ANALYSIS OF THE SUITABLE AND FAIR DEPRECIATION METHOD SELECTED FOR OIL PALM NON-CURRENT ASSET

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ABSTRACT

This study has analyzed which one of the depreciation method is fair to apply for oil palm non-current asset. Mostly, depreciation method for the non-current assets is the straight line but, unlike oil palm, because of its productivity characteristics are different. The projection average productivity of oil palm non-current asset has to follow the nature of its biological life cycle. The straight-line method was not suitable to apply for oil palm non-current asset because, its cost is not match with the revenue (unmatching cost againts revenue). During the first to thirtieth year, the average total production gradually increase from 7 up to 28 tons per hectar per year, then, for the next twelfth year, the total production going down from 27 up to 16 tons. It's mean that at the beginning, the total depreciation expense is understated, while at the top level of total production, is understated, then at the end of production period, the depreciation expense allocation is understated. The depreciation method of productive-output more suitable and fair to be applied for oil palm non-current asset.

Keywords: **fairness, fixed cost, profit, productivity, depreciation, non current assets, oil palm, matching cost againts revenue.**

1. INTRODUCTION

Nowthese, oil palm industry is as the interesting business, especially, among the plantation industries, because of its high average return rate. There are two factors influenced the high average return rate, namely, cost of production and sales price. From the side of cost of production, there are three variabels influenced, i.e. fixed costs, variabel costs, and semi variabel costs. Depreciation is the important aspect within the cost of production computation and also as an element of general and administrative expense. The main objective of this study is want to know which one of the two depreciation method (straight-line or productive-output method), suitable and fair to apply for oil palm non-current asset. To chose the suitable and fair depreciation method will influence the realistic and fair company's expenses interm of depreciation expense charge in year by year company's operation. Using the depreciation method should be match with the nature and charatcteristic of the depreciated non current asset. The company which is managing the oil palm non-current asset isn't the same, if it's compare with the other company in general.

Depreciation expense of oil palm non-current asset could be allocated as the one component of oil palm fruit fresh bunch (FFB) production cost. So, depreciation expense can also influence the cost of FFB production per kg. If the company's management choose of unsuitable depreciation method for the oil palm non current asset, so, of course the production cost of per kg FFB would be unfair.

Totally, all of depreciation method would come to the same result at the end of non-current asset usefull life. But the company's management should now which method is suitable and fair to implement for oil palm non current asset.

2. THE CONCEPT OF DEPRECIATION

Depreciation is the process of allocating the cost of a plant asset to expense over its service (useful) life in a rational and systematic manner (Weygandt, 1987).

Depreciation is the allocation of plant asset which can be charged during its estimated useful life (Indonesian Financial Accounting Standards Statement or "PSAK" No. 17, 1994). Depreciation is the given to such an allocation of costs (Clair-George, 1993). During the accounting period, depreciation expense can be reduced directly or indirect from the company's income. Then, as the fund source, depreciation can be used in order to increase the certain or the same non-current asset, like oil palm. The cost of non-current asset like oil palm would be allocated during its useful life time rasionally and systematic through deperciation process. The rasional and fair depreciation has strong link with the nature and characteristics of non-current asset, and of course, depreciation method which would be used as well. Factors which caused declining the non current asset to serve some usefulness, can be identify as physical depreciation and functional depreciation (Fees, 2005). The physical depreciation mean that the non-current asset absolence caused by the climate factor. Then, the functional depreciation just because of the non-current asset wasn't be able to give the usefulness properly, such as 1980's computers wasn't able to be use more for the internet.

Three factors should be considered in order to decide the amount of depreciation charge, i.e. total cost of fixed asset, estimated useful life, and estimated the residual value at the end of useful life (Fees, 2005). Generally, there are some methods of depreciation charge computation could be used per periode, such as per year. But, just for this study, it will be used the two methods only, namely, straight-line method and productive-output method.

2.1. Straight-line method

The result computation of straight-line method periodically, would be the same amount. The three variables, i.e. cost, residual value, and estimated useful life should be count in order to know the amount of depreciation charge, such per year. And to compute the depreciation charge per period, it can be used the following formula :

$$Dy = \frac{C - Rv}{Eu} \qquad (2.1.)$$

where as :

Dy	= Depreciation charge per year
C	= Cost of non-current asset (ready for use)
Rv	= Residual value (at the end of useful life)
Eu	= Estimated useful life (in year)

By using the straight-line method, so the total amount of depreciation harge per year would be fixed, and this amount would be classified as fixed cost. This fixed cost could be included as uncontrollable cost during the life time of fixed asset.

