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An Analytical Comparison Of Depreciation Methods In Bharat Sanchar Nigam Limited (BSNL)

1. Alok Kunal, Assistant Professor, Department of Commerce, Bareilly College, Bareilly (Affiliated to MJP Rohilkhand University)
2. Dr. Prateek Verma, Assistant Professor, Department of Commerce, Bareilly College, Bareilly (Affiliated to MJP Rohilkhand University)

Abstract

This research paper highlights a comprehensive comparative analysis of two depreciation methods permitted under Indian Accounting Standards (Ind AS 16) for a telecommunication company Bharat Sanchar Nigam Ltd. (BSNL). The study examines the Straight-Line Method (SLM) and the Written Down Value Method (WDV) during three financial years (F.Y. 2021-22 to 2023-24), evaluating their impact on annual depreciation charges and financial reporting. The analysis reveals substantial variations in depreciation patterns between the two methods, with implications for corporate strategies, particularly in tax planning and financial performance reporting.

Key words: Depreciation, SLM, WDV, Ind AS 16

1. Introduction

1.1 Background

Depreciation is an accounting practice that helps businesses allocate the cost of an item over its useful life to represent its loss in value from year to year. Depreciation accounting represents a fundamental aspect of financial reporting, particularly for asset-intensive organisations. The systematic allocation of depreciable amounts over an asset's useful life has a significant impact on profitability, tax liabilities, and balance sheet valuation. In India, Ind AS 16 - Property, Plant and Equipment mandates the accounting treatment of tangible fixed assets, permitting multiple depreciation methods.

1.2 Objectives

This study aims to:

1. Calculate depreciation for each asset category using SLM and WDV methods
2. Conduct a comparative analysis of depreciation over three fiscal years
3. Evaluate the strategic implications of method selection
4. Recommend optimal depreciation policy.

1.3 Scope

This analysis has taken into consideration 12 asset categories of BSNL Company. The period of analysis covers three fiscal years - FY 2021-22, FY 2022-23 and FY 2023-24.

2. Literature Review

2.1 Regulatory Framework

Indian Accounting Standards (Ind AS 16) recommend the framework for recognising, measuring, and depreciating property, plant, and equipment. Schedule II of the Companies Act, 2013 prescribes useful lives for various asset classes, however, the companies are permitted to use different useful lives if technically substantiated.

2.2 Depreciation Methods

Straight-Line Method (SLM): According to SLM the depreciation charges are distributed over the asset's useful life. The formula to calculate depreciation is as follows: (Cost - Salvage Value) / Useful Life. As per this method there is a uniform consumption of economic benefits.

Written Down Value Method (WDV): According to WDV a fixed depreciation rate is applied to the declining book value, it charges higher depreciation charge in early years. The formula is as follows: Depreciation = Book Value × Depreciation Rate.

3. Methodology

3.1 Data Source

The study utilises fixed asset data of BSNL's financial statements for three consecutive years ending March 31, 2022, 2023, and 2024. (All amounts are in INR lakh)

Particulars	As at 31st March 2022	As at 31st March 2023	As at 31st March 2024
Free Hold Land	6,345,051	6,359,762	6,253,037
Building	805,316	806,095	805,096
Apparatus and Plant	6,357,310	6,232,529	6,122,300
Motor vehicles and launces	10,348	9,260	8,232
Cable and lines and wires-telecom ducts, cable and optical fibre	68,92,768	6,905,690	6,889,069
General plant and machinery – other than continuous process plant	364,912	357,224	329,067
Towers and satellites	689,925	688,940	703,321
Office machinery and equipment	18,363	18,236	17,871
Electrical fittings	538,639	530,871	524,107
Furniture and fixtures	23,042	22,347	21,958
Computer-end user devices	142,060	137,931	129,470
Computer-servers and networks	75,648	82,611	83,475
	22,263,382	**22,151,496**	**21,887,003**

Source: Annual Report of BSNL

3.2 Assumptions

Given the limitation of having only net book values, the following assumptions have been applied:

1. **Depreciation Rates (WDV Method):** Based on Schedule II of Companies Act, 2013
   - Buildings: 10%
   - Plant & Machinery: 15%
   - Motor Vehicles: 15%
   - Computers (end-user): 40%
   - Computers (servers): 40%
   - Office Equipment: 15%
   - Furniture: 10%
   - Electrical Fittings: 10%
2. **Useful Lives (SLM Method):** Derived from WDV rates using the relationship:
   - Buildings: 30 years
   - Plant & Machinery: 15 years
   - Motor Vehicles: 8 years
   - Computers: 6 years
   - Office Equipment: 13 years
   - Furniture: 10 years
   - Electrical Fittings: 10 years
3. **Salvage Value:** Assumed at 5% of original cost for all assets
4. **There are no significant additions or disposals** during the period (this analysis based on declining values)

3.3 Calculation Methodology

For WDV Method: Annual Depreciation = Opening Book Value × Depreciation Rate

For SLM Method: Annual Depreciation = (Cost - Salvage Value) / Useful Life

Where Cost is back-calculated from the net book value patterns observed.

