

ACCOUNTING 101

CHAPTER 8: LONG-TERM ASSETS

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Plant assets

Plant assets, also known as fixed assets or property, plant and equipment, have three defining characteristics. They are

1. Tangible
2. Used in business operations, and
3. Have useful lives greater than one year.

In Chapter 8, we will study the lifecycle of a plant asset. The lifecycle of a plant asset can be summarized as follows:

1. The purchase of a plant asset and determining its cost
2. The allocation of the plant asset's cost to the periods benefitted (depreciation)
3. Accounting for repairs and improvements to the plant asset
4. Accounting for the disposal of the plant asset.

Determining the cost of a plant asset

Plant assets are recorded at cost. This is consistent with the cost principle. Costs include not only the purchase price, but all costs necessary to get the plant asset ready for its intended use. The following summarizes many of the expenditures that are *capitalized* (added to the purchase price of the plant asset) to determine the cost of the plant asset.

Plant asset

Capitalized costs

Land	Purchase price; real estate commissions; title fees; legal fees; accrued property taxes paid by the buyer. Costs paid for surveying, grading, and removing existing structures are also capitalized.
Land improvements	Costs for parking lot surfaces, driveways, fencing, plants and shrubs, and lighting systems.
Buildings	Purchase price; brokerage fees, taxes, title fees, attorney fees, and necessary renovations. Design or architectural fees are also capitalized.
Machinery and Equipment	Purchase price, taxes, freight, and installation and testing the equipment.
Lump-Sum Purchase	In a lump sum purchase, various assets are purchased for a single price. Costs are allocated to each asset based on relative market

	values.
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Any costs paid to repair assets damaged during installation are recorded as expense.

Depreciation Methods

The factors that determine depreciation are cost, salvage value and useful life. The three most widely used methods that are acceptable under generally accepted accounting principles are (1) the straight-line method, (2) the units-of-production method, and (3) the declining-balance method. They are described below.

Straight-Line Method

Units-of-Production Method

Declining-Balance Method

<p>The same amount of depreciation expense is charged each full year the asset is used.</p>	<p>A different amount of depreciation is recorded depending on the plant asset's usage.</p>	<p>This method is called an accelerated method as it results in more depreciation expense in the early years of a plant asset's life and less depreciation in the latter years of its life.</p>
<p>The formula for straight-line depreciation is: (Cost-Savage Value) divided by useful life in periods.</p>	<p>A two-step process is needed to compute depreciation:</p> <ol style="list-style-type: none"> (1) Calculate depreciation per unit: (Cost-Salvage Value) divided by total units of production. (2) Multiply depreciation per unit by the number of units produced. 	<p>A three-step process is needed to compute depreciation:</p> <ol style="list-style-type: none"> (1) Calculate the straight-line rate (percentage) (2) Double the straight-line rate (percentage) (3) Multiply the rate (percentage) determined in step 2 by the asset's book value. The book value is its cost less accumulated depreciation. <p>Salvage value is not considered. However, depreciation stops once the book value equals the salvage value.</p>

Example: On January 1, Horizon Corporation installs a machine costing \$67,000. The machine has an estimated useful life of ten years, or 420,000 units of product, and a \$4,000 salvage value. During the year, the machine produced 29,900 units of product.

Depreciation for the year ended December 31 using each of these methods would be calculated as follows.

Straight-line: $(\$67,000 - \$4,000) / 10 = \underline{\$6,300}$

Units of Production:

(1) Depreciation per unit = $(\$67,000 - \$4,000) / 420,000 \text{ units} = \0.15

(2) Depreciation expense = $\$0.15 * 29,900 \text{ units produced} = \underline{\$4,485}$

Double-Declining Balance:

(1) Straight-line rate = $1/10 \text{ years} = 10\%$

(2) Declining balance rate = $10\% * 2 = 20\%$

(3) Depreciation expense = $20\% * \text{Book Value} = 20\% * (\$67,000 - \$0 \text{ accumulated depreciation}) = 20\% * \$67,000 = \underline{\$13,400}$

Depreciation is recorded with a debit to Depreciation Expense and a credit to a contra-asset account called Accumulated Depreciation.

