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# Examining the Accounting Practice for Biological Assets among Malaysian Listed Companies: The Case of Aquaculture

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## Abstract

The aquaculture sector has been recognized as a crucial and high-priority area in Malaysia's economic development. The study's goal is to investigate the accounting practices used by Malaysian aquaculture-listed firms. As samples, two listed aquaculture enterprises were chosen. The accounting processes of the listed aquaculture companies were examined using content analysis. By looking at how the aquaculture business was covered in the annual reports of these chosen companies, the study's goal was achieved. The study specifically looked at the listed businesses' accounting processes for aquaculture definition, recognition, measurement, presentation, and disclosure. The major conclusions showed that the two companies accounting practices in terms of biological asset-aquaculture definition, recognition, measurement, presentation, and disclosure comply with the standards of MFRS 141 Agriculture. The findings of this study added to our understanding of agricultural accounting. The findings will offer new aquaculture-listed firms accounting best practices guidelines. The findings are also anticipated to help Malaysian businesses embrace MFRS 141 by improving the regulatory environment.

**Keywords:** Accounting Practice, Biological Asset, Aquaculture, Malaysian Listed Companies

## Introduction

In recent decades, the production of fish and shellfish from aquaculture, the aquatic equivalent of agriculture, has surpassed that of fisheries. Aquaculture will soon replace other methods as the main way to harvest extra food from our aquatic environment. Aquaculture, according to Troell et al (2017), affects biodiversity because it uses resources like land (or space), water, seed, and feed to produce goods that are valuable to society before releasing greenhouse gases, waste from uneaten food, fecal, and urinary products, chemotherapeutics, as well as microorganisms, parasites, and feral animals. By 2050, the population of the globe is projected to increase from seven billion to nine billion (Teh, 2012). As a result, the amount of food consumed increases along with the human population. For the nation's food security, Malaysian aquaculture is at the forefront of fish production (Jumatli & Ismail, 2021). Malaysia

is increasingly marketing aquaculture as a crucial driver of development and a possible source of future economic strength, claims (Yusoff, 2015).

A set of guidelines for financial reporting in Malaysia is known as the Malaysian Financial Reporting Standard (MFRS) 141. To deal with the accounting and disclosure of biological assets and agricultural produce in agriculture activities, Malaysia created agriculture, which includes aquaculture. A biological asset is a living plant or animal, and agricultural output is the harvested product of the entity's biological asset. Companies must value biological assets at their fair market value minus the cost of sale, according to the standard. If fair value is not available, companies use cost less accumulated depreciation and accumulated impairment loss as a measurement. Because of the inherent risk of using judgement, which could be regarded as presenting subjective rather than objective financial facts, defining fair value is extremely difficult. Fair value is defined as the amount that would be paid or received in an orderly transaction between market participants at the measurement date to sell an asset or transfer a liability, according to MFRS 13 Fair Value Measurement. Extensive disclosures concerning fair value are required to allow consumers of financial statements to evaluate the valuation processes and inputs used. Determining fair value, particularly for biological assets in the aquaculture industry, can be difficult and in some situations difficult since there may be a desire to employ shortcuts in the valuation process.

The purpose of this study are as follows:

- To get insight into financial reporting of the Malaysian publicly listed companies in aquaculture business.
- To examine the accounting practice of aquaculture companies in terms of the definition, recognition, measurement, presentation, and disclosure comply with the standards of MFRS 141 Agriculture.

### **Literature Review**

Aquaculture is the fastest-expanding food-production technique on the planet. Many sections of the world, particularly developing ones, rely heavily on seafood for animal protein. Seafood is an essential component of the global food supply chain, particularly in terms of animal proteins. The world's population was roughly 7.5 billion people in 2017, and it is anticipated to expand by at least 30% to ten billion people by 2050. Sustaining this expanding population will necessitate an increase in food production via agriculture, capture fisheries, and aquaculture (Noakes, 2018).

Depending on the species and country, farmed seafood either directly or indirectly contributes to food security through domestic consumption or economic growth through exports. Transferring information from terrestrial animal production and developing new technology enable modern aquaculture to achieve significant productivity growth and cost reductions (Anderson et al., 2017). To secure the expansion of the aquaculture business, sustainable farming is required.

