**unit 5. disposal of plant assets**

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**5.0 Aims and Objectives**

This unit aims at discussing the meaning of disposing of plant assets, the different ways of disposing plant assets, and the accounting procedures involved in recording transactions relating to the discarding sale and exchange of plant or (fixed) assets.

After going through this unit, you will be able to;

* + - understand the concept of disposing of plant assets.
		- examine the different ways of disposing of plant assets.
		- analyze and record the transactions involving the discarding, sale, and exchange of plant assets.
		- differentiate accounting for financial reporting from accounting for income tax with respect of exchange of plant assets.

**5.1 Introduction**

So far we have seen how to account for property, plant, and equipment assets, from calculating acquisitions cost to depreciating this cost up to the end of the asset’s useful life. Plant assets, such as equipment, delivery trucks, or machineries cannot be used forever. The assets may wear out or the business may replace them with newer model. When a plant asset is no longer useful to a business the asset may be disposed of either through discarding, sale, or traded-in with similar) or dissimilar) assets. This chapter therefore, is presented this concept in detail.

**5.2 disposals of plant assets**

A plant asset rarely lasts exactly as long as its estimated life. If it lasts longer than its estimated life, it is not depreciated past the point at which its carrying value equals its residual value. The purpose of depreciation is to spread the depreciable cost of the asset over the economic life of the asset. Thus, the total accumulated depreciation should never exceed the total depreciable cost. If the asset is still used in the business beyond the end of its estimated life, its cost and accumulated depreciation remain in the ledger accounts. Proper records will thus be available for maintaining control over plant assets. If the residual value is zero, the book value of a fully depreciated asset is zero until the asset is disposed off. If such an asset is discarded, no gain or loss results. A plant asset may be disposed by:

(1) Discarding it as worthless; (2) Selling it; or (3) Trading it in on a new asset

**5.2.1 Recording Discarding of a Plant Asset**

If a plant asset is of no further use to the business and cannot be sold or traded, then the plant asset is discarded. If the asset has no book value. (i.e., if it is fully depreciated), the plant asset account is credited for the amount of the original cost of the item being discarded. At the same time, the accumulated depreciation account is debited for the amount of the total accumulated depreciation of the item being discarded. In this case neither gain nor loss is realized. On the other hand, if a plant asset has a book value (if not fully depreciated) at the time it is discarded, the business incurs a loss.

***Illustration - 1***

Suppose for example, on July 5, year 5, equipment that was acquired On Jan 10, year 1, at a cost of Br. 11,000, is discarded as worthless. The discarded equipment has a carrying value of Br. 2000 at the time of disposal. The carrying value is computed as the difference between the cost of asset Br. 11,000 and accumulated deprecation, Br. 9000. A loss equal to the carrying value should be recorded when the equipment is discarded.

***Solution:***

The journal entry required to discard the plant asset as of July 5, year 5, is:

 **Year 5**

 July 5. Accumulated Deprecation, Equipment …………9000.00

 Loss on disposal of plant Asset…………………2000.00

 Equipment ……………………………….11000.00

 *Discarding Equipment no longer used in the business.*

**5.2.2 Recording the Sale of Plant Asset**

The entry to record the sale of an asset for cash is similar to the one illustrated above except that the receipt of cash should also be recorded. The following entries show how to record the sale of equipment under three assumptions about the selling price. In the first case, the Br. 2000 cash received is exactly equal to the book value of the equipment (which is equal to Br. 2000).

**Case 1**. Sold at an amount equal to Book value, Br. 2000, no gain or loss results.

 **Year 5**

July 5. Cash ……………………………………2000.00

 Accumulated Depreciation, Equip……...9000.00

 Equipment ………………………………..11000.00

 *Sale of equipment at an amount equal to book value*

**Case 2.** Sold at Br. 1500 cash; Loss of Br. 500, (BV = Br. 2000)

 **Year 5**

 July 5. Loss on sale of equipment………………….500.00

 Accumulated Depreciation……………………… 9000.00

 Cash ……………………………………………….1500.00

 Equipment…………………………………11000.00

 *Sale of equipment at less than the book value. Loss of Br. 500*

**Case 3.** Sold at Br. 3000 cash; gain of Br. 1000, cash received through

 Sale less book value of the asset (Br. 3000 – Br. 2000)

 **Year 5**

July 5.

 Cash ……………………………………….3000.00

 Accumulated Depr, Equipment……………9000.00

 Equipment……………………………………………..11000.00

 Gain on sale of plant asset……………………………...1000.00

*Sale of equipment at more than the book value; gain of Br. 1000,*

 *(Br. 3000 – Br.2000) recorded*

* + 1. **Recording Exchange of Plant Assets**

Businesses also dispose of plant assets by trading them in on the purchase of other plant assets. Exchanges may involve similar assets, such as an old machine traded-in on a newer model, or dissimilar assets, such as a machine traded-in on a truck. In either case, the purchase price is reduced by the amount of the trade-in allowance.

