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The Impact Of Depreciation On Cost

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Abstract: ***Every business attains some non-trading fixed assets. These fixed assets are used in the business for easing its trading activities and improving its revenue earning capacity. These assets are mainly purchased for the business with the purpose of permanent use and not for resale. All fixed assets excluding the value of land declines with the passage of time. The value of these assets decrease every year. Such gradual reduction or decrease in the price of fixed assets for the purpose of making revenue is called depreciation. Depreciation is closely connected with the determination of profit or loss for the period. Unless depreciation is charged to the revenues, the exact income of the business cannot be determined properly. As such, depreciation is a expenditure. Depreciation expense is the cost allocated to a fixed asset during a period. Many people think this is a way to "expense" assets over time, but that's not actually true. It is recorded as an expense on the income statement, but it isn't an expense of the asset. Instead, it is allocating the cost of the asset over its useful life. In this paper various methods of calculating depreciation are discussed with the help of various case studies. Therefore depreciation is an important component while calculating financial statements of the company.***

Keywords: Depreciation, Annuity, Straight Line Method, Diminishing Balance Method, Profit

I. INTRODUCTION

Fixed assets like plant and machinery etc. are used for the purpose of production of goods or for providing useful services in the course of production. Value of such fixed assets decreases with the passage of time and its utilization i.e. wear and tear. Such decrease in the value of an asset is termed as depreciation. Depreciation has been defined as 'the diminution in the utility or value of an asset, due to normal wear and tear, exhaustion of the subject-matter, effluxion of time accident, obsolescence or similar causes'. In other words, when an asset held by a business cannot be used as efficiently and effectively in future as it was used earlier, the loss caused to the business will be depreciation. Depreciation caused by accident, obsolescence, etc. is described as external depreciation. On the other hand, the natural wear and tear of assets is known as internal depreciation.

CAUSES OF DEPRECIATION

Depreciation is a rational estimate of a decline in the usefulness of an asset, which may be caused by the following factors:

✓ *THE PHYSICAL LOSS OF AN ASSET*

- *WEAR AND TEAR FROM USE:* assets get worn or torn out on account of continuous use as is the case with furniture and fixtures, plant and machinery used in a factory. The asset losses its efficiency, its value decreases and depreciation arises.
- *PASSAGE OF TIME:* certain assets get decreased in their value with the efflux of time even when not in use. Assets such as leasehold properties, patents or copyrights lose their value with the passage of time.
- *OTHER FACTORS ARE FIRE, FLOOD, EARTHQUAKE OR ACCIDENT:* an asset gets

depreciated in its value if it meets an accident and thus becoming useless for the business.

- ✓ *THE FUNCTIONAL FACTORS*
  - *INADEQUACY:* this arises when an asset is no longer used because of growth and changes in size of the business. If the capacity of a fixed asset is not sufficient to meet the demands for increased production, then that asset becomes inadequate.
  - *OBSOLESCENCE:* this is the process of becoming out of date. Some assets are rejected before they get damaged because of changed conditions. For example, a new machine may replace an old machine which is still workable because of the former being more efficient and economical. Such damage on account of new inventions or changed techniques is referred to as loss on account of obsolescence.
- ✓ *DEPLETION:* Certain fixed assets of the firm are natural resources. They are of wasting nature due to extraction of minerals or oil from them, example mines, oil wells, etc. When minerals get extracted, the assets get depleted. This is called depletion.
- ✓ *TIME FACTOR:* The life of certain assets is legally fixed such as leases, patents, copyrights, etc. Providing depreciation on them is called amortization.

II. MEANING OF DEPRECIATION ACCOUNTING

Depreciation accounting is concerned with the rational and systematic distribution of cost over the estimated useful life of the asset. It is a system of accounting which aims to distribute the basic value or cost of a tangible asset less salvage (if any), over the estimated useful life of that asset. It is the process of allocation and not of valuation.

The objective of depreciation accounting is to allocate the cost of using assets to different accounting periods in such a way so as to give the true figure of profit or loss made by the business firm.

