JAWA              | 3,939     | 33,006 | 1,309 | 38,254 | 0.27 | 80,128 | 2,428            |
| KALIMANTAN        | 756,069   | 4,174,718 | 41,731 | 4,972,518 | 34.71 | 14,396,511 | 3,448            |
| SULAWESI         | 103,671   | 407,175 | 29,901 | 540,747 | 3.77 | 1,283,203 | 3,151            |
| MALUKU+           | 86,656    | 137,702 | 5,473  | 229,831 | 1.60 | 395,044 | 2,869            |
| Total             | 2,962,867 | 11,132,102 | 232,124 | 14,327,093 | 100.00 | 40,567,231 | 3,640            |

Source: [21].  
Note: TBM = Young plant  
TM = Productive plant  
TTM/TR = Non-productive plant/Damage plant

The total value export of palm oil in 2018 amounted to IDR 247 trillion [21] which was almost similar to the value of oil and gas exports of IDR 248 trillion [7, 8]. Palm oil plantations are spread across six
islands namely Sumatra, Java, Kalimantan, Sulawesi, Maluku and Papua (Table 5). Palm oil plantations provide 4.2 million direct jobs and 12 million indirect jobs, replacing the use of fossil fuels 2.3 million kiloliters through the mandatory biodiesel program since August 2015 to April 2018 that was able to save foreign exchange of USD2.26 billion or equivalent to IDR30 trillion [21].

The current challenges to palm oil development in Indonesia include an average productivity of 3.64 tons per hectare which is still very low than the potential productivity of 5.5 tons per hectare, the unavailability of one data and one map, indicated that 1.7 million hectares of palm oil are in forest areas, there are still palm oil plantations that do not yet have legality (Certificate of Ownership, Cultivation Rights, Cultivation Registration Certificate), the need for harmonizing the PBS/PBN with smallholders plantation, the palm oil plantation development is not yet compatible with the sustainable principles, the requirements of the consumer countries especially the European Union, and not many CPO-derived products have been produced. The area of smallholder palm oil plantation in 2017 was 5.61 million hectares. At least 2.4 million hectares need to be immediately rejuvenated with details of 2.12 million hectares of Self-Developed (Swadaya) plantations, 153.39 thousand hectares of the Nucleus Estat–Small holder (PIRBUN Plasma) plantations, and 136.78 thousand hectares of Nucleus Estat–Small holder of transmigration (PIR-TRANS plasma) plantations. Rejuvenation targets for palm oil plantations for the period of 2017-2022 are 20,780 hectares (2017), 185,000 hectares (2018), 200,000 hectares (2019), 500,000 hectares (2020), 750,000 hectares (2021), and 830,000 hectares (2022) [21].

One source of its funding supports is from the CPO export levy fund. The Minister of Finance Regulation No. 84 of 2017 concerning the Use of Palm Oil Plantation Rejuvenation Funds of BLU BPDPKS that the funds are collected by the Public Service Board of the Palm Oil Plantation Fund Management Board (BLU BPDPKS) for the rejuvenation of palm oil plantations. In President Decree No. 61 of 2015, Jo President Decree No. 24 of 2016, Jo President Decree No. 66 of concerning Collecting and Using Palm Oil Plantation Funds that to ensure the sustainable development of palm oil plantations, it is very important to have national strategies supported by optimal fund management. In the Minister of Finance Regulation No. 152 of 2018, the government has denied (US$ 0 per ton) all export levy tariffs if the international CPO price is below US$ 570 per ton. Meanwhile, if prices are in the range of US$ 570- US$ 619 per ton, the CPO export levy fund will be US$ 25 per ton. As for when international prices have returned to normal above US$ 619 per ton, CPO export levies are again set at US$ 50 per ton [6]. One of the purposes of raising funds is used for the rejuvenation of palm oil plantations, especially for its age above 25 years or the highest annual productivity of 10 tons of TBS per hectare. Targets and rejuvenation of palm oil plantations for 2017-2019 are presented in Table 6.

| Year/Target (Ha)/No. of Province/Regency/No. of Unit | Technical Recommendation | BPDPKS Approval | Transfer Fund from BPDPKS |
|-----------------------------------------------------|--------------------------|-----------------|---------------------------|
|                                                     | Ha  | %   | 000 IDR | Ha  | %   | 000 IDR | Ha  | 000 IDR       |
| 2017/20,780/7/20/47                                 | 14,796 | 71.20 | 369,900,000.00 | 14,495 | 69.75 | 362,375,000.00 | 2,938 | 73,459,210 |
| 2018/185,000/16/45/169                               | 33,842 | 18.29 | 846,050,000.00 | 8,336 | 4.51 | 208,394,875.00 | 12,622 | 315,548,380 |
| 2019/200,000/21/107/108                              | 20,379 | 10.19 | 509,477,267.50 | 26,551 | 13.28 | 663,775,000.00 | 12,723 | 318,065,710 |
| Total                                               | 69,017 | 49.38 | 1,725,427,267.50 | 49,382 | 28.28 | 1,234,544,875.00 | 28,283 | 707,073,300 |

Source: [21].