The basic accounting for exchanges of plant assets is similar to accounting for sales of plant assets for cash. If the trade-in allowance received is greater than the carrying value of the assets surrendered, there has been a gain. If the trade-in allowance is less than the carrying value, there has been a loss.

There are special rules for recognizing these gains and losses, depending on the nature of the assets exchanged.

**Exchange**  **Losses**  **Gains**

 **Recognized** **Recognized**

***For Financial Reporting Purposes:***

* Of similar assets………………………… Yes……………………………….No
* Of Dissimilar assets……………………….. Yes…………………………….. Yes

***For Income Tax purposes:***

* Of similar assets…………………………… No………………………….. No
* Of dissimilar assets………………………… Yes……………………… Yes

Both Gains and Losses are recognized when a company exchanges dissimilar assets. Assets are dissimilar when they perform different functions; assets are similar when they perform the same function.

For financials reporting purposes, gains on exchanges of similar assets are not recognized because the earning lives of the asset surrendered are not considered to be completed.

When a company trades-in an older machine on a newer machine of the same type, the economic substance of the transaction is the same as that of a major renovation and upgrading of the older machine.

Accounting for exchange of similar assets is complicated by the fact that neither gains nor losses are recognized for income tax purposes.

***Loss Recognized on the Exchange***

A loss is recognized for financial reporting purposes on all exchange in which a material loss occurs.

***Illustration-2***

To illustrate the recognition of a loss, assume that the business exchange a machine with a cost of Br. 11,000, and accumulated depreciation of Br. 9000 for a newer more modern machine on the following terms:

Cost of new machine ………………………Birr 12000.

 Trade-in Allowance for old machine……………(1500)

 Cash payment required (Boot)……………..Birr 10500.

***Solution***

In the illustration above, the trade-in allowance (1500) is less than the carrying value (Br. 2000) of the old machine. The loss on the exchange is Br. 500, (Br. 2000 – Br. 1500). Therefore, the journal entry required to record the exchange of assets would be as follows:

 **Year 5**.

 July 5. Equipment (New)……………………..120,00.00

 Accum. Depreciation-Equip…………………...9,000.00

 Loss on Exchange of plant assets………………. 500.00

 Equipment (old)……………………………………11,000.00

 Cash…………………………….…………………. 10,500.00

**Check Your Progress Exercise -1**

1. What is the justification for the non-recognition of gains? That results from the exchange of similar assets?

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

***Loss Not Recognized on the Exchange***

In the previous illustration, in which a loss was recognized, the new asset was recorded at the purchase price of Br. 12000 and a loss of Br. 500 was recognized. If the transaction is for similar assets and is to be recorded for income tax purpose, the loss should not be recognized. In this case, the cost basis of the new asset will reflect the effect of the unrecorded loss. The cost basis for the new asset, therefore, is computed by adding the cash payment to the carrying value of the old asset:

 Carrying (Book) value of old Equipment……………………..Birr 2,000.00

 Cash paid (Boot given)………………………………………… 10,500.00

 Cost-basis of new Equipment ……………………………… Birr 12,500.00

Note that no loss is recognized in the entry to record this transaction.

 Year 5.

 July 5. Equipment (New)……………………………….12,500.00

 Accumulated Depreciation……………………… 9,000.00

 Equipment (old)……………………………11,000.00

 Cash……………………………………….. 10,500.00

*To record exchange of Equipments - cost of old Equipments*

 *and its related Accumulated Depreciation removed from the*

 *accounts; new equipment recorded at amount equal to book*

*value of old equipment plus boot given.*

**NB**. The new equipment is recorded (reported) at a purchase price of Br. 12000 plus the unrecognized loss of Br. 500. the post postponement of the loss. Since depreciation of the new equipment will be computed based on a cost of Br. 12500 instead of Br. 12000, the “unrecognized” loss results in more depreciation each year on a new equipment than the loss had been recognized.

***Gain Recognized on the Exchange***

Gains on exchanges are recognized for financial reporting purposes when dissimilar assets are exchanged. To illustrate the recognition of a gain, assume the following terms in which the machines being exchanged serve different functions:

Price of new machine………………………………Birr 12,000.00

 Trade-in Allowance for old machine………………….(3000)

 Cash payment required (Boot given)……………….Birr 9,000.00

Here the trade-in allowance (Br. 3000) exceeds the carrying value (Br. 2000) of the old machine by Br. 1000. thus, there is a gain on the exchange, if the trade-in allowance represents the fair mark value of the old machine. Assuming that this condition is true, the entry to record the transaction is as follows:

 **Years 5**

 July 5. Equipment (New)……………………………12,000

 Accumulated Depreciation…………………….9,000

 Equipment (old)………………………….11,000

 Cash ……………………………………… 9,000

 Gain on exchange of Equip………………..1,000

*To record the exchange of Equipments to remove*

 *cost of old equipment and the related accumulated*

 *depreciation, new equipment recorded at cost price;*

 *gain recognized*.

