**Implications of Implementation of IAS 41 about Agriculture on Forestry Accounting in**

**Indonesia[[1]](#footnote-1)**

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*Forest is one of natural resourcs that must be accountably managed. State entitles company to manage production forests. Corporate accountability of concession permit holder is reflected in the financial statements prepared by the company. The company that holds forest concession right manages forest which is one form of biological assets and produces a form of agricultural products. IAS 41 specifies the accounting treatment for biological assets and agricultural products*

*This paper describes analyses on the implications of the implementation of IAS 41 in Indonesia. The forestry industry is an industry that is regulated by the government, because the entity manages state’s assets should be utilized as much as possible for the public prosperity. On the other hand the international forces require entities to prepare financial statements in accordance with applicable accounting practices internationally. Standard setter should be careful in setting forestry accounting standards, because it is feared that the standards applied contrary to the regulations in Indonesia, which can rises some problems in the application and implementation.*

***Keywords:*** *Forestry accounting, Indonesian forest, IAS 41, forestry accounting standard, cost and benefit of guidelines implementation, accounting guidelines for forestry entities.*

1. **Introduction**

Land cover wide of Indonesian forest in 2009 was 88.17 million hectares or about 46.33% of Indonesia's land area (Forest Watch Indonesia, 2011). This suggests that the forest is one of the greatest assets in Indonesia. Therefore, the use of the forest is protected by the state through the 1945 Constitution, article 33, which is managed for achieving the greatest public prosperity. The process of implementation and monitoring of forest utilization is mandated by the Ministry of Forestry of Republic of Indonesia.

The Ministry of Forestry of Republic of Indonesia provides the opportunity for entities that wish to utilize the Indonesian forest products through the issuance of Timber Forest Product Utilization Permit in Natural Forest in Production Forest (IUPHHKHA) and Timber Forest Product Utilization Permit in Industrial Forest Plantation in Plantation Forest in Production Forest (IUPHHK-HTI). The differentiation between the two permits is forest yield in natural forests that can be directly used by the entity, whereas forest yield in industrial plantation forest (HTI) can be utilized after the entity has done planting and maintenance process on the forest.

Indonesia Accounting Standards Board (DSAK) issued PSAK 32 in 1994 to be used as a standard in preparing financial statements of the company. However, PSAK 32 was revoked in 2009. Revocation is done because financial accounting standards in Indonesia adopt IFRS and in international accounting standards (IFRS / IAS) there is no special forestry accounting standards. The second reason for the revocation is because PSAK 32 is incosistent with basic framework of financial statements presentation and disclosures. After PSAK 32 had been revoked, forestry companies prepared financial statements in accordance with the relevant PSAK including PSAK on Inventory, Fixed Assets and Intangible Assets for presenting and disclosing its plant assets and agriculture inventory. The Ministry of Forestry of Republic of Indonesia issued Regulation of the Minister of Forestry of Republic of Indonesia Number P.69/Menhut-II/2009 concerning Financial Reporting on Production Forest Utilization and Forest Managemet Guidelines (DOLAPKEU-PHP2H), as a guide for preparing the financial statements.

International Accounting Standards Board has issued International Accounting Standards (IAS) 41 Agriculture, which regulates the recognition, measurement, presentation, and disclosure for biological assets and agricultural products. IAS 41 using the fair value as a basis for valuation. The use of fair value is mandatory and changes in fair value will affect profit or loss for the period. These standards are internationally criticized by many accounting researchers and observers. Some states excluded these standards at the time of the adoption of IFRS by the use of fair value that causes problems in practice and has broad implications on the performance and financial position.

Indonesia fully adopted IFRS starting in 2012, but IAS 41 is one of standards that has not been adopted until now. The main cause of this is because at present, IASB as the preparer of IAS/IFRS is reviewing the need to make changes on IAS 41 to face the criticisms on the application of this standard. DSAK is waiting for ISAB’s decision, whether to change or to keep the IASB, if the decision is confirmed, DSAK makes decisions on IAS 41 adoption. The use of fair value in valuation of biological assets becomes the main consideration why Indonesia has not made the adoption of IAS 41 yet. The lack of preparation of appraisal profession and human resources will become obstacles in implementing of IAS 41. Other factors such as taxation and the quality of the forestry entities’ financial statements should be considered in order to implementation of IAS 41 in the future will give value added for the forestry industry. These issues will be examined in this paper. The methodology used in this paper was literature survey, observation, and interview methods.

This paper was divided into four sections. The first section explained introduction. The second section explained basic concepts in IAS 41, previous researches on IAS 41 and the role of appraisal in valuing fair value. The third section gave explanations of analyses on implementation of IAS 41 in Indonesia that can be seen from the quality of concession permit holders’ financial statements as well as cost and benefit analyses on the implementation of IAS 41. The last section contained conclusion and feedbacks.

**2. Literature Review**

**2.1 International Forestry Accounting Regulation**

Forestry accounting standard that is used internationally is IAS 41 about Agriculture. IAS 41 regulates accounting procedures connected with the management by an entity of the biological transformation (an increase and a decrease in quality/quantity, production, and creation of new biological asset) and harvest of biological asset for sale or for conversion to agricultural produce, or into additional biological assets. Those processes are known as an agricultural activity.

