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# Assessment of Equipment and Machinery Assets for the Purpose of Disposal in Certain Non-Vertical Work Units of Groundwater Raw Water of the Nusa Tenggara II River Basin Center, Kupang City

[1]Elda Rade Wadoe, [2]Cicilia Apriliana Tungga, [3]Maria Indriani Hewe Tiwu, [4]Aldarine Molidya

[1,2]Nusa Cendana University, [3]Faculty of Economics and Business, Development Economics Study Program
Email: eldawadoe2003@gmail.com

This study aims to determine the fair value of equipment and machinery assets at the Specific Non-Vertical Groundwater Raw Water Work Unit (SATKER ATAB) of the Nusa Tenggara II River Basin Center in Kupang City as a basis for the asset write-off process. This study uses a quantitative descriptive approach with a case study design. Primary data were obtained through interviews and observations of the physical condition of the assets, while secondary data were obtained from inventory documents and financial reports. The sample consisted of seven units of heavy equipment including truck cranes, compressors, and earth drilling machines. Two valuation methods were used, namely the cost approach and the market approach in accordance with the 2022 Indonesian Valuation Standards (SPI) and PMK No. 111 / PMK.06 / 2016. The results showed that the fair value of severely damaged assets based on the cost approach was IDR 74,993,000 with a liquidation value of IDR 59,994,400. Meanwhile, the market approach resulted in a total value of IDR 163,307,352 with a liquidation value of IDR 130,645,881. The study concluded that the cost approach is more appropriate for scrap assets, while the market approach is more representative for assets that still have potential resale value. The results of this assessment can be used as a basis for setting auction limits and supporting an accountable asset disposal process.
**Keywords**: Asset valuation, Asset write-off, Cost approach, Market approach, State Property



**Corresponding Author:**
Elda Rade Wadoe
Nusa Cendana University
eldawadoe2003@gmail.com

## 1. Introduction

Regionally Owned Assets (BMD) are a crucial element in the implementation of government and public services. Suboptimal asset management can lead to depreciation, budget waste, inaccurate recording, and audit findings by the Supreme Audit Agency (BPK). Minister of Home Affairs Regulation No. 19 of 2016 stipulates that BMD management encompasses needs planning, procurement, utilization, security, maintenance, assessment, transfer, destruction, and disposal.

The Nusa Tenggara II River Basin Agency's ATAB WORK Unit manages various technical equipment such as truck cranes, compressors, and earth drills. Most of these assets have experienced functional decline due to age, limited maintenance, and operational conditions in the field. Based on 2024 data, seven units of assets suffered severe and minor damage, requiring reassessment to determine the auction limit before disposal.

Asset valuation is required to produce a fair value as a basis for write-off decisions in accordance with Home Affairs Ministerial Regulation No. 19 of 2016 and SPI 2022. Therefore, this study was conducted to

provide an estimate of the fair value of SATKER ATAB equipment and machinery as a basis for write-off of assets.

## 2. Method

This research uses a quantitative descriptive approach with a case study design. The population consisted of 133 units of equipment and machinery belonging to the Kupang City ATAB WORK Unit. The sample was determined using purposive sampling based on the condition of assets with minor and severe damage, resulting in seven units of heavy equipment as samples.
Data types consist of:

1. Primary data, obtained through physical observation of assets and interviews.
2. Secondary data, in the form of inventory documents, financial reports, and asset photos.

Data collection was conducted through interviews, physical observation, and documentation. Asset value analysis was conducted using: Cost Approach by taking into account new replacement cost (NRC), physical depreciation (P), functional (Kf), and economic (Ke):

$$\text{Goods Value} = \text{NRC} \times (1 - \text{P}) \times (1 - \text{Kf}) \times (1 - \text{Ke})$$

The market approach uses a market data comparison method (sales comparison method) based on the selling prices of similar assets. The final value is determined from both approaches and adjusted to the purpose of the assessment, namely asset write-off.