4. Results/ Analysis (Values are in INR Lakh)

4.1 Depreciation Calculations - Financial Year 2021-22.

Asset Category	Opening Value	WDV Method	SLM Method	Difference
		Depreciation	Depreciation	(WDV - SLM)
Freehold Land	6,345,051	0	0	0
Building	805,316	80,532	26,844	53,688
Apparatus & Plant	6,357,310	953,597	424,487	529,110
Motor Vehicles	10,348	1,552	1,294	258
Cables & Lines	6,892,768	1,033,915	459,518	574,397
General Plant	364,912	54,737	24,327	30,410
Towers & Satellites	689,925	103,489	45,995	57,494
Office Machinery	18,363	2,754	1,413	1,341
Electrical Fittings	538,639	53,864	53,864	0
Furniture & Fixtures	23,042	2,304	2,304	0
Computer (End User)	142,060	56,824	23,677	33,147
Computer (Servers)	75,648	30,259	12,608	17,651
Total	**22,263,382**	**2,373,827**	**1,076,331**	**1,297,496**

Source: Calculation done by the Author

Key Observations:

- As per the WDV method, the result is 120% higher depreciation charges compared to SLM in Year 1
- The maximum difference found in telecommunications infrastructure (Cables & Lines)
- Freehold land has been non-depreciable under both methods

4.2 Depreciation Calculations - Financial Year 2022-23

Asset Category	Opening Value	WDV Method	SLM Method	Difference
Freehold Land	6,359,762	0	0	0
Building	806,095	80,610	26,870	53,740
Apparatus & Plant	6,232,529	934,879	415,502	519,377
Motor Vehicles	9,260	1,389	1,158	231
Cables & Lines	6,905,690	1,035,854	460,379	575,475
General Plant	357,224	53,584	23,815	29,769

Asset Category	Opening Value	WDV Method	SLM Method	Difference
Towers & Satellites	688,940	103,341	45,929	57,412
Office Machinery	18,236	2,735	1,403	1,332
Electrical Fittings	530,871	53,087	53,087	0
Furniture & Fixtures	22,347	2,235	2,235	0
Computer (End User)	137,931	55,172	22,989	32,183
Computer (Servers)	82,611	33,044	13,769	19,275
Total	**22,151,496**	**2,355,930**	**1,067,136**	**1,288,794**

Source: Calculation done by the Author

Key Observations:

- The amount of depreciation charges under both methods highlight marginal decline due to reducing balance of asset.
- The method of WDV continues to front-load depreciation by approximately 121%
- There is a pattern of consistency across asset categories

4.3 Depreciation Calculations - Financial Year 2023-24

Asset Category	Opening Value	WDV Method	SLM Method	Difference
Freehold Land	6,253,037	0	0	0
Building	805,096	80,510	26,836	53,674
Apparatus & Plant	6,122,300	918,345	408,153	510,192
Motor Vehicles	8,232	1,235	1,029	206
Cables & Lines	6,889,069	1,033,360	459,271	574,089
General Plant	329,067	49,360	21,938	27,422
Towers & Satellites	703,321	105,498	46,888	58,610
Office Machinery	17,871	2,681	1,375	1,306
Electrical Fittings	524,107	52,411	52,411	0
Furniture & Fixtures	21,958	2,196	2,196	0
Computer (End User)	129,470	51,788	21,578	30,210
Computer (Servers)	83,475	33,390	13,913	19,477
Total	**21,887,003**	**2,330,774**	**1,055,588**	**1,275,186**

Source: Calculation done by the Author

Key Observations:

- The is a downward trend of depreciation, which reflects aging asset base
- The method of WDV maintains 121% higher charge compared to SLM
- Towers & Satellites show very little increase.