In general, IAS 41 regulates accounting treatments for a biological asset and agricultural produce at the point of harvest. A biological asset is a living animal or plant, and agricultural produce is the harvested product of the entity’s biological assets. In forestry context, its biological asset is tree and its agricultural produce is forestry product in the form of timber and non-timber.

Biological asset and agricultural produce are recognized when, and only when:

* The entity controls the asset as a result of past events. Controls can be owned by an entity through legal ownership or branding on acquisition of biological asset and agricultural produce.
* It is probable that future economic benefits associated with the asset will flow to the entity. The future economic benefits are normally assessed by measuring the significant physical attributes.
* The fair value or cost of the asset can be measured reliably. Biological asset and agricultural produce shall be measured at **fair value less cost to sell,** except for certain cases when fair value cannot be measured reliably. Biological asset shall be measured on initial recognition and at the end of each reporting period, while agricultural produce shall be measured at the point of harvest. The processing of agricultural produces after harvest is measured using the inventory approach.

IAS 41 is an controversial accounting standard because it uses fair value as the only basis for assessment (not as an option like in fixed assets accounting standards). Fair value can be obtained from active market, but not all of assets have an active market. This standard is not regulating all of accounting treatments in agricultural entity. Two things that are regulated in this standard are biological assets and agricultural produce, either for their measurement of gain or loss from fair value measurement or for their disclosures.

Biological asset is presented in statement of financial position at fair value of the assets at reporting date less cost to sell. Changes in value due to revaluation of biological asset at reporting date will be recognized as revenue. Revenue for biological asset is increasing of asset’s value or the growth of asset. This revenue will be matched with incurred expenses to maintain and grow that asset. The result of company’s operation is to grow that asset through the series of maintenance, planting and other processes.

Agricultural products are presented in statement of financial position at fair value less cost to sell at the point of harvest. Agricultural products’ assessment as inventory will lead to revenue. Harvested products are revenue for agricultural entities. Cost to sell for agricultural produce is relatively small and usually can be estimated reliably. Time lag between harvest and sales is relatively short, so that revenue is recognized at the point of harvest, not sales. If illustrated, the revenue recognition will be done with the following journal.

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| Table 1 . Illustration of Revenue Recognition Journal  Biological asset (differences between initial value and final value) xxxx  Revenue from the growth of biological asset xxxx  Agricultural inventory (selling price – cost to sell) xxxx  Revenue from harvested product of  agricultural produce xxxx  Account receivables xxxx  Inventory xxxx  Cash (cash outflow for selling expenses ) xxxx |

Recording as presented above is according to matching principles concept. Incurred cost during one period is used to grow assets to be bigger or to make asset can produce products. The purpose of expenditure to produce and grow asset is to be matched with the incurred cost.

Fair value of agricultural products at the point of harvest is easier to get because agricultural products are produced continuously, so that the market is quite active. In forestry industry, selling price of agricultural produce is available in the market, but it varies depending on market and time. It is also influenced by the quality of produced agricultural produce. Determining the fair value, accountants must be careful to determine the time of recognition. They also have to consider the quality of product, fair value on recognition date and other factors related to market condition. After recorded as inventory at the point of harvest, the value of damaged agricultural produce should be adjusted. This value drops down due to market condition. Inventory is valued either at cost (fair value at the point of harvest lest cost to sell) or at net realizable value, whichever is lower. In common, entity does not need appraisal service to get fair value and net realizable value. Entity can use the available market price or current transaction price of similar products.

Fair value of biological asset is relatively more difficult to get because biological asset is aimed to produce, not for sale in the short term period. For biological asset available for sale (example: cattle), the value is easier to get in the market. Biological asset available for sale is classified as inventory. Fair value of biological assets that is intended to produce, such as cows, milk-producing cows, rubber trees, palm trees and others, is more difficult to determine. Those assets are not for sale, so that it is difficult to get current market value or selling price. Those assets are also relatively specific because they depend on quality, geographical position and other factors. The standard does not mention explicitly that biological asset needs independent appraiser, but the independent opinion can increase the reliability of financial statement.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction. Rules to determine fair value according to hierarchy in the standard is used to determine fair value of biological assets. But, if there is no active market, the determination of the fair value can be done through the following ways:

* + Market value of current transactions, when there are no significant changes on economic condition between transaction date and reporting date.
  + Market value for similar asset with any adjustments to describe any differences.
  + Sector benchmarks*.*
  + Present value of expected net cash flow from the asset discounted at a current-market determined rate. Not included in this context of net cash flow are financing cost for assets, taxation cost and the processing of agricultural produce after harvest.
  + Equivalent with cost. It may happen in two situations. First situation is when biological asset and agriculture produces just have little biological transformation from initial recognition to reporting date. For example, planting process began near the reporting date. On reporting date, there is only little biological transformation, so that the cost can be equal with the fair value. Second situation is when the impact of biological transformation for the price of biological asset and agriculture produce is not material. For example, the initial growth of 30-year production cycle of a forest. Biological transformation that occurs in the beginning of growth period is not material because of the long term production cycle.