2.2. Productive-output method

There are three variabels should be involved in the depreciation charge i.e. cost price of non current assets, residual value, and the total of production capacity during useful life time of non-current assets, then, this variabel multiply by the total units of production output.

To compute the depreciation charge per periodic, it can be used the following formula :

$$Du = \frac{C - Rv}{Pc} \qquad (2.2.)$$

where as :

Du = Depreciation charge per unit of production
C   = Cost of non current assets (ready for use)
Rv = Residual value (at the end of useful life time)
Pc = Production capacity (during useful life time)

Furthermore, to be able to know the total depreciation charge of non-current assets per periodic, Du should be multiplied by total of production output per period. So, in this method, the total depreciation charge per period would be different year by year followed aportion the total of production output pattern.

Which one method has been used, the final total result of the depreciation charge would be in the same amount. By using different depreciation method, would effect that the different depreciation charge of non-current asset in the respective accounting period.

Once of the depreciation method had been used, it should be implemented consistenly in one periode to the following as well. It should any significant reason to change the depreciation method used, and of course, the change amount of the depreciation charge up to the period should be disclosed in the financial statement notes.

The useful life time of the non-current asset should be reviewed periodically, and if there are any change indications, it is reason to adjust its carrying amount (current cost amount of fixed asset).

The effect of non current asset carrying amount change should be disclosed in the accounting period of the evaluation review (the period of revaluation applied).

3. **THE CHARACTERISTICS OF OIL PALM NON-CURRENT ASSET**

3.1. Biological assets

Actually, oil palm non-current asset include as biological assets (IAS-41 : Agriculture, January 2008). A biological assets are living animal and/or plant. According to IAS 41 :

Agriculture (International Accounting Standards 41 : Agriculture, issued by IASB (International Accounting Standards Board) that, agricultural activity is the management by an entity of the bilogical transformation of biological assets for sale, into agricultural produce, or into additional biological assets. Then, agriculture activity covers a diverse range of activities; for example, raising livestock, forestry, annual or parennial cropping, cultivating orchards and plantations, floriculture, and aquaculture (including fish farming).

There are no point of depreciation rule in IAS 41. Increase or decrease the value of assets followed by its biologic cycle or through revaluation procedures. But, since Indonesia as the country doesn't adopt yet of IAS 41, so, all of the company can implement the existing accounting method practice. It's mean that, for the oil palm non-current asset can be applied the depreciation method and the impairment assets. And also, it can be used either cost model, or revaluation model within to indentify its fair value (PSAK 16 : Fixed assets, 1999).

For the plantation state own companies, they have accounting manual based on IFRS (International Financial Report Standards), except IAS 41 : Agriculture. According to said accounting manual that, the depreciation of oil palm non current asset should be depreciated within 25 years, or 4% of its carrying amount is the depreciation charge per year (Accounting manual for plantation state own companies, 2012).

Like PT Perkebunan Nusantara III, in their accounting policy stipulated that the depreciation charge allocation of plant could be started when the assets ready for commercial production usage, and the depreciation charge computation is based on the straight line method (Annual reports, 2014).

Based on the said acounting manual, also stated that entity may to change the depreciation method and/or to use different useful life time of the assets, if and the only if there is supported by expert recommendations. And, this rule can be practiced prospectively. Depreciation charge amount per periodic could be computed through cost of asset minus residual value, then devided by estimated useful life time of the asset.

3.2. Productivity-estimated projections

In Indonesia, oil palm plantation firstly started in the year of 1911 in Pulu Raja and Sungai Liput, East Sumatra (Mardiatmo, 2009). At the beginning, the oil palm plantation company was managed respectively by Germany's companies, Belgium, then finally by Dutch, i.e. up to 1959. Then, all of the said plantation companies were transformed to Indonesian companies which managed by board of directors under the State Owned Companies Ministry of Republic of Indonesia. Nowthese, there are 14 plantation state own companies, and the one is PT Perkebunan Nusantara III (Persero).

The criteria of ready for use of oil palm non-current asset, and so called as "harvested oil palm plant" i.e. 36 months of its age, and 60 – 70% of all trees per block had FFB with the average weight about 3 kilograms, or average production reached between 4 – 6 tons per hectar per year.

During the life time of oil palm, its production followed the biological cycle. It's mean that at the beginning, the total production still low, and increase up to the top level production amount, then at the ending of the life cycle, the total production would be going down (Table 1 and Figure 1).