*Unit in form of Cooperative, Farm Group Federation or Farm Group

*BPDPSKs = Fund Management Body of Palm Oil Plantation

*As of June 25th, 2019
Furthermore, there is another policy in the form of INPRES No. 8 of 2018 concerning the Delay and Evaluation of Licensing of Palm Oil Plantations and Increasing Productivity of Palm Oil Plantations which aims to improve the sustainable palm oil plantations governance, provide legal certainty, keep and protect the environment, including reducing GHGs emission, as well as to increase the farmers capacity of palm oil and increase the productivity of palm oil plantations. Ministry of Agriculture's tasks, among others, related to this policy are to evaluate the implementation of the obligations of plantation companies that have a Palm Oil Plantation Business Permit or oil palm plantation business permit to facilitate the development of small holders palm oil plantations of at least 20% (twenty percent) of the total land area which is planted by a plantation company and submits the evaluation results to the Coordinating Minister for Economic Affairs, and ensures that each palm oil plantation applies the Indonesian Sustainable Palm Oil standard [21].

The Indonesian financial services sector is facing considerable reputational, regulatory and financial risks if it continues to support unsustainable palm oil companies. In general, the impacts of irresponsible palm oil plantation practices are as follows. Social conflict arises when the rights and interests of the local community are ignored. In some cases, failure to comply with proper land acquisition procedures, or clearing community land without adequate notice and consultation with the local community, not only causes negative external impacts but also impacts on the company. This bad practice leads to disputes and conflicts over land rights which hinder the company's ability to develop. In many locations, plantation developers open up large areas of natural forest and other important ecosystems. This bad practice destroys the habitat of rare and endangered species and increases human-animal conflict when large animal populations (such as tigers, elephants and orangutans), are forced to live in increasingly narrow natural habitats. Forest conversion by plantation companies contributes to climate change, where deforestation contributes approximately 20% of all human-generated GHG emissions. The practice of converting tropical peat forests is very damaging to climate mitigation efforts, because the function of peat as carbon sinks stores more carbon per unit area than any other ecosystem in the world. In addition, burning of forests to open plantation land is the main source of smoke in Southeast Asia, which threatens health seriously [23].

Therefore, actions to manage adverse environmental and social impacts resulting from unsustainable palm oil production practices that have been implemented by the Indonesian government, the global community, palm oil buyers, and international banks and investors should also be followed by this sub-sector. The actions of these stakeholders continue to increase, including a moratorium issued by the Indonesian government on new permits in primary forests, peat lands, and further expansion. This action also includes the commitment of European countries to only buy palm oil that is certified as sustainable in 2020. More and more companies in the palm oil supply chain are committed to producing and extracting raw materials from regions and producers that comply with the criteria of No Deforestation, Peat and Exploitation (NDPE) [20].

Policies that strengthen these actions include Law No. 39 of 2014 concerning Plantations, in article 62, namely Development of Sustainable Plantations, and the Minister of Agriculture Regulation No. 11 of 2015 concerning on the Indonesian Sustainable Palm Oil certification system (ISPO system). The ISPO is a national sustainability policy that is specifically applied to palm oil plantations. It has several aspects namely Policy and Legality, Best Management Practices (BMPs), Social, Economic and Environmental. The policy and legality aspects are the domain of government authority, while the other aspects are the domain of oil palm business actors [12].

As of March 2019, there were 722 palm oil plantation businesses participating in ISPO certification (707 companies, 11 KUD/KSU Plasma plantations, one BUMDES, and three Plantation Cooperatives/Associations). Reports on Audit Results (LHA) received by the Secretariat of ISPO Commission as many as 606 LHA, of which were verified 569 LHA (93.90% of 606), were being verified by 14 LHA (2.30% of 606), not yet verified 23 LHA (3.80% of 606), ISPO certificates for 502 LHA (88.20% out of 569 LHA) were issued. Letters for submitting required documents of seven LHA have not been responded (1.30% of 569), delayed for 60 LHA (10.50% from 569). The postponement is due to not complying with: Land Rights are still SKT, Extension of HGU has not yet been issued,
Permit for Release of Forest Areas has not yet been issued. Facilitation for the Development of Smallholders palm oil plantations 20% has not been realized. Land disputes have not been resolved. Suppliers’ Plantations have not been ISPO certified. Amendment of IUP has not yet been issued, Disposal Permit and LB3 Transportation, Permit for Utilization of Liquid Waste is still in process, and Worker's Wages are not in accordance with the provisions [21].