In practice to determine fair value of biological assets, appraiser use three approaches, namely market value of similar assets / current transactions approach, revenue approach and recoverable amount approach. Market value of similar assets approach has to consider specifications of biological assets, varieties, condition of assets, location and market condition. Revenue approach is calculating the value of assets by discounted selling price of product that is produced in the future less cost incurred to develop assets until its maturity. Revenue approach uses many assumptions, such as interest rate, harvest period and predicted cost and selling price of products in the future. Recoverable amount approach measures assets by how much the cost used to develop asset until its current condition. Appraiser usually considers several approaches to the assessment. Professional judgment is used to determine final decision of assessment. In general, the measurement of biological asset when there is no active market allows bias, so that it can reduce the reliability of financial statement.

In measuring biological asset, other assets element should not be included in the component being measured. Land, building, infrastructure that are on the forest or plantation should be measured separately with plant asset. If the measurement is conducted together, so that for reporting purpose the value should be separated based on relative market value or residual approach (the value of total assets and plant less the fair value of land only). Those classifications are important because every asset has different characteristics and accounting treatments (land and building used PSAK 16 about Fixed Assets).

For some specific types of biological assets, measurement using cost is not give different result with measurement using fair value method. There are biological assets that are no need long term transformation period, such as harvested asset for one period or shorter (vegetables, short term livestock). Accumulated cost to planting and maintaining process is relatively equal with the growth of asset. Harvesting period is relatively short. This asset can be transformed to the agricultural produce in the short term period (like work in process goods). At a certain age, biological assets do not require material transformation process. Its price changing is also not material, such as the teakwood that have entered the harvested age. Therefore, the cost may be used as long as the cost presents the fair value of biological assets.

IAS 41 still gives alternative measurement method with cost method, if fair value is not reliable and estimation cannot gives clear value. This kind of measurement is only allowed on initial recognition. Therefore, entity should disclose sufficient explanations related on measurement with cost method. It indicates that cost method can still be used if fair value is not reliable.

Entity that has biological asset and agriculture produce should provide fairly complete disclosures about the activities carried out, the value of agricultural assets (biological assets and agricultural produce), and gain / loss reported in the income statement. Entity should disclose income from harvested agriculture produce and gain / loss from change in value of biological asset.

Biological asset have to be classified and given some explanations, on either the narrative form or quantitative form for every classification. Biological asset should be separated between consumable and bearer biological assets. This separation is important because both of them have different properties. Bearer assets are biological assets which will produce and have long-term benefit for entity, while consumable assets are biological assets that are to be harvested as agricultural produce or sold as biological assets. Both classifications are still to be separated between mature and immature. Separation can give information about the expected future cash flow.

Entity also has to give quantitative information about changes in value of asset for every classification. Those changes are specified based on changes due to either the growth of asset or change in market value. Measurement methods and assumptions used in measurement process should be disclosed in the notes to the financial statement. Measurement is affected by market condition, change in natural resources and others. Therefore, either the financial risk or other risks that may affect the value of assets should also be disclosed. More detailed disclosures in IAS 41 can be seen in Table 2.

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| Table 2. Disclosure of Biological Asset and Agriculture Produce |
| * General disclosures:   + Aggregate gain or loss arising during the current period   + Desription of each group of biological assets in form of narrative or quantified description.   + The nature of entity’s activities for each group of biological assets.   + Non-financial measures or estimates of the physical quantities of each group of the entity’s biological assets at the end of the period and output of agricultural produce during the period.   + Methods and significant assumptions applied in determining the fair value.   + Fair value less cost to sell of agricultural produce harvested during the period.   + The existence and carrying amounts of biological assets whose title is restricted, and the carrying amounts of biological assets pledged as security for liabilities.   + The amount of commitments for the development or acquisition of biological assets.   + Financial risk management strategies related to agricultural activity.   + Reconciliation of changes in the carrying amount of biological assets during the period, include:     - The gain or loss arising from changes in fair value less cost to sell     - Increases due to purchases     - Decreases attributable to sales and biological assets classified as held for sale     - Decreases due to harvest     - Increases resulting from business combinations     - Net exchange differences arising on the translation financial statements     - Other changes |
| * Additional disclosures when fair value cannot be measured reliably, include:   + A description of the biological assets   + An explanation of why fair value cannot be measured reliably   + If possible, the range of estimates within which fair value is highly like to lie   + The depreciation method used   + The useful lives or the depreciation rates used   + The gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period.   + Reconciliation of changes in the carrying amount, include:     - Impairment losses     - Reversals of impairment losses     - Depreciation   + Explanations when the fair value can be measured reliably, include:     - A description of the biological assets     - An explanation of why fair value has become reliably measurable     - The effect of the change |

Illustration below can be used to complete the understanding of accounting treatments for biological assets.

At the beginning of 20x1, entity A purchased 5.000 units of rubber tree seeds to be planted in HTI area. The right of this HTI area has been given to the entity. Unit price of the seeds is Rp 50.000. Cost incurred to maintain the plant during the first year is Rp 150.000.000, Rp 100.000.000 for the second year, and Rp 50.000.000 every year for the third year and subsequent years.

At the beginning of the sixth year, the plant began to be mature. Fair value less cost to sell assets on that time amounted to Rp 100.000.000 and its harvesting expense amounted to Rp 75.000.000. Its selling price amounted to Rp 110.000.000 with selling expense amounted to Rp 10.000.000. Based on appraiser’s measurement, the values of plant from the first year until the sixth year are Rp 450.000.000, Rp 525.000.000, Rp 600.000.000, Rp 700.000.000, Rp 750.000.000 and Rp 800.000.000.