III. OBJECTIVES OF PROVIDING DEPRECIATION

- ✓ *TO ASCERTAIN TRUE PROFITS:* Depreciation should be viewed as business expenditure as it is a charge for fixed assets in earning profits. Unless proper charge for this expense is made in the books of accounts, the correct profit cannot be ascertained.
- ✓ *TO SHOW TRUE FINANCIAL POSITION:* it is necessary to charge depreciation in order to show the assets at their proper values and hence presenting a true and fair view of the economic position of the business. If depreciation is not provided, the value of the assets will be overstated in the Balance Sheet and the actual financial position of the business will not be reflected.
- ✓ *TO CREATE FUNDS FOR REPLACEMENT OF ASSETS:* fixed assets used in the business need replacement after the expiry of their service life. Depreciation is non-cash expenditure. Hence, the amount of depreciation charged to Profit and Loss account remains in the business and the amount thus collected during the working life of an asset provides funds for its replacement at the end of the working period of the asset.
- ✓ *TO KEEP THE CAPITAL IN TACT:* If depreciation is not charged, the amount of profit will be inflated. If such gains are distributed among the owners, then it will amount to the distribution of fixed capital from the firm. In the long run it will hamper the financial health of the business.
- ✓ *TO COMPUTE TAX LIABILITY:* depreciation is a chargeable expense from income tax point of view. By charging depreciation and charging it to profit and loss account, profitable income can be calculated.
- ✓ *STATUTORY NEED:* it is mandatory for a joint stock company to charge depreciation on fixed assets of the firm before distributing its profits as dividend -as mentioned in Section 205 of the Indian companies Act.

IV. METHODS OF DEPRECIATION

The methods of depreciation are as follows: -

- ✓ Fixed Instalment Method
- ✓ Diminishing Balance Method
- ✓ Annuity Method
- ✓ Depreciation Fund Method
- ✓ Sum of the Year Digit Method
- ✓ Repairs Provision Method
- ✓ Revaluation Method
- ✓ Double Declining Method
- ✓ Insurance Policy Method
- ✓ Machine Hour Rate Method

FIXED INSTALLMENT METHOD: Under this method, depreciation amount is calculated by dividing depreciable cost by the estimated cost of the asset. It is called Fixed Installment Method because the amount of depreciation remains fixed or same from year to year. It is also called 'Straight Line Method' or 'Constant Charge Method'.

Formula for calculating depreciation amount is as follows:

$$\text{Depreciation} = \frac{\text{Cost - Residual Value}}{\text{Estimated Life}}$$

CASE 1: Cost of an asset is Rs. 11,000 and its residual value after its estimated life of 10 years is expected to be Rs. 1,000, then the amount of annual depreciation is as under-

$$\text{Depreciation} = \frac{11{,}000 - 1{,}000}{10} = \text{Rs. } 1{,}000$$

DIMINISHING BALANCE METHOD: Under Diminishing Balance Method is calculated at a fixed percentage of written down value of asset. The method implicitly assumes that benefit accruing to business by utilization of asset keeps on decreasing as the asset gets old. As the value of asset keeps of decreasing from year to year, the amount of depreciation charged to different accounting year decreases with passage of time.

Formula for calculating rate of depreciation is as follows:

$$\text{Rate of Depreciation} = \left[1 - n\sqrt{\frac{\text{Residual Value}}{\text{Cost of Asset}}}\right] \times 100$$

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Where *n* = Number of years of asset life.

CASE 2: If cost is Rs. 10, 00, 000; Residual value is Rs. 64, 000 and life is 3 years

Then the rate of depreciation = $\left[1 - 3\sqrt{\frac{64,000}{10,00,000}}\right] \times 100 = 60\%$

ANNUITY METHOD: In this method, definition of cost (or depreciable amount) is changed. In this method, the depreciable amount is original acquisition price (including installation charges, if any) plus loss of interest on the unexpired balance of the machinery every year. In other words, the total depreciation provided out of profit and loss account in the method is more than the depreciable cost of the asset.

Process:

The depreciation charge is calculated with the help of annuity table which have entries corresponding to given estimated life of the asset (*n*) and a given rate of interest (*r*). A corresponding value which when multiplied by depreciable cost gives the amount of depreciation to be charged to asset account which will reduce the balance of the asset account to *nil* (assuming no scrape value) at the end of its useful life when notional interest on unexpired cost of the asset is debited to asset account every year. Hence, a fixed depreciation charge is made over the life of the asset which is sufficient to write off the cost of the asset as well as loss of interest on it. The depreciation is debited and interest is credited to profit and loss account.

CASE 3: An asset of Rs. 10, 000 with a useful life of 4 years has depreciation charged using annuity method with rate of interest of 6% p.a. the annuity table shows that the annual amount necessary to write off Re. 1 in 4 years at 6% p.a. is Rs. 0.288591.

Depreciation = Depreciable amount X annuity table value
= 10,000 X .288591
= Rs. 2.886 (Approx.)