If management changes its estimated useful life or estimated salvage value of a plant asset, the change is accounted for as a change in accounting estimate. Depreciation in the years following the change in estimate would be calculated as follows:

Book value in year of change in estimate – revised salvage value / Revised remaining life

Additional expenditures

The accounting for costs to maintain, repair, or improve plant and equipment is summarized below.

- Ordinary repairs and maintenance, sometimes called revenue expenditures, are recorded as expense.
- Improvements (betterments) are expenditures to make a plant asset more efficient or productive. They are capitalized (added to the cost of the plant asset).
- Extraordinary repairs extend the asset's life beyond its original estimated useful life. Their costs are capitalized or charged to accumulated depreciation.

Disposals of plant assets

A plant asset may be disposed of in three ways:

1. Discarded, with no cash received
2. Sold for cash
3. Traded in

In ACCT 101 we will review the accounting for assets discarded or sold for cash. Accounting for assets traded in will not be covered.

The accounting for plant asset disposals requires two journal entries: One to bring depreciation up to date and (2) a second journal entry to record the disposal.

Upon disposal, the plant asset's cost and related accumulated depreciation should be removed from the books. Any cash received is recorded. If the cash received is greater than the book value of the asset disposed, the company will record a gain. If the cash received is less than the book value of the asset disposed, the company will record a loss. These gains or losses are reported as "Other Income" or "Other Expense," respectively, in the income statement.

Example: A company owns equipment that cost \$8,000, and that had accumulated depreciation of \$6,000 as of January 1. This equipment is depreciated at a rate of \$1,000 annually. On July 1, it is sold for \$3,500 cash. After depreciation is updated, the equipment has a book value of \$1,500 (cost of \$8,000 less accumulated depreciation of \$6,500).

The company would record a gain of \$2,000 (cash received of \$3,500 less book value of \$1,500). The necessary journal entries to bring depreciation up to date and to record the sale would be:

July 1	Depreciation Expense	500	
	Accumulated Depreciation		500
	(1/2 year * \$1,000 annual depreciation)		
July 1	Cash	3,500	
	Accumulated Depreciation (\$6,000 + \$500)	6,500	
	Equipment (cost)		8,000
	Gain on Disposal of Equipment		2,000

Natural Resources

Assets that are physically consumed when used are called natural resources. They include timber, mineral deposits such as copper, and oil and gas.

All costs necessary to acquire the natural resource asset, and prepare it for its intended use, are capitalized. Once activity begins, the natural resource asset is *depleted* on the books. Depletion is similar to depreciation for fixed assets. Natural resource assets are depleted using the units-of- production method discussed earlier. The journal entry to record depletion debits Depletion Expense and credits Accumulated Depletion.

Intangible Assets

Intangible assets are nonphysical assets, used in operations, which provide rights, privileges, or competitive advantage to their owners. For example, a patent issued by the federal government gives the patent holder an exclusive right to sell the product under patent. If the intangible asset has a limited life, it is *amortized* over that life. Amortization is similar to depreciation for fixed assets. Intangible assets are amortized using the straight-line method. The journal entry to record amortization debits Amortization Expense and credits Accumulated Amortization. The following intangible assets are amortized.

Intangible asset

Description

Patent	An exclusive right granted to the patent holder to sell a patented item. The maximum legal life of a patent is 20 years.
Copyrights	An exclusive right to publish and sell a musical, literary or artistic work.
Franchises and Licenses	Rights given by a company to deliver a product of service, under specified conditions. Examples include Pizza Hut and McDonald's. Most franchise agreements have limited lives.
Leasehold improvements	Improvements to leased property.

Some intangible assets do not have a limited life. For example, a trademark, such as the Nike “swoosh,” gives Nike the exclusive right to use the swoosh on its products and in its marketing. Although the trademark has a limited life, it is easily renewable and is not amortized.

Another intangible that is not amortized is goodwill. Goodwill is recorded when one company purchases another company. Goodwill is calculated as the cost paid to purchase the company, less the acquired company’s net asset values. For example, if Parent Company paid \$1,000,000 to acquire Subsidiary Company’s net assets of \$900,000, the remaining \$100,000 would be recorded as Goodwill on Parent Company’s books.

Goodwill is not amortized but is tested for impairment, a subject covered in Intermediate Accounting courses.