20X1 HTI in development (biological asset) 250.000.000

Cash 250.000.000

Plantation maintenance expense 150.000.000

Cash 150.000.000

HTI in development (biological asset) 200.000.000

Income from growth of asset 200.000.000

HTI in development in the end of period 450.000.000

Income from growth of asset 200.000.000

Plantation maintenance expense 150.000.000

Gain 50.000.000

20X2 Plantation maintenance expense 100.000.000

Cash 100.000.000

HTI in development (biological asset) 75.000.000

Income from growth of asset 75.000.000

HTI in development in the end of period 525.000.000

Income from growth of asset 75.000.000

Plantation maintenance expense 100.000.000

Loss (25.000.000)

20X3 Plantation maintenance expense 50.000.000

Cash 50.000.000

HTI in development (biological asset) 75.000.000

Income from growth of asset 75.000.000

HTI in development in the end of period 600.000.000

Income from growth of asset 75.000.000

Plantation maintenance expense 50.000.000

Gain 25.000.000

20X4 Plantation maintenance expense 50.000.000

Cash 50.000.000

HTI in development (biological asset) 100.000.000

Income from growth of asset 100.000.000

HTI in development in the end of period 700.000.000

Income from growth of asset 100.000.000

Plantation maintenance expense 50.000.000

Gain 50.000.000

20X5 Plantation maintenance expense 50.000.000

Cash 50.000.000

HTI in development (biological asset) 50.000.000

Income from growth of asset 50.000.000

HTI in development in the end of period 750.000.000

Income from growth of asset 50.000.000

Plantation maintenance expense 50.000.000

Gain 0

20X6 HTI ready to be harvested (biological asset) 750.000.000

HTI in development (biological asset) 750.000.000

Plantation maintenance expense 50.000.000

Cash 50.000.000

Harvesting expense 75.000.000

Cash 75.000.000

Inventory 100.000.000

Revenue from harvesting 100.000.000

Account receivables 110.000.000

Inventory 100.000.000

Cash (cash outflow for selling expenses) 10.000.000

HTI ready to be harvested (biological assets) 50.000.000

Income from growth of asset 50.000.000

HTI ready to be harvested (mature plant) 800.000.000

Income from growth of asset 50.00.000

Income from agricultural products 100.000.000

Total Revenue 150.000.000

Harvesting expense 75.000.000

Plantation maintenance expense 50.000.000

Total Expenses 125.000.000

Total Gain 25.000.000

**2.2 Studies on IAS 41**

The implementation of IAS 41 still raises pros and cons in several countries. This case has attracted many researches. Researches have been done in countries that have not applied IAS 41 and some countries that have already applied IAS 41, however these researches still encountered many problems. Those who hold pro opinion see from the relevance of information towards decision making process, meanwhile those who hold cons opinion see from the reliability of the information generated. Relevance and reliability are two qualitative characteristics that must be maintained in the financial statements. Although the two are contradictory, but the preparation of the financial statements should keep the optimal value of characteristics, how to obtain the relevant value while maintaining the reliability of the information or how to obtain reliable values ​​but remain relevant in decision making.

Eland and Herbohn (2011) conducted research on the perception of appraisal consultants, accountants, and auditors towards the application of IAS 41 in Australia. Some findings from the researches are as follows:

* Variations in Fair Value Measurement

Each entity measures the fair value using variety of approaches, which are net present value, independent / external valuation, net realisable value, and market price. Many biological assets that have no market price, especially for plants that are produced not to cut (e.g. palm trees). This situation causes the entity to use another approach, namely net present value or independent / external valuation. The use of net present value which is influenced by the discount rate and cash flow estimates is subjective, while the assessment of external parties can not be separated from sunjectivity and independence factors. Based on the difference in approaches used in fair value measurement, IAS 41 was considered failed in improving the comparability of accounting practices in agriculture.

* The Reasons of Fair Value or Historical Costs Application

Some of the cases are nine of seventeen companies in France claimed that they could not measure fair value reliably, so they chose to use the historical cost and the majority of companies in the UK and Australia used the net present value (not market price) in measuring fair value. The reliability of the reasons stated by such companies needed to be further verified. There were allegations of culture had a role in the election, the conservative state (France) preferred historical cost, while the Commonwealth tend to chose fair value.

* Differentiation in Responsing IFRS

How a country responds to IFRS is affected by how large the difference between the old accounting standards with IFRS, political influence, and economic and business development. The differences caused international differences in financial reporting and IFRS development.

* Disclosure Practices

Most companies that had implemented IAS 41 did not meet the entire disclosures required by IAS 41. Companies in the UK met 50% of the general disclosures required by IAS 41, whereas companies in Australia disclosed more than 60% of the disclosures required. Additional disclosures are required for the entity using the cost method (rather than the fair value method), most of companies in France only met 36% of additional disclosure that such disclosure tersebut. This practice reduced comparability between companies.