Year	Depreciation	Less Interest	Net Amount
I	2,886	600	2,286
II	2,886	462	2,424
III	2,886	317	2,569
IV	2,886	165	2,721
Total	11,544	1,544	10,000

Table 1: Net charge to profit and loss account

DEPRECIATION FUND METHOD: Depreciation fund method, besides recovering the depreciable cost, aims to provide liquid resources for replacements of fixed assets by investing the amount depreciation outside the business. The annual depreciation is calculated by reference to the sinking fund table given the estimated useful life of asset (*n)* and rate of interest (*r*) to be received and multiplying it with the depreciable cost of asset. The sinking fund table gives the amount which needs to be invested every year at r% p.a. compounded annually to accumulate Re. 1 by the end of the estimated useful life of the asset.

Process:

Step 1: with reference to the useful life of the asset (*n*) and rate of interest (*r*), identify the corresponding figure from the sinking fund table.

Step 2: Identify the depreciable cost, i.e. cost less scrap, if any.

Step 3: Compute annual depreciation by multiplying the sinking fund figure with the depreciable cost and pass the necessary journal entries.

CASE 4: A machine is purchased for Rs. 1,10,000, expecte3d to work for 3 years after which its scrap value is estimated as Rs. 9,000. A sinking fund is established to replace the machine expecting to earn 6% interest from the investment made. Sinking fund table shows that 3141 is required to be invested every year to make Re. 1 in 3 years along with interest of 6% p.a. Investments are made in the nearest multiple of Rs. 10. At the end 3rd year, investments are realised at par and expectations about salvage etc. Also turn out to be true. Company buys the new machine for the identical amount immediately.

Step 1: sinking fund table figure = 3141

Step 2: Depreciable amount = 1,10,000 – 9,000 = 1,01,000

Step 3: Depreciation = 1,01,000 X 3141 = 31,742 (approx.)

SUM OF THE YEAR DIGIT METHOD: Sum of the year method is a variant of the reducing balance method as all of them try to charge larger amounts of depreciation in the earlier years in the life of the asset than in the latter years. Such methods are called 'Accelerated depreciation method'. The accelerated method work on the premise that some fixed assets are more valuable in their youth than in their old age because of various reasons, namely, declining efficiency, increased maintenance cost, increased chances of obsolescence, etc.

Process: Under this method, the rate of depreciation is charged on the original cost. However, the rate of depreciation of each year is a fraction in which the denominator is the sum of the digits. From 1 to n which is equal to $\frac{n(n+1)}{2}$(where n is the useful life of the asset) and numerator is for the first year n; for the second year n-1 and so on. Hence if an asset has a cost of Rs. 15,000 and useful economic life of 3 years, the depreciation in 5 years is respectively:

1st Year 5/15 X 15,000 = 5,000
2nd Year 4/15 X 15,000 = 4,000
3rd Year 3/15 X 15,000 = 3,000
4th Year 2/15 X 15,000 = 2,000
5th Year 1/15 X 15,000 = 1,000

REPAIRS PROVISION METHOD: The basic rationale behind making entry for depreciation is to provide for the replacement of the asset after the expiry of its useful life. But for an asset to last its useful life, repairs are must and hence need to be provided for. But all the above mentioned methods try to consciously recover the cost of the asset only from the profit and loss account over its useful life. They do not consciously provide for the repairs and renewals of the asset. This method is a variant of the Straight Line Method.

Process:

Step 1: Compute the yearly depreciation as = $\frac{\text{Cost of asset less scrap+Estimated repairs cost during the life of asset}}{\text{Estimated useful life of the asset}}$

And make a provision for depreciation and repairs.

Step 2: Actual repairs of all the years are transferred to provision for depreciation and repairs account. In earlier methods, the actual repairs expenses were transferred to the profit and loss account.

Step 3: At the end of the useful life of the asset, the provisions for depreciation and repairs account is transferred to the asset

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account, the final balance of which is transferred to profit and loss account after taking care of scrap, if any realized.

REVALUATION METHOD: Under the Revaluation Method, fixed assets are written down to their market value. In other words, the book value of the asset is compared to the market value. If the market value is less than the book value, the difference is written off as depreciation. However, if the market value is more than the book value, the difference should be ignored as it will amount to taking credit for unearned income which violates conservatism concept. The method is usually used for assets like loose tools, livestock etc.