## 3. Results and Discussion

### Overview of Assessment Objects

The ATAB Work Unit serves as the primary implementing body responsible for managing, operating, and maintaining a variety of heavy equipment to support groundwater and raw water development. The current asset inventory includes truck cranes, compressors, and ground drilling machines, most of which have been in operation for over 20 years. Due to their age and prolonged usage, these assets no longer function optimally, resulting in decreased operational efficiency and increased maintenance costs. According to Koller et al. (2021), the condition and operational efficiency of long-used equipment significantly affect its marketability and valuation, especially in public sector asset management. In this context, accurate assessment methods are required to determine both fair value and potential liquidation value, aligning with asset management standards and regulatory requirements.

### Cost Approach Assessment Results

The cost approach was applied based on NRC calculations and depreciation standards in PER-12/KN/2012. This method is particularly suitable for assets that are heavily damaged or approaching the end of their useful life. The final valuation of the seven asset units is as follows:

1. Total fair value: Rp74,993,000
2. Liquidation value: Rp59,994,400

Severely damaged assets, such as truck cranes and ground drilling machines, are more appropriately assessed using the cost approach because their residual value is closer to scrap material. As noted by Mulyadi (2020), the cost approach provides a conservative yet realistic estimation for public assets with high wear and tear, ensuring that financial statements reflect the true economic condition of the asset. Furthermore, the inclusion of accumulated depreciation ensures that the valuation reflects both historical cost and functional obsolescence.

### Market Approach Assessment Results

The market approach involves comparing the assets to similar equipment currently available in the market, including adjustments for age, operational condition, brand, and functionality. Online advertisements for heavy equipment sales were analyzed to determine the prevailing market price for comparable assets. The results indicate:

1. Total market value: Rp163,307,352
2. Liquidation value: Rp130,645,881

This approach yields a higher valuation because certain assets, such as the two compressor units and other moderately used machines, still possess significant market potential. According to Damodaran (2022), the market approach provides a dynamic and realistic estimation of an asset's potential resale value, particularly for equipment that retains functional usability despite age.

### Discussion

The comparison between the cost and market approaches highlights important considerations in asset valuation:

1. Heavily damaged assets: These are more accurately represented by the cost approach, as it accounts for depreciation and replacement cost, preventing overestimation of the asset's value. This is consistent with the findings of Koller et al. (2021), who emphasize that for obsolete or severely degraded assets, the cost approach reflects true economic value.
2. Slightly damaged or moderately used assets: The market approach is more representative, as these assets still possess functional utility and can fetch a competitive price in secondary markets. Damodaran (2022) suggests that market-based valuation is particularly effective for assets with active resale potential.

Additionally, the selection of the valuation method has practical implications for the upcoming asset auction, as regulated under PMK 111/PMK.06/2016. Establishing the initial limit value using these assessment results ensures transparency, fairness, and alignment with regulatory standards. Furthermore, combining both approaches allows the ATAB Work Unit to categorize assets more strategically, deciding which items are suitable for refurbishment, resale, or scrapping.

Finally, integrating expert opinions into asset valuation not only enhances the accuracy of financial reporting but also informs strategic decision-making for equipment management, maintenance scheduling, and long-term procurement planning. As highlighted by Mulyadi (2020) and Damodaran (2022), the dual application of cost and market approaches ensures a balanced, reliable, and defensible valuation framework in public sector asset management.

## 4. Conclusion

This study concludes that the valuation of equipment and machinery assets at SATKER ATAB needs to be carried out as a basis for asset write-off. The cost approach produces a total fair value of Rp74,993,000 and a liquidation value of Rp59,994,400. The market approach produces a total market value of Rp163,307,352 and a liquidation value of Rp130,645,881. The cost approach is more suitable for scrap assets, while the market approach is more suitable for assets that still have a sale value. The results of this assessment can be used as an auction limit value and support the accountability of the asset write-off process.

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