Disclosure problems were also became obstacles in Cairns et al’s (2011) research. Research on the implementation of IAS 41 in England and Australia found that there were only a few companies that disclosed its accounting policy related with IAS 41 implementation. Research that was conducted in 2005 at the initial implementation of IFRS in both countries tried to identify policy on biological assets, whether using cost model or fair value. Most did not explicitly disclose its accounting policies related to biological assets. The results showed that under 2% of companies in the UK which its accounting policy could be identified, all switched to use fair value measurement of assets after IAS 41 had been applied, while 1% of company of which accounting policy for the forest yield could be identified, all switched to use fair value measurement. For study in Australia, there was no significant change in the composition of the company that switched to use fair value measurement of biological assets and forest yield based on the identified accounting policies. Just similar to the UK, only a small portion of accounting firm that expressed the policy on biological assets.

Carins et.al’s (2011) research still leaves a question mark regarding most of companies that did not disclose their accounting policies so that it was hard to see whether or not already have moved to fair value measurement in accordance with IAS 41. England and France had a higher level of disclosure requirement conformity rather than other countries. This was caused by companies in Australia had been required to use AASB 1037 which was similar to IAS 41 for previous years before the use of IAS 41 in 2001. Countries whose previous accounting standards were significantly different with IAS 41 sufferred from conformity problems.

The role of auditors in monitoring the implementation of IAS 41 was very varied. In some cases occurred disagreements between management and the company's auditors. For instance, criteria in judging management’ estimations and assumptions were varied between auditors. This difference would have an impact on the reliability of the resulting fair value estimation.

There was a strong rejection on IAS 41, especially in the plantation and forestry sectors. This was due to:

* Respondents strongly agreed that the costs incurred in measuring and reporting biological assets on fair value were not equal to the benefits. Fair value measurement would have some effects on financial performance and firm’s value, yet the increasing level of financial performance and firm’s value were not equal with costs paid for independent appraisal service, data of market value, and the increasing level of sophistication of recording and accounting.
* Accountants and auditors agreed that fair value accounting that is required by IAS 41 increased income volatility. This is consistent with Lefter and Roman’s (2007) research which stated that the use of fair value will increase financial statements relevancy for decision making purpose. This was proven by the performace that was responded by market. On the other hand, the recognition of changes in fair value was directly reported in the income statement caused significant volatility in profit thus increased the prognosis risk for financial statements users.
* Discount Rate

The process of choosing discount rate which is bes-suited to biological assets valuation included subjective assumptions and judgements. Specially, it was very hard to define zero-risk level in countries which its capital markets were not active. In many countries, it was very hard to define premium risks on forestry assets. Some forestry companies in England and Australia presented expanse og discount rate estimation and sensitivity analyses associated with biological assets. This discount rate was used to be prepared by independent appraisals.

In addition to the research mentioned above, there are other studies results that also criticized the implementation of IAS 41. Sekot (2007) who conducted a study in European countries concluded that there were some differences between the concept of accounting for forestry with existing regulations. The difference were not only the commitment and implementation, but also the problem of the availability of data and methods used in the assessment. European System of Integrated Economic Accounts (ESA) treats the tree stands as forest outputs and assess the harvested as output of logging, which measurement methods is different from forest output. While the Economic Accounts for Forestry (EAF) allows the valuation of output harvested from the forest. European Framework for Integrated Environmental and Economic Accounting for Forests (IEEAF) offers another approach, which is by distinguishing measurements of forest values, forest land, and tree stands with the transaction value methods (TVM) and net present value methods (NPVM). The difference in these standards caused some problems in forestry accounting, especially in the use of fair value. Another classic issue is related to the tax on the difference in fair value. This study suggested the need for conformity between the existing regulations in a country with IAS 41 so as not to cause confusion in the application of IAS 41.

Penttinen dan Rantala (2008) concluded that the implementation of IAS 41 on Agriculture and IAS 16 on fixed asstes in forestry sector needed forest management plans. The growth of trees are always monitored and simulated until the end of reporting period with certain systems. Fair values are separatedly evaluated according to the overall value of tree stands, value of tree stands available to harvest, and the value of clear land. Thus, there is the need of more detailed recording system on biological assets in forestry sector.

In general, even though there were some opinions that supported the use of fair value, but the implementation of IAS 41 for forestry industry were mostly rejected. A problem of defining the best fair value to be applied had become an obstacle in presenting reliabile financial statements. In the view of most researches, costs for obtaining and generating fair value and costs incurred due to the fair value was not accurate.

**2.3 Implementing Fair Value Valuation on IAS 41 Using Appraisal Service**

The main issue of the implementation of IAS 41 is the use of fair value as the measurement basis for biological asset and agriculture produce. Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction. The use of fair value will present the true value of plant assets.

The method of determining fair value can be performed by entity alone or using third party, such as appraiser. Assessment conducted by appraisers who are external party from the entity will be more valid than the assessment conducted by entity alone.

Valuation standard that applies internationally is International Valuation Standards (IVS) published by International Valuation Standards Council (IVSC). Firstly, IVS has a specific section that regulates agricultural valuation, namely International Valuation Guidance Note No. 10. But, based on the latest IVS published on 2011 and became effective on 1 January 2012, International Valuation Guidance Note No. 10 is replaced by Technical Information Papers (TIPs). TIPs that specifically regulates about valuation of forest is still an Exposure Draft.

Based on that exposure draft, the factors that have to be considered by appraisers when assessing forest are:

* Site, size and location

The distance between forest to the markets and means of access that can be used to reach markets affects the valuation by appraisers. Besides that, climate condition, natural condition and soil quality in forest area also have to be considered because they will affect planting expense, harvesting expense and suitability of the crop.