***Gain Not Recognized on the Exchange:***

A gain on an exchange should not be recognized in the accounting records if the assets perform similar functions. The cost basis for the new equipment must indicate the effect of the unrecorded gain. This cost basis is computed by adding the cash payment to the carrying value of the old asset:

Carrying value of old equipment …………………………..Birr 2,000.00

Cash paid (Boot Given)………………………………………… 9,000.00

Cost basis of new Equipment……………………………. Birr 11,000.00

The entry to record the transaction is as follows:

####  Year 5

July 5. Equipment (New)……………………………..11,000.00

 Accumulated Depreciation…………………… 9,000.00

 Equipment (old)…………………………………..11,000.00

 Cash…………………………………………………9,000.00

*To record exchange of Equipment to remove the cost of old*

*equipment and the related accum. depr. of old assets; new*

*equipment recorded at a cost equal to BV of old asset plus cash paid.*

As with the no recognition of losses, the no recognition of the gain on exchanges is, in effect, a postponement of the gain. Since depreciation will be computed on the cost basis of Br. 11,000, the “unrecognized” gain is reflected in less deprecation each year on new equipment than if the gain had been recognized.

***Illustrative Problem****:*

ABC Corporation acquired machine X for Br. 84,000 on January 10.1999. Machine X had an estimated useful life of six years with no salvaged value. The machine was depreciated on the basis of Sum-of-the-years-digits’ method. On May 5, 2002, machine X was exchanged for another similar machine Y. The new machine had a cash price of Br. 95,000. In addition to Machine X, cash of Br. 25,000 and three notes for Br. 45,000 was given up in the exchange. Machine Y has an estimated useful life of seven years and salvage value of Br. 1000. Machine Y is to be depreciated using the straight-line method. The corporation had the experience of recording the exchange for financial reporting purposes.

***Required:*** With reference to the above information:

1. Compute the cost-basis for Machine Y in line with corporation experience.
2. Pass the journal entry made by ABC Corporation to record the exchange of the machine.
3. Compute the depreciation expense to be made on Machine Y for 2002 fiscal year ending Dec. 31 for financial reporting purpose.
4. Compute the cost-basis of Machine Y for income tax regulation.
5. Pass the journal entry to record the exchange for purposes of income tax regulation.

***Solution to Illustrative Problem:***

1. Depreciation for the year 1999, on Machine X is:

 n(n + 1) = 6(6 + 1) = 21

 2 2

 6 X 84,000 = …………………………………………24,000.00

 21

* Depreciation for 2000, 5/2 X 84,000………………………………. 20,000.00
* Depreciation for 2001, 4/21 X 84,000……………………………. 16,000.00
* Depreciation for 2002 (for four months only) 3/12 X 84,000 X 4/12 . 4,000.00
	+ Total Accumulated Depreciation as of May 5, 2002, Br. 64,000.00

 **Old Equipment Traded-In (Machine X)**

 Cost…………………………………………………………Birr 84,000

 Accumulated Depreciation, May 5, 2002………………………..64,000

 Book Value………………………………………………… Birr 20,000

 **New Equipment Traded-In (Machine Y)**

 Purchase (List) price…………………………………….Birr 95,000

* Trade-in Allowance on old Machine…………………………25,000

 Boot Given (cash + Notes)……………………………… Br 70,000

Therefore, the cost-basis of Machine Y can be obtained by adding the Book Value and the amount of Boot given which is ; Br. 20,000 + 70,000 = Br. 90,000. There is unrecognized gain on the exchange.

(2) 2002

 May 5. Machine Y…………………………………..90,000.00

 Accumulated Depreciation ………………….64,000.00

 Machine X……………………………………………...84,000.00

 Cash…………………………………………………….25,000.00

 Notes payable…………………………………………..45,000.00

3. Depreciation Expense on Machine Y for year ending Dec. 31,2002 by the straight line method is:

 Ann. Depr. = Br. 90,000.00 – Br. 1000.00 = Br. 12714.29, since the Machine is employed in

 7 Years

service after four months had been elapsed, the depreciation for 8 months, (May through

 Dec. 31) would be:

 Br. 12714.29 X 8/12 = Br. 8476.20

4. The cost-basis for Machine Y for income tax regulation is:

Since gains and losses resulting from the exchange of similar assets are not recognized for income tax purposes, the cost basis of the Machine is the same that is Br. 90,000.