4.4 Three-Year Cumulative Analysis

Metric	WDV Method	SLM Method	Variance
Total Depreciation (3 years)	7,060,531	3,199,055	+120.7%
Average Annual Depreciation	2,353,510	1,066,352	+120.7%
Year 1 Depreciation	2,373,827	1,076,331	+120.5%
Year 2 Depreciation	2,355,930	1,067,136	+120.8%
Year 3 Depreciation	2,330,774	1,055,588	+120.8%
Depreciation Decline (Y1 to Y3)	-43,053 (-1.8%)	-20,743 (-1.9%)	-

Source: Calculation done by the Author

4.5 Asset Category-wise Impact Analysis

High-Impact Categories (>₹500,000 difference annually):

1. **Cables & Lines:** Average annual difference of ₹574,654
2. **Apparatus & Plant:** Average annual difference of ₹519,560

Medium-Impact Categories (₹25,000-60,000 difference):

3. **Building:** Average annual difference of ₹53,701
4. **Towers & Satellites:** Average annual difference of ₹57,839

Low-Impact Categories (<₹25,000 difference):

5. **Computer Systems:** There is a combined difference of approximately ₹50,000
6. **Motor Vehicles, Office Equipment, General Plant:** There is a minimal individual impact

Zero-Impact Categories:

- Freehold Land (because this asset is non-depreciable)
- Electrical Fittings and Furniture (rates aligned)

5. Comparative Discussion

5.1 Financial Statement Impact

Profit & Loss account:

- WDV method impacts (negatively) net profit compared to SLM
- WDV's higher depreciation provides tax benefits, reducing taxable income

Balance Sheet:

- It is clear that asset book values decline faster under WDV, it shows lower net fixed assets
- Return on Assets (ROA) highlights higher under WDV because lower asset base

5.2 Cash Flow:

The expense of depreciation is a non-cash expense; the methods (WDV/SLM) selection significantly impacts:

- **Tax Cash Flows:** There is higher depreciation under WDV, which in turn generates larger tax savings in early years, resulting in improved cash flows
- **Capital Allocation Decisions:** The quicker write-off results in earlier replacement investments

5.3 Analysis of Temporal Pattern:

WDV Method:

- Front-loads expenses, matching high productivity in the initial age of asset life
- Depreciation charges decline over time
- It is better at reflecting technological obsolescence for IT assets
- There is a year-on-year reduction: 1.8% over three years

SLM Method:

- There is stability in expense recognition
- This is the simplified method, which helps in better budgeting and forecasting
- This method matches, relatively better, assets with stable economic benefit patterns
- There is year-on-year reduction: 1.9% over three years

6. Advantages and Limitations

6.1 Written Down Value Method

Advantages:

- Tax benefits result in early-year cash flows
- Better addressed declining utility and technological obsolescence
- It shows a perfect match of higher maintenance costs in later years with lower depreciation

Limitations:

- The assets never fully depreciate
- The calculation is complex, especially when assets are added in mid-year
- It results in lower values of assets in later years

6.2 Straight-Line Method

Advantages:

- This method is very simple to calculate and understand
- It makes budgeting and forecasting very easy.
- It is better for assets with uniform economic benefit consumption
- The assets fully depreciate

Limitations:

- This method may not reflect actual usage patterns
- It overstates historical/book values in initial years for technology assets
- The uniform obsolescence of assets may not match reality

7. Strategic Recommendations

7.1 Method Selection Guidelines

Recommend WDV for:

- The assets, like computer systems and technology infrastructure
- Motor vehicles, as these are prone to rapid value decline
- Assets in rapidly evolving technology sectors
- Where immediate tax benefit is sought

Recommend SLM for:

- Buildings
- Furniture and fixtures
- Assets with predictable economic benefits

7.2 Recommendation for BSNL to use Hybrid Approach

BSNL Company should consider:

- **Technology Assets:** Continue WDV (40% rate) for computers
- **Infrastructure Assets:** Evaluate SLM for cables/lines to stabilize depreciation expense
- **Buildings:** Retain SLM
- **Plant & Equipment:** Retain WDV

8. Conclusion

This study made a comparative analysis of depreciation methods (SLM/WDV) for BSNL. The analysis shows substantial differences in expense recognition, valuation of assets, and financial performance reporting. The WDV method results in approximately 121% higher annual depreciation charges in comparison to SLM.

For a telecommunications and technology-intensive firm, the WDV method provides strategic advantages through enhanced tax benefits and better matching of expense patterns with decline in utility of asset. However, the choice must balance multiple factors including tax optimization, government policy, strategic management and industry practices.

The analysis highlights that depreciation method selection is not merely an accounting technicality but a strategic decision with far-reaching implications for financial results and taxation. Companies are advised to review their depreciation policies and apply the methods that are more beneficial and fulfil regulatory requirements.

References

1. Companies Act, 2013, Schedule II - Useful Lives to Compute Depreciation
2. Indian Accounting Standard (Ind AS) 16 - Property, Plant and Equipment
3. Institute of Chartered Accountants of India (ICAI) - Guidance Notes on Fixed Assets
4. BSNL Company Annual Reports (FY 2021-22, 2022-23, 2023-24)
5. Financial reporting standards for telecommunications sector
6. Tax implications of depreciation methods under Income Tax Act, 1961