* Details and history of standing timber

Details and history of standing timber that have to be investigated and considered by appraisers are species; seed/genetic source; year of establishment or regeneration treatment; initial stocking; fertilizer and weedicide treatments; history of pruning or thinning; insect and disease attacks and treatments; effect of previous fires, flooding and storms; growth, mortality and removals; planned or potential future silviculture; and wildlife management.

* Potential silviculture strategies and projected growth rates

Estimated potential production and the quantity, quality and growth rate of standing timber include to appraiser’s considerations.

* Production risks and rotation length

The maturity of trees also has to be considered by appraisers. If the date on which a crop of trees reaches maturity is compared with tree’s financial maturity, financial maturity is more likely to reflect the tree’s anticipated biological maturity. Financial maturity is most always reached considerably earlier because it considers the increasing risks and diminishing return.

* Supply and demand for product

Appraisers will identify products or combination of products that have the potential to be produced by entity’s forests and provide optimal financial return to the entity. This TIPs is not include valuation of product that is produced by forestry industry, but the market demand and price level of products or combination of products will affect the value of forests.

Analysis of wood products demand pattern is very important in valuation. Forecasting wood flows for medium and large forests involves matching timber production to the likely market demand. The latter may be estimated using either contracts for the supply of timber or an assessment of trends in demand.

* Other uses of the land

Forest area can be used for any purposes other than forestry, such as mining and building development. For example there are valuable mineral deposits under the forest area. It can affect the value of forest if there are no technical restricted to the extraction of mineral. Besides that, there are other activities that can be done to increase entity’s benefit, such as right to harvest fruits and mushrooms, right to hunt wild animals, or right to sport or recreation activities. Those activities may have an impact on the silviculture and therefore the timber yield.

Exposure draft of TIPs for valuation the forests also describes several methods that can be used for valuation. Those methods are applied according to the requirement. For certain conditions, appraisers can use other methods that not describe in this TIPs. The methods describes in this TIPs are market approach, income approach, cost approach and multiple approaches. The market approach use sales adjustment and market analysis as the valuation tools. The income approach use discounted cash flow methods (DCF) tools. Included in cash outflow are costs of establishment, cultivation, protection and maintenance over the period until each stand is harvested. Included in cash inflow is calculation of the stumpage price for either the whole forest or for each individual stand. The cost approach provides an indication of value by calculating the current replacement cost of an asset and making deductions for physical deterioration and all other relevant forms of obsolescence. The cost approach is most applicable to recently planted forests. If the required data are available, appraisers can use several approaches, so that the result from every approach can be compared and the resulting differences can be considered and reconciled.

**2.4. Implication of IAS 41**

Even though according to matching principles, the use of fair value for biological assets is logically acceptable, interest capitalization incurred during the assets growth process does not reflect performance because the capitalized values are only costs accumulation which might not be equal with value of assets planted. Capitalization practice on the other hand often causes problems, if the accumulated cost of the growth process does not have a commensurate increase in value. The reader can not clearly know the value of existing assets, because the value of real assets is not necessarily equal to the accumulated costs incurred.

The main problem on biological assets is it is often hard to determine the fair value of biological assets. It is pretty hard to reliably determine the fair value because market price reference is hard to determine for generating assets. Replacement cost approach or income could be used, yet they need many assumptions to be applied so as to give rise to the variations of the assessment results.

The method that is widely used to measure the value of biological assets is income approach. In order to obtain this value, an entity should perform estimation of future cash flow. The entity also needs to do estimation on quantity of crops to be produced and the selling price of the crops. Costs to be incurred until the assets yielded must be estimated. These calculations will arrive at net cash flow for each year. The cash flows are discounted using the weighted cost of capital for funding used. Calculation of cost of capital also requires some assumptions, so that different assumptions may raise.

The use of fair value causes polemics in researchers and accounting experts. There are two sides which support and against the use of this fair value. The use of historical values causes the entity not to book income until the entity harvests the plants. Fair value method will make the entity to record income even though it has not harvested yet. Although this income is not accompanied by cash flows since there is no crop to be sold. Argiles’ (2009) study showed that there was no profit volatility effect of bilogical asstes valuation using fair value. The same researcher also found that the use of fair value will decrease the complication rate on recording by using historical cost for agricultural industry. Maruli study (2009) showed there was no effect of earnings volatility between different approaches of historical value and fair value.

If there is no active market prices, valuation using fair value is not effective and more costly and time consuming (Elad, 2004). The use of assumption on determining fair value will reduce the confidence of financial statements users, since it will cause the management to use assumptions according to the desired goal (Athanasios and Ekaterini, 2010). The use of fair value would also lead to bias and difficulties in financial statements preparation. Furthermore, the use of fair value would create a profit and loss to have high volatility, whereas not all of the profit has been realized into cash (Lefter and Roman, 2007).

The change in profit caused by fair value will affect the income tax paid by an enitity. Increase in fair value will result in profits that will affect dividends paid to shareholders. Though for the entity, the increase has not been all realized into cash. This will cause cash flow difficulties (Herbohn, 2006). Dividend payment problems can be solved if shareholders understand the nature of the income from biological assets. Tax consequences are influenced by how the tax treatment in a country, if the tax recognition using a concept similar to the accounting, the increase in fair value will be subject to tax.