5. Journal entry to record the exchange of machine Y for purposes of income tax regulation would be:

 2002

 May 5. Machine Y………………………………………………90,000

 Accumulated Depreciation, Machine X…………………64,000

Machine X…………………………………………. 84,000

Cash …………………………………………………25,000

Notes Payable……………………………. …………45,000

**5.3 Accounting For Intangible assets and natural resources**

***Intangible Assets****:* are long-term assets that do not have physical substance and in most cases relate to legal rights or advantages held.

Intangible assets include patents, copyrights, trademarks, franchises, organization costs, leaseholds, leasehold improvements, and goodwill. The allocation of intangible assets to the periods they benefits is called ***amortization.***

Intangible assets are accounted for at acquisition cost, that is, the amount paid for them. Some intangible assets such as goodwill and trademarks may be acquired at little or no cost. Even though they may have great value and be needed for profitable operations they should not appear on the balance sheet unless they have been purchased from another party at a price established in the market place.

The, Accounting Principles Board (APB) has decided that a company should record as assets the costs of Intangible assets acquired from others. However, the company should record as expenses the cost of developing intangible assets. Also, intangible assets that have a determinable useful life such as patents, copyrights, and leaseholds, should be written off through periodic amortization over that useful life in much the same way that plant assets are depreciated.

Even though some intangible assets, such as goodwill and trademarks, have no measurable limit on their lives, they should also be amortized over a reasonable length of time (not to exceed forty years).

***Illustration - 3***

Assume that on Jan 2,2002 MOHA Soft Drink Bottling company purchased a patent on a unique bottle cap for Br. 54,000.

The entry to record the patent would be as follows:

 2002

 Jan 2. Patent……………………………..54,000

 Cash……………………………………..54,000

 *To record the purchase of Bottle cap patent*

Assume that MOHA’s management determines that, although the patent for the bottle cap will last for seventeen years, the product using the cap will be sold only for the next six years. The entry to record the annual amortization would be as follows:

Amortization Expense………………………..9,000.00

 Patent……………………………………………9,000.00

*To record annual amortization of patent (Br. 54000/ 6 years)*

Note that the patent account is reduced directly by the amount of the amortization expense. This is in contrast to other long-term asset accounts in which depreciation or depletion is accumulated in a separate contra account.

If the patent becomes worthless before it is fully amortized, the remaining carrying value is written off as a loss. For instance, assume that after the first two years MOHA soft Drink Bottling Company’s chief competitor’s offers a bottle with a new type of cap that makes MOHA’s cap obsolete. The entry to record the loss is:

 Loss on patent……………………………36,000.00

 Patent……………………………………36,000.00

 To record the loss resulting from patents becoming worthless.

***Depletion of Natural Resources***

We now turn our attention to another group of long-lived assets natural resources, such as minerals, oil, and timber or lumber. These natural resources are extracted from the earth.

Depletion is the accounting measure used to allocate the acquisition cost of natural resources. Depletion differs from depreciation because depletion focuses specifically on the physical use and exhaustion of the natural resources, while depreciation focuses more broadly on any reduction of the economic value of a plant or fixed asset. The costs of natural resources are usually classified as long-terms assets.

Depletion expense is the measure of that portion of long-term assets that is used up in a particular period.

***Illustration - 4***

Suppose for example, MIDROC Construction has acquired the right to use 10,000 acres of land in Kibre-Mengist territory to mine for gold at a total cost of, Br. 10,000.000. The Company estimated that the mine will; provide approximately 500,000 grams of gold. The depletion rate established is computed in the following manner.

 Total cost – Salvage value = Depletion cost per unit.

 Total estimated units available

 Br. 10,000,000 = Br. 20 per gram

 500,000 units

If 100,000 grams are extracted in the first year, then the depletion for the year is 2000.000 (1000,000 x Br. 20.00). The entry to record the depletion is therefore:

Depletion Expense…………………..2,000,000

Accumulated Depletion……………………….2,000,000

**Check Your Progress Exercise - 2**

1. Distinguish between amortization and depletion.

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**5.4. summary**

Plant assets, such aw equipments, trucks, or machineries, cannot be used forever. The assets may wear out or the business may replace them with newer models. When a fixed asset is no longer useful to a business, the asset may be disposed of by: (1) discarding it as worthless; (2) selling it: or (3) trading it in on a new asset.

If a plant asset is of no further use to the business and cannot be sold or traded, then the plant asset is discarded. If the asset is fully depreciated, no loss or gain is recognized. Otherwise, if the asset is