Case 5: The balance of loose tools on 1-1-98 is Rs. 25,000. During the year the company acquired tools worth Rs. 8,000 and sold worth Rs. 10,000. The market value of loose tools in hand on 31-12-98 is Rs. 20,000. The depreciation to be written off will be calculated as follows:

Value of loose tools in hand as on 1-1-98 = 25,000

Add Value of loose tools acquired in 1998= +8,000

Less Value of loose tools in hand as on 31-12-98= -10,000

Less Market Value of loose tools in hand on 31-12-98= -20,000

Depreciation to be written off on loose tools = 25000+8000-10000-20000 = 3,000.

DOUBLE DECLINING METHOD: DDM owes its origin to the 1954 tax laws of the USA when its use was permitted. Under the method, companies were allowed to use double the rate allowed under SLM. Hence the method acquired its name.

Process:

Under the method, the rate is applied to the net book value of the asset at the beginning of the year where net book value is cost less total depreciation accumulated up to that time.

CASE 6: A machine is acquired costing Rs. 50,000 having estimated useful life of 5 years. The estimated salvage value of the machine after 5 years is Rs. 5,000. Rate under DD method is calculated as follows:

Step 1: Depreciable cost of the machine = 50,000 - 5,000 = 45,000

Step 2: Estimated useful life of the machine = 5 years

Step 3: Yearly depreciation = 45,000/5,000 = 9,000

Step 4: SLM rate = 9,000/50,000 X 100 = 18%

Step 5: Hence rate under DD method = 18% X 2 = 36%

INSURANCE POLICY METHOD: The biggest problem with the depreciation fund method is that investments may not yield the same interest as already envisaged and realized value of the of the investments at the end may fall short of asset's cost due to market fluctuation. To overcome these problems, an insurance policy may be taken ensuring a fixed sum at the expiry of the period. The interest is accumulated and released at the time of surrender/maturity of the policy. No entry for interest is done under the method. The Insurance Policy Method makes is possible to accumulate the funds identically equal to the cost of the old asset by taking policy for the same amount.

This method is suitable for those assets whose life is predetermined with reasonable accuracy and is advisable especially if markets are behaving erratically. In such situations, Insurance policy would provide the best hedging against the vagaries of the market.

MACHINE HOUR RATE METHOD: Under this method, the hourly rate of depreciation is calculated. The actual depreciation for any given period depends on the number of working hours during that year.

The special feature is that the life of the asset is found not in years but in hours. This system is useful in textiles, jute mills etc.

Process:

The cost of the asset (less residual value, if any) is divided by the estimated working hours.

$$\text{Depreciation per hour} = \frac{\text{Original cost of asset - scrap value,if any}}{\text{Estimated life of the asset in hours}}$$

Case 7: Machine costing Rs. 58,000 with total expected working life of 1, 00,000 hours has an estimated scrap value of Rs. 3,000. During the year of purchase the machine worked for 1200 hours. Depreciation will be calculated as follows: Expected working life of machine = 100000 hours

Cost of machine = 58000

Scrap value = 3000

$$\text{Hourly rate of depreciation} = \frac{\text{Original cost of asset - scrap value,if any}}{\text{Estimated life of the asset in hours}}$$

$$= \frac{Rs.58,000-3,000}{1,00,000} = 0.55 \text{ paisa per hour}$$

Depreciation for the year = 1200 X 0.55 = Rs. 660.

V. CONCLUSION

Depreciation is a charge against profit. There is always a loss in the value of an asset with the passage of time. An asset loses its worth irrespective of the fact that whether it is being utilized or kept idle in the business. Therefore depreciation is an important component while calculating financial statements of the company.

Different depreciation methods yield different outcomes. 'The best method' is different for different companies. Choice of the method totally depends on the nature of the business and its assets and also on the members of the firm. There are various factors that affect the selection of the best method for the firm. Therefore any method can be chosen, that suits best to the company.

REFERENCES

[1] Budugan, D. (2002) Contabilitate şi control de gestiune, Editura Sedcom Libris, Iaşi, pp. 213-214

[2] Călin, O.; Man, M., Nedelcu, M.V. (2008) Contabilitate managerială, Editura Didactică și Pedagogică, București

[3] De Ronge, Y.; Cerrada, K. (2009), Contrôle de gestion, 2e édition, Pearson Education, Paris

[4] Manea, M.; Drăgoi, E.V. (2010) Depreciation test of fixed assets – necessity, indices of value loss, certainty and frequency of assessment evaluation, Conferinţa internaţională - Economia contemporană şi realităţile româneşti, Ediţia a V a, Bacău, pp.74-80

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