IAS 41 even cause controversy but has been widely applied by countris that have fully adopted IFRS such as Australia, Europe, and other countries. Despite the high costs incurred, the entity keep performing consistent assessment of IAS 41. While some countris have not adopted yet due to implementation difficulties and the outcoming impacts.

**3. Analyses on the Implementation of IAS 41 in Indonesia Forestry Industry**

**3.1 The Impacts from the Implementation of IAS 41 in Forestry Industry**

The implementation of IAS 41 requires the recording of biological assets and agricultural produce using fair value. This implementation requires the readiness of human resources who capable to prepare financial statements using fair value concept. Accountants who prepare financial statements, appraisers, auditors and readers of financial statements have to understand the fair value concept. The database should be prepared at the international, national and local levels, so that those databases can provide the information used to calculate fair value accurately.

Entities that have forestry right produce agricultural product in the form of timber and other forest products such as rubber, resins and others. Both of entities who owned right to natural forest and entities who owned right to industrial plantation forest generate agricultural produce. But entities who owned natural forest do not record biological assets, because those entities do not have control of plant assets. Entities who owned industrial plantation forest have biological assets in the form of HTI in development and HTI ready to be harvested.

For agricultural produce, the valuation of produced timber or other forest products should use fair value. The fair value of the agricultural produce is the fair value in active markets. Some forests have active commodity markets, so that it can be used as a reference in determining fair value. Commodity markets for forest products needs to be developed, so that information about active markets is available for all forest products.

Based on IAS 41, agricultural produce is valued using fair value less cost to sell at the point of harvest. The value of agricultural produce as inventory will reflect cost of timber at fair value less cost to sell. Harvesting process can occur all the time, so that entities have to get current market prices for agricultural produce. If active market price at international, national and local level has been developed, those data can be used to determine fair value.

Current practice of inventory and cost of goods sold valuation for timber or other forest products used accumulated costs. Plant transformation process is considered like production process. Cost incurred during one period will be added with beginning balance of inventory of unsold agricultural produce. Beginning balance of inventory plus cost incurred during that period equal to cost of goods ready to sale. This value will be divided by the number of product available for sale to get unit price of products. Cost of goods sold is unit price of products multiplied by the number of units sold. Ending balance of inventory is calculated by multiplying unit price of product with total inventory (in unit) at ending period. This method is known as average method. For first in first out (FIFO) method, production cost during the period will be divided by units of the product that were added in that period to get the production cost per unit. Costs would be allocated to ending inventory (by the number of ending inventory in unit) and the rest into cost of goods sold. The amount of cost of goods sold is beginning balance of inventory plus production cost that were added during the period ((total units sold – total inventory) x product cost per unit).

So far, the value of inventory using the historical cost (adopted a system of accumulation in the manufacturing industry) has been pretty reliable to measure and present the value of cost of goods sold and inventory. Increased production costs from year to year may be reflected in the value of cost of goods sold and inventory, so that historical information will still be relevant to follow the development of the market value.

The implementation of IAS 41 will lead entities to record the value of inventories at fair value less selling costs at the point of harvest. That value will be the amount of cost of goods sold when inventory sold and the amount of unsold inventory. At one period, the value of production costs incurred may be not equal to the value of harvested inventory. This difference is revenue for the company if the inventory value is higher than the cost of production and a loss otherwise.

Biological assets under IAS 41 are valued at fair value less cost to sell either at the time of acquisition or at the reporting date. No problems arise on valuation when initial recognition, because the value of the acquisition will be equal to fair value less cost to sell. But until the reporting date, there is a growth of plant assets that arises the value of assets. Each end of the period, entities shall revaluate the plant assets to obtain the value at the end of the period based on fair value less cost to sale. Change in the value of plant assets from the beginning period (at the time of acquisition) to the end of the reporting period is recognized as income for current period.

Valuation of plant assets requires absolute knowledge and skill. Although the standard does not mention explicitly about the need for appraiser, but an independent appraiser is needed to produce value that is reliable and free of bias. Accountant of the entities and auditor are also required to understand about valuation techniques, so that they can believe that the assessment made by appraiser is accurate.

**3.2 Analyses on cost and benefit from the implementation of IAS 41**

Conceptual framework emphasizes the need for consideration of cost and benefit in preparing the financial statements. Cost is the cost to prepare financial statements and the risks arising from the financial statements as a result of the presentation. Benefit is the value of the benefits of the resulting financial statements.

The implementation of IAS 41 using fair value requires higher cost than the financial statement using the initial cost and historical cost. When entities use cost method, they do not need to have a database about commodity prices to monitor the prices of agricultural produce. They also do not have to issue additional cost either to hire appraiser to value the company's assets or to pay higher audit fees. Auditors are likely asked for a higher audit fees because they have to audit the items using fair value with higher possibility of misstatement risk.

Valuation by appraisers is performed using future assumptions. Assumptions are including economic growth, inflation, interest rates, plant growth and weather conditions that were an important factor in the valuation formula. Different assumptions will give different valuation results. This condition will cause a bias in the valuation, due to the bias in determining the assumptions. The valuation results will lead to information risks, so that it will raise costs. Entities and user of valuation information have to bear the costs of a wrong decision based on inappropriate information.