Based on the Table 1, the total production of the year 3 to 13, the total production of the FFB inclined to increase from 7 to 31 tons per hectar per year, then from the year 14 to 25, the total production is decrease from 30 to 17 tons per hectar per year. This production pattern can be drawn through Figure 1. The said figure shows that the production inclined to increase at the beginning period, but then decrease up to at the end of the life time of the oil palm non current asset.

4. STATEMENT OF PROBLEMS

4.1. Since Indonesia isn't adopt yet the IAS 41 : Agriculture, what is the suitable depreciation method could be implemented for oil palm non-current asset.

4.2. Which one is suitable and fair depreciation method should be implemented for oil palm non-current asset, straight-line or productive-output method.

5. METHODOLOGY

This study used descriptive analysis and computation of depreciation charge by straight-line and productive-output method. In he descriptive analysis, it has been used the literaturs, manual, policies and the company's annual reports. To know which one depreciation method more suitable and fair rather than other methods regarding its implementation to oilpalm non-current asset, it can be compared the result of depreciation charge computation based on the straight-line and productive-output method. The fair computation results by the two depreciation method could be used as the recommendation to the companies which involved in the oil palm plantation industry.

6. RESULT AND DISCUSSIONS

The data had been used in this study are come from literatures, annual reports, manual and company's accounting policies as described on the previous above parts, then by using the hypotetical illustration, it can be reached the results of this study objective.

6.1. Illustration.

On January 2, 2001, "XYZ Plantation, Inc." established 100 hectars of oil palm plant with its cost $ 5,000.00 per hectar, so the total carrying amount is $ 500,000.00. Estimated productivity projection of FFB is based on the optimum column of Table 1 in this paper. Compute the depreciation expense during the year 3 to 25. No residual value at the end of estimated useful life time (on year 25).

6.2. Computation of depreciation expense charge.

    6.2.1   Using the straight-line method

        Based on the state owned plantation company's accounting manual (which had been explained on part 3.1. above), the depreciation expense per year is 4%, so the answer is 4% x $ 500,000.00, it's mean that equal to $ 20,000.00. It's mean that during the year 3 to 25, the depreciation expense is the same amount of $ 20,000.00 per year.

    6.2.2. Using the productive-output method

        The depreciation expense through productive-output method could be computed through the formula 2.2. which has discussed on part 2.2. above. Then, the results can be showned on the Table 2. By using the said formula, the depreciation expense per ton FFB of oil palm is $ 986.19. So, the depreciation expense is multiplying the total production of FFB per period by the depreciation expense rate per ton. For example in the year 3 (Table 2), the total depreciation expense is $ 6,903.33 (7 tons x $ 986.19).

    6.2.3. Depreciation expense comparison analysis

        Based on both of depreciation mehods (straight-line and productive-output method), the result computation for depreciation expenses per periodic are different. Compare with the depreciation straight-line method, the depreciation produtive-output method more suitable and fair. The result computation through this method in the year 3 is $ 6,905.33, rather than $ 20,000.00 by straight-line method. It's mean that through the straight-line method, the depreciation expense charge is overstated by $ 13,096.67 ($ 20,000.00 - $ 6,906.33). Meanwhile, in the year 9, the depreciation expense charge is undestated by $ 7,613.32 ($ 20,000.00 - $ 27,613.32), and so forth.

7. CONCLUSIONS

7.1. Regarding in acquire the cost charge in one accounting periodic should follow the matching cost against revenue concept. If not so, it's mean that the cost for the accounting period isn't fair.

7.2. Apportioned of dollars total cost with the total revenue should be approximated, while the revenue flow comes from the production sold. If the depreciation expense charge allocated wasn't fair, so the total cost for the period would be unfair. This depreciation accounting treatment couldn't be accepted by the basic accounting principles, even this is cross illegally the best accounting practiced.

7.3. The stright-line depreciation method maynot be used in the oil palm non-current asset rather than productive-output method, because of its result computation depreciation

expense charge is unfair, and it isn't match with its revenue income (unmatching against revenue). Using the depreciation productive-output method more suitable, match with the revenue portioned, and it's fair accounting treatment.

8. RECOMMENDATIONS

8.1. For the oil palm non-current asset, of cource, its suitable depreciation method to be used is productive-output method.

8.2. The straight-line depreciation method which has practiced in all of the plantation companies especially in Indonesia, need to reviewed. If there is any fact that through, so the management should to change their own accounting policies, especially, for their group of oil palm non-current asset.