The slowdown in ISPO certification is generally not due to non-compliance of the actors nor the fulfillment of indicators that are the responsibility of the business actors. Regarding aspects of technical culture, economic, social and environmental aspects generally meet the requirements although they still need to be improved to be of higher quality. The problem of ISPO certification delays is largely in meeting indicators related to government policies such as spatial and licensing issues, the solution of which is absolutely in the hands of the government and not the business actors [11].

3.3 Green Financing for Sustainable Industrial Forestry

The scheme of industrial forests (HTI) exploitation have been begun in in 1986 after the issuance of Minister of Forestry Decree No.320 of 1986 due to an increase in the demand for wood for industry and a decrease in the supply of wood from natural forests. As of 2013, its development has exceeded 10 million hectares, managed by 252 management units (MUs). The rapid development of HTI in Indonesia is closely related to increasing the capacity of the pulp and paper industry which requires a supply of raw materials of 36 million m3 per year. From these concessions, a maximum of only 70% can be used for nuclear plants, and the rest, as much as a minimum of 20% for agriculture production, and a minimum of 10% for conservation. The extent of these HTI permit concessions have not been matched by planting performance and also compliance with the Timber Legality Verification Certificate (SVLK). As of 2014, only 102 (40%) MUs received SVLK. This has led to the formation of the Public Service Board of Forestry Sector with the Center for Financing of Forest Development (P3H) based on the Minister of Forestry Decree No. 2 of 2007 and the Minister of Finance Decree No. 06.1 of 2007. P3H aims to finance the development of small holder forestry (HTR) and industrial forestry (HTI) in production forest areas. Facilities provided, low interest based on the BI rate, for example interest for HTR (December 2012) is only 5.75% per year with a payback period after harvest (8-year cycle) and interest for HTI is only 5.75 plus 4 percent or 9.75 % per year. Realization of investment in the forestry sector in 2012 reached IDR 61.6 trillion consisting of upstream forestry reaching IDR8.3 trillion (Forest Concessions Worth (HPH) of IDR 6 trillion and concessions on Industrial Forests (HTI) of IDR 2.3 trillion. Meanwhile, downstream investment of forestry sector in the form of a forest-based timber industry which last year reached IDR53.3 trillion. Financial institutions have the opportunity to allocate the green financing to the industries that are managed sustainably. One target is the pulp and paper industry with raw materials from sustainably managed industrial forests. The pulp and paper industry is a forestry-based industry that is experiencing growth and can contribute to the significant country's foreign exchange. The pulp and paper industry contributes 6.7% to the total GDP of the processing industry. While in 2017, the pulp and paper industry contributed foreign exchange of US$1.73 billion and US$ 3.57 billion, respectively. In addition, this industry can directly absorb around 260,000 direct workers and around 1.1 million indirect workers based on the Ministry of Industry data [5].

Indonesian's pulp and paper production capacity was recorded at 11 million tons and 16 million tons respectively in 2018. Globally, the Indonesian pulp industry is the tenth largest producer while the paper industry ranks sixth. The Indonesian Pulp and Paper Association (APKI) projects this industry to grow by 5% in 2019. The export value of pulp and paper products is US$ 2.63 billion and US$ 7.26 billion, respectively in 2018. Until 2019, there are 84 pulp and paper companies in Indonesia. The biggest pulp and paper producers are April Group and Sinar Mas Group. Asia Pulp and Paper under the Sinar Mas Group is the second largest pulp and paper producer in the world. APP has a production capacity of 12 million tons per year with a workforce absorption of 70,000 people and its products reach 120 countries on 6 continents [9].

Indonesian Forestry Certification Cooperation (IFCC) is a developer of sustainable forest management certification in Indonesia. The IFCC was recognized by PEFC (Program for the
Endorsement of Forest Certification), the world’s largest global sustainable forest management certification scheme. At present the area of forests that have been certified as PEFC’s sustainable forest management reaches 303 million hectares in 750,000 management units. In addition, there are 19,800 industries that have received PEFC chain of custody (CoC) certificates, which means the raw materials are only sourced from sustainably managed forests. In Indonesia, there are 58 forest management units that have obtained IFCC/PEFC certificates with a management area of 3.6 million hectares. While the industry that obtained IFCC/PEFC CoC certificates was 32 units [5].

The capacity of pulp production permits in 2016 is 8,249,000 tons per year and if it is multiplied by a conversion factor of 4.17 m³ per ton, the pulp raw material needs will be 34,398,330 m³ per year. Based on data from the Directorate General of PHPL KLHK of 2017, the allocation of industrial forests area is around 10.79 million hectares and the actual HTI Pulp development is currently around 3.8 million hectares. For an area of one hectare of HTI approximately requires an investment of US$1,000. Thus the HTI investment needs can be projected to meet the needs of the pulp and paper industry in Indonesia [2].