If compared with accounting standards using historical cost, the main benefit from IAS 41 is more relevant for decision purpose. It is because IAS 41 presents the current value of assets. It is also believed that fair value is more reflect the real condition and future economic benefit of assets.

The financial statements of forest industry is more widely used for the interests of regulators, lenders and investors. In Indonesia, there is only few entities owned forestry right that listed on the stock exchange. Some entities are not listed, but the parent company of the entities are listed on the stock exchange. Sometimes the parent company is form of a holding company with manufacturing companies or plantation companies, and the entities owned forestry right just a part of subsidiaries. The main investor of the entities is not the buyer of shares in the capital market, but they invest directly to the entities. For investors who directly invest, they can do many deep researches and directly observe to the forest site that will be purchased. Credit decision from banks is usually not only based on the financial statements, but they may directly observe to the site to see the forest condition and compare it with the value in the financial statements. They often have their own appraiser to conduct the valuation of the assets to be pledged as collateral for the loan. Practically, financial statement is not a basis for determining the entity’s obligation to the country. Regulator determine that the amount of the entity's obligation to the country is based on the physically number of timber units and predetermined price. Financial statement is not enough for the purposes of license renewal, so that the forestry ministry requires entity that owned forestry right to prepare performance report about Sustainable Forest Management.

Based on description above, the cost of financial statement that appears both on preparation and misstatement risk are greater than its benefit. During this time, some parties used other information in performing the regulation, providing credit and investing. Therefore, the implementation of IAS 41 in Indonesia is less relevant and does not provide much benefit for entities.

**3.3. Tax Aspect**

Based on interviews and focused group discussion, tax aspect is currently feared by many users of financial statement. Increasing value of assets is recognized as income, even though the entity has not realized that income. If that income is also imposed for tax, it will cause problems in practice. In that period the entity has not been harvest the biological assets. It indicates that there is no cash flow to the entity, but the entity has to pay tax in cash

Tax regulations explain that income is any additional economic capability either received or obtained, from within the country and abroad that are used for consumption and increase wealth. According to that definition, increasing value of assets and crop yields are rising in economic benefits, so that they include to tax object. Although the assets has not been sold, the assets has been adding corporate wealth as evidenced by the increase in value of assets in the accounting records.

If the increase in value of biological assets is the part of tax object, entity will be objection on implementing IAS 41. The tax would greatly disrupt entity’s cash flow. This condition will cause entity’s moral hazard to avoid about pay taxes. Entity will not make some changes to the recording and presentation of the financial statements if they potentially make the greater taxes expense. Or alternatively, every entity will not want to apply IAS 41, even though it has been adopted in PSAK. In the worst case, the entity will make two versions of financial statements for tax purposes and financial reporting purposes.

It can be seen in the event of a change from PSAK 32 to DOLAPKEU. Only few entities have made changes related to the recording of HTI in development. Entities worried about the adjustment on the value of HTI in development that would lead to correction of income. That correction would be taxed by the tax authorities.

**3.4 The Perspective of Financial Statement Makers**

When financial statement makers were being asked about the adoption of IAS 41 (after they understand about the valuation in IAS 41), they agreed to refuse that adoption. The main consideration at issue is the difficulty in determining the fair value of plant assets. Forests have different specifications with plantations. Although it has been ready for harvest, the forest plants cannot be harvested at once. The harvesting of forest plants must be planned because it must consider about ecosystems and the sustainable of nature. The value of forest ​​will be great affected by infrastructure and facilities in the forest. The problem is those facilities do not have a selling price. Sometimes entities should plant trees that can not be harvested because of the function of the tree just to maintain and protect nature. This condition will certainly complicate the valuation of forest assets.

The entity most concerned about the possibility of bias and unreliable value due to differences assumptions used in the valuation. The determination of assumptions is based on appraiser’s expert judgment that can certainly vary between appraisers. The difference on assumptions will lead to bias and unreliable financial statement for decision making.

**4. Conclusion and Feedbacks**

IAS 41 is an example of IFRS which used fair value assessment as a mandatory thing to be done rather than as an option. The implementation of IFRS makes it possible for a higher cost to be incurred in preparing financial statements in order to get the fair value of biological assets. The valuation might be biased by the differentiation in approaches or assumptions used in valuation process.

The implementation of IAS 41 on forestry accounting is done for natural forest and platation forest for agricultural products. However, for biological assets, it is only done for natural forest concession permit holders, since the associated plants are grown in natural forest area which is out of the company’s control. Moreover, implementation of IAS 41 will raise resistantion of forestry industry players to reject the implementation since the costs of preparation and the risks are not equal with the benefit of information generated. Taxation aspect also becomes another reason of rejection on IAS 41 implementation.

Delay in application of IAS 41, cannot be done in the long run. If there are no changes towards IAS 41, Indonesia also have to prepare themselves if IAS 41 is applied. Entity engaged in the forestry industry must be prepared for the implementation of IAS 41 in the future. Accounting gudelines for specific industries are still needed to provide guidance on how an entity presents, measures, and discloses assets and income related to biological assets and agricultural products. Accounting guidelines can provide more detailed rules on how assessments is done so as to avoid bias in the assessment process but still ensured to be in accordance with the standard.

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