9. TABLES

Table 1. Productivity of Oil Palm
Fruits Fresh Bunch Projected
(Ton/Ha/Year)

Age	Minimum	Optimum	Ideal
3	7	7	5
4	12	14	12
5	14	16	24
6	17	18	32
7	22	23	34
8	25	26	35
9	26	28	35
10	26	28	35
11	26	28	34
12	26	28	33
13	26	28	31
14	25	27	30
15	24	26	29
16	24	25	27
17	22	25	26
18	21	24	25
19	20	22	24
20	19	22	23
21	18	22	22
22	17	19	20
23	16	18	19

24	15	17	18
25	14	16	17
Total	462	507	590
Average	18.48	20.28	23.60

Table 2. Depreciation Expenses Comparison Analysis
Basd on P/O and S/L
During Year 3 to 25
(Ton/Ha/Year/$000)

Age	Optimum	D/E per ton	Amount ($)			
			P/O	S/L	Overstated	(Understated)
3	7	986.19	6,903.33	20,000.00	13,096.67	--
4	14	986.19	13,806.66	20,000.00	6,193.34	--
5	16	986.19	15,779.04	20,000.00	4,220.96	--
6	18	986.19	17,751.42	20,000.00	2,248.58	--
7	23	986.19	22,682.37	20,000.00	--	(2,682.37)
8	26	986.19	25,640.94	20,000.00	--	(5,640.94)
9	28	986.19	27,613.32	20,000.00	--	(7,613.32)
10	28	986.19	27,613.32	20,000.00	--	(7,613.32)
11	28	986.19	27,613.32	20,000.00	--	(7,613.32)
12	28	986.19	27,613.32	20,000.00	--	(7,613.32)
13	28	986.19	27,613.32	20,000.00	--	(7,613.32)
14	27	986.19	26,627.13	20,000.00	--	(6,627.13)
15	26	986.19	25,640.94	20,000.00	--	(5,640.94)
16	25	986.19	24,654.75	20,000.00	--	(4,654.75)
17	25	986.19	24,654.75	20,000.00	--	(4,654.75)
18	24	986.19	23,668.56	20,000.00	--	(3,668.56)
19	22	986.19	21,696.18	20,000.00	--	(1,696.18)
20	22	986.19	21,696.18	20,000.00	--	(1,696.18)
21	22	986.19	21,696.18	20,000.00	--	(1,696.18)
22	19	986.19	18,737.61	20,000.00	1,262.39	--
23	18	986.19	17,751.42	20,000.00	2,248.58	--
24	17	986.19	16,765.23	20,000.00	3,234.77	--
25	16	986.19	15,779.04	20,000.00	4,220.96	--
Total	507	--	499,998.33	460,000.00	--	--

D/E = Depreciation Expense
P/O = Productive-output Method; S/L = Straight-line Method

10. FIGURES
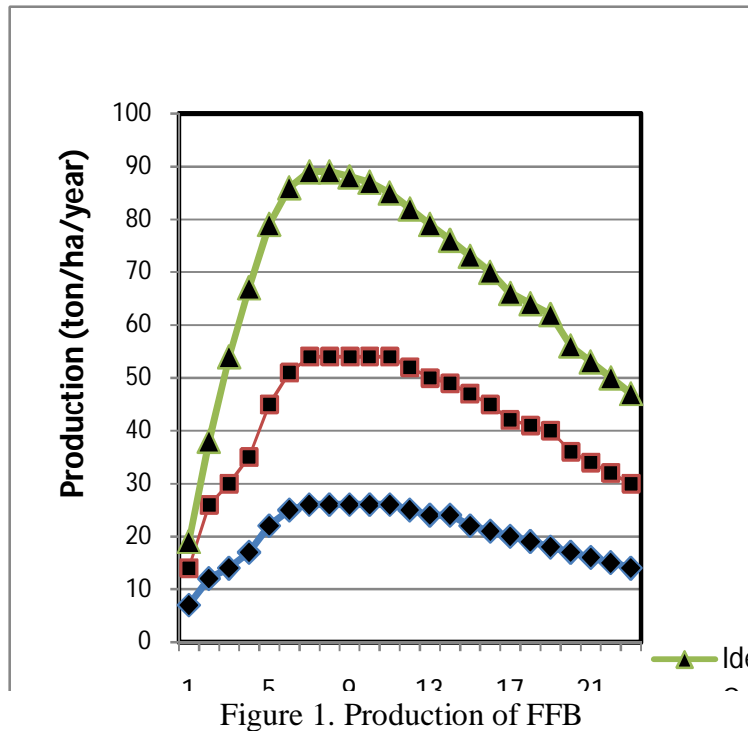

Figure 1. Production of FFB

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