As instructions to promote the best and most sustainable aquaculture practices, the Malaysian government created the Good Aquaculture Practices (GAqP) Code of Conduct for Aquaculture for the various aquaculture systems. For aquaculture production and expansion, product quality, safety, and environmental sustainability, GAqP refers to a number of factors, processes, and protocols. According to Kamaruddin and Baharuddin (2014), a farmer with extensive experience in aquaculture, a high level of technical knowledge, and aquaculture-related training may be able to enhance the level of GAAP practice and, as a result, increase their income. According to Adobor (2019), the farmer-entrepreneurs' companies were

negatively impacted by a lack of institutional assistance in the form of training in the proper management of a new technology. Potential study areas include agricultural innovation, transformation, and technology, particularly in developing and emerging nations (Umar et al., 2021).

### **Research Method**

Researchers used a secondary data-collecting approach to extract information from published financial statements (annual reports). The participants in this study are aquaculture businesses that are listed on the Bursa Malaysia. A representative sample from the company's population was selected using purposeful sampling. The study was conducted in 2021 and 2022. The analysis comprised two (2) aquaculture enterprises in total. The main data source was the company's annual reports for 2021 and 2022. Since annual reports from publicly traded companies are subject to norms and regulations, the researchers in this study looked at these reports. Annual reports produce high-quality reporting that conforms with all legal and regulatory standards for financial reporting, claim (Norizan & Kadri, 2022). The current study selected and used descriptive analysis to investigate the companies' required declaration of biological assets.

### **Result and Discussion**

#### **Introduction**

#### **Biological Assets, Aquaculture, and Fish**

The amount of mentions demonstrates the importance of the terms to the businesses (Norizan & Kadri, 2022). The term biological assets appeared sixteen (16) times in X Berhad's annual reports for 2021 and 2022, and twenty-nine (29) times in Y Berhad's annual report for 2021. The term aquaculture was referenced eight (8) times in the X Berhad annual report for 2021, four (4) times in the 2022 annual report, and forty-one (41) times in the Y Berhad annual report for 2021. The term fish was referenced 139 times in the 2021 annual report of X Berhad, 120 times in the 2022 annual report of X Berhad, and 84 times in the 2021 annual report of Y Berhad.

#### **Definition of Biological Assets and Aquaculture**

The first objective of the study is to examine the accounting practice of aquaculture companies in the definition of biological assets.

Broodstocks, according to the Y Berhad 2021 annual report, are fish/crabs retained for reproductive purposes only, are not for sale, and are categorized as non-current assets. Broodstock, also known as broodfish, is a group of adult individuals used in aquaculture for breeding. Broodstock is a population of animals kept in captivity to replace or increase seed and fry numbers (Waples & Do, 1994). These are typically kept in ponds or tanks with regulated environmental variables like as photoperiod, temperature, and pH. Conditioning is frequently used in such populations to ensure maximal fry output. Broodstock can also be obtained from wild populations, where it is harvested and maintained in maturation tanks before its seed is collected for growth to market size (Fast, 1994), or the juveniles are released to the sea to boost natural populations (Waples & Do, 1994).

A biological asset is defined as a living animal or plant in MFRS 141. Broodstocks and fisheries livestock was listed as the company's biological assets in X Berhad's 2021 and 2022 annual reports' notes to financial statements. On the other side, Y Berhad's 2021 annual report detailed the company's biological assets, which included broodstocks, fishery livestock, fish

fries, and crab. Because broodstocks, fisheries livestock, fish fry, and crabs are living creatures, they are classified as biological assets, and the descriptions provided by the two companies do not conflict with that definition as proposed by MFRS 141.

### **Recognition of Biological Assets - broodstock, fishery livestock, fish fry and crab**

The second objective is to examine the accounting practice of aquaculture companies in recognition of biological assets. The recognition criteria for biological assets according to MFRS 141 are: the business controls the biological assets because of a past event; it is probable that the business will get future economic benefits from them; and the fair value of the assets can be measured reliably. The recognition of revenue from sales of the biological asset and fair value gain shown in the account implies benefits have been derived from those biological assets, even if the two firms make no mention of this anywhere in their annual report.

The fisheries and broodstock animals owned by X Berhad are initially valued at fair market value less selling expenses. Then, they are measured at fair value less cost of sale. This method of recognition complies with MFRS 141 Agriculture's requirement.

In the Y Berhad annual report for 2021, it is stated that broodstocks are valued at cost less accumulated amortization and impairment losses because quoted market values are unavailable and alternative estimations of fair value assessments are deemed to be obviously incorrect. The entity shall measure such a biological asset at its fair value less selling expenses once its fair value is reliably established.

Fishery livestock is recognized by X Berhad as current biological assets, whereas broodstocks are recognized as non-current biological assets. Broodstock and fisheries livestock fair value adjustments will be shown as profit or loss in the company's statement of profit or loss. This complies with MFRS 141 Agriculture's criterion.

The changes in the fair value of livestock are recognized as revenue in the statement of profit or loss and other comprehensive income, according to X Berhad's annual reports for 2021 and 2022 and Y Berhad's for 2021.

Based on the aforementioned facts, it can be said that both companies are adhering to MFRS 141's guidelines for recognizing biological assets.

### **Measurement of Biological Assets and Aquaculture**

The third objective is to examine the accounting practice of aquaculture companies in the measurement of biological assets. MFRS 141 requires all biological assets to be measured at fair value less cost to sell except the fair value cannot be measured reliably.

According to X Berhad's annual report for 2021, discounted cash flow is used to calculate the fair value of broodstocks. The expected number of day-old fish produced, its projected weighted average selling price, feed costs, consumption rates, and other estimated farming expenses that will be incurred throughout the remaining life of the broodstocks are all taken into account by the management when determining the fair value.

In the Y Berhad annual report for 2021, it is stated that broodstocks are valued at cost less accumulated amortization and impairment losses because quoted market values are unavailable and alternative estimations of fair value assessments are deemed to be obviously incorrect. An entity must measure such a biological asset at its fair value less selling expenses once its fair value is reliably established.

Until the young broodstocks start reproducing, all expenses incurred on a project basis for these animals are capitalized. Immature broodstock expenses include the price of the mother



fish or crab, the cost of feed and treatment, the price of direct labour, and a proportionate share of farm running expenses. After breeding begins, maintenance expenditures for broodstocks are taken into account when calculating profit or loss.

Broodstocks are fish or crabs retained for reproductive purposes only and are categorized as non-current assets. Broodstock costs are amortized over the estimated reproductive lifespan of the corresponding fish/crab, as follows:

Fish live for 8 to 10 years, depending on the species; crabs live for 2 years.

The difference between the net disposal proceeds and the net carrying amount is recognized in profit or loss when the broodstocks are sold.

In its annual reports for 2021 and 2022, X Berhad stated that the fair value less selling expenses of fishery livestock are calculated by the management using the market price of fishes of comparable length, species, and genetic merit with adjustments, less anticipated mortality of fishery livestock, and selling expenses. As a result, the calculation of fair value inherently involves judgement and includes large estimations.

The following discounted cash flow method is used to value broodstock:

X Berhad employed the discounted cash method for broodstock. The estimation approach takes into account the anticipated amount and cost of day-old fish that will be generated throughout the broodstocks, as well as the anticipated increasing cost and discount rate.

The market technique was utilized by X Berhad for fishing cattle. The valuation technique takes into account the market prices for products of a similar length and species, genetic merit with adjustment, lower predicted death rates, and selling costs.

Fishery livestock is valued at fair value minus costs to sell, based on market values of livestock of comparable age, species, and genetic quality with modifications, where appropriate, to reflect the discrepancies. This information is from Y Berhad's annual report for 2021. Market prices are derived from observable market prices, negotiated prices, or anticipated future prices (when available). The costs to sell include the incremental selling costs, including fees and commissions paid to dealers and estimated costs of transport to market. Livestock fair value changes are taken into account when calculating profit or loss. In measuring the fair value of fishery livestock, various management estimates and judgements are required. The market pricing, average weight, fish tails, quality of the fisheries livestock, and mortality rates are taken into consideration while estimating and making judgments on the fair worth of fishery livestock.

Because fair value cannot be evaluated accurately and there is a little biological transition, fish fry and crab are measured at cost minus impairment losses. The cost of fish fry is calculated using a monthly weighted average cost formula that includes the cost of purchase plus any transportation charges, feed and medication, direct labour costs, and a suitable proportion of farm running overheads accrued on a project-by-project basis.

In conclusion, the two companies are measuring their biological assets in line with the requirement of MFRS 141.

### **Issues in the Measurement of Fair Value**

According to X Berhad's annual report for 2021 and 2022, there are restrictions on the ability to accurately estimate the number of fish in each fishpond or fish tank while physically spotting the number of broodstocks and fishery livestock, which are of many sizes or small size and in enormous quantities. It is not possible to count the fish in the pond or tank because doing so would require moving each fish one at a time from one pond or tank to another,

which would increase mortality and prevent the count from being done. Instead, the quantity is estimated by skilled workers who rely on input and mortality controls.

For Y Berhad, there is an issue of unreliable measurement of broodstock, fishery livestock, and crabs in the market. Therefore, the cost model is used until reliable measurement for fair values can be obtained.

### Presentation and Disclosure of Biological Assets

The fourth objective is to examine the accounting practice of aquaculture companies about the presentation and disclosure of biological assets.

In the statement of financial position, biological assets were included as both current and non-current assets by X Berhad. While current assets are the fisheries livestock, non-current assets are the fish broodstock. According to the rules of MFRS 102, trading fish is considered as inventory. The notes to financial statements provide more information about trading fish. In Y Berhad's 2021 annual report, the statement of financial position includes both current and non-current biological assets as a single line item. The specifics, though, are made available separately in notes on biological assets.

### STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 JANUARY 2021

|                                    | Note | 2021<br>RM | Group<br>2020<br>RM |
|------------------------------------|------|------------|---------------------|
| REVENUE                            | 17   | 27,835,872 | 14,073,395          |
| ADD: OTHER INCOME                  |      | 389,697    | 350,984             |
| LESS: CHANGES IN BIOLOGICAL ASSETS |      | 511,631    | (66,518)            |
| LESS: CHANGES IN INVENTORIES       |      | 280,842    | 284,885             |

Biological assets of X Berhad were shown in the statement of profit or loss as changes in biological assets in the 2021 annual report but aggregated as revenue in the 2022 annual report. In the notes to the financial statement of X Berhad, broodstock (non-current assets) and fishery livestock (current assets) are disclosed separately.

According to X Berhad's annual report for 2021 and 2022, the carrying amount of broodstock is calculated by adding the opening balance of broodstock with the purchase of fresh broodstock, subtracting mortality, and adding increases in fair value less cost to sell. For fishing livestock, the carrying value at the end of the year is calculated by adding the starting balance with the fresh acquisition, plus the change in fair value, and subtracting the amount of death and decline due to sales.

Based on the above findings, it can be concluded that the biological assets of the two companies are presented and disclosed according to MFRS 141 biological assets and MFRS 1 presentation of financial statement.

### Limitations of Study

There are some drawbacks to this study. To begin with, this study only looked at the frequency of mandatory disclosure reported by aquaculture producer businesses, which was based on secondary data, and it was unable to explain in detail why some of the mandatory items needed by the standard were not disclosed (MFRS141, Biological Assets).

Second, rather than employing interviewing methodologies, this study focused solely on the material available in the annual reports of aquaculture businesses on Bursa Malaysia. This is because some of the material in the annual reports is sensitive and limited. Due to logistical issues, it is hard to interview all the aquaculture businesses on Bursa Malaysia.

Finally, the sample from these companies is limited to one sort of activity, namely aquaculture, and thus does not represent the entire range of other activities.

### **Conclusion and Recommendations**

In this study, the accounting practices of two (2) aquaculture-based companies listed on Bursa Malaysia's stock exchange were analyzed. MFRS 141 requires these aquaculture businesses to disclose their biological asset accounting in their annual reports, including definition, recognition, measurement, accounting treatment and presentation, and disclosure of aquaculture in annual reports.

The major conclusions showed that the definition, recognition, measurement, presentation, and disclosure of biological assets practiced by aquaculture-listed companies comply with MFRS 141 Agriculture requirements. The results of this study will add to the body of knowledge regarding the significance of biological asset disclosures by publicly traded companies, notably aquaculture businesses in Malaysia. These aquaculture enterprises shall adhere to standards when revealing all information in annual reports, and preparers shall be aware of any modifications to the accounting standards to produce high-quality annual reports.

Future scholars will benefit from this study's findings, especially those researching in the aquaculture industry. To get more accurate data, they might perform a longer period of study. The study is important since the aquaculture industry is one of the National Key Economic Areas (NKEA) that should receive special attention from the government, particularly when it comes to the financial reporting of aquaculture activities in Malaysia. Future scholars might also look into forestry and other forms of agriculture, such as plantations.

### **Significance/Contribution of The Study**

The research has contributed to two terms namely theoretical and contextual aspects. The study's findings showed that the definition, recognition, measurement, presentation, and disclosure of biological assets used by publicly traded aquaculture companies in Malaysia comply with the Malaysian financial reporting standards on agriculture - MFRS 141 Agriculture. These findings are crucial in educating the public about the extent of information sharing specifically about aquaculture. It satisfies the theoretical requirements of conceptual frameworks for financial reporting on the qualitative characteristics of financial information. As a result, reliable information will assist current and prospective investors to make decisions that will be advantageous to the capital market and the aquaculture sector.

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