3.4 Green Financing for Organic Agriculture Development
Financing scheme of Organic Agriculture carried out by Islamic Banking include (1) Non-commercial financing schemes, (2) Commercial financing schemes, (3) Supply chain financing schemes, and Business sector financing schemes [1].

Non-commercial financing of organic agriculture by Islamic Banking through the utilization of Social Funds and Al-Qardhul Hasan financing. These social funds include zakat, infiq, shadaqah and Corporate Social Responsibility (CSR) funds. Channeling of Islamic Banking funds can be combined with Government funding through social institutions such as the Amil Zakat Institution (LAZ), Al-Azhar Care for the Umat (APU), the Dompet Dhuafa Foundation or the National Amil Zakat Agency (BAZNAS). The Islamic Banking financing schemes to organic farmers with non-commercial funds is done through peasant group (POKTAN) or peasant group federation (GAPOKTAN) or producer cooperatives. The proposed farming does not only focus on organic farming cultivation techniques but also packaged in an integrated farming program within a minimum period of three years. In Al-Qardhul Hasan financing scheme, farmers are not required to pay compensation to the bank in any form but still have to return the loan principal according to the agreed time [1].

Islamic banking financing to the organic agriculture business sector with commercial funds can be done with various contracts for each agricultural activity from upstream to downstream both for production activities (on-farm) and processing and marketing activities (off-farm).伊斯兰 banking financing can be done directly or indirectly through Islamic financial institutions to farmers, both individually and group. The commercial financing schemes are distinguished by Salam financing scheme, Musyarakah or Mudharabah financing schemes and Cooperation financing scheme (Linkage). Salam financing is carried out to farmers individually or in groups by handing over a number of funds and farmers must return their financing in the form of agricultural produce according to the agreed specifications and time. The scheme of financing using the Musyarakah or Mudharabah agreement in the form of funds as working capital in the cultivation of organic agriculture and farmers returning the principal of the financing to the Islamic Bank at the agreed time accompanied by profit sharing for the results of operations carried out by farmers with a percentage of profit sharing for Islamic Bank and farmers who agreed at the beginning of the contract. Syariah Commercial Banks (BUS) or Syariah Business Units (UUS) can provide financing to farmers individually or in groups through cooperation (linkage) with the Islamic People's Financing Bank (BPRS) or Baitulmaal Wattamwil (BMT) or other Islamic Financial Institutions (LKS). The Cooperation financing scheme between BUS/UUS with other BPRS /BMT/LKS can be done channeling or executing scheme using Salam or Musyarakah or Mudharabah agreements [1].

Islamic Banking can also provide financing in the context of developing organic agriculture in each type of supply chain such as suppliers of production facilities (seeds, fertilizers and tools or machines for agricultural production), agricultural product processing businesses, distributors, retailers, traders,
and exporters. Supply chain financing customers, namely individual farmers or farmer groups or farmer group federations, cooperatives, individuals, or companies that are already incorporated. The supply chain financing object can be in the form of investment or business working capital using a Murabahah, Mudharabah, Musyarakah or Ijarah agreement in accordance with the intended use of the customer [1].

Islamic Banking financing for the procurement of organic agricultural production facilities can use the Murabahah, Mudharabah or Ijarah Al-Muntahiya Bittamlik (IMBT) contracts depending on the type of production facilities to be financed. Business sectors that can be funded such as nursery business, business of making organic fertilizer, business processing organic agricultural products, and financing to traders, retailers, distributors and exporters of organic agricultural products. Farmers or entrepreneurs return the principal of Musyarakah or Mudarabah financing and profit sharing to Islamic Banks according to the agreed time. Profit sharing for Islamic banks is calculated based on the percentage of the ratio multiplied by the results of the sale of operating results [1].

Conclusion

Present green finance practices in agricultural sector as implementation of sustainable finance policy in Indonesia seems to be very limited. These indicated by the small achievements of green financing in the form of agricultural insurance for supporting sustainable food crops farming system, animal husbandry and smallholders’ fisheries, green financing for sustainable plantations, green financing for sustainable industrial forestry, and green financing for organic agriculture development. The current financial sources for implementing the green financing are from national budgeting (APBN) to provide premium subsidy of agricultural-fishermen’s-fisheries insurances, the CPO export levy funds to extent the ISPO certified plantations, low interest loan to support both small holder and industrial forestry, some commercial and non-commercial financing schemes from Islamic Banking to develop organic agriculture. The Financial Service Institutions, Issuers and Public Companies in Indonesia have a great opportunity to improve green financing practices in the future for twelve categories of sustainable business activities including in the agricultural sector through their obligation to prepare Action Plan of Sustainable Finance and/or channel their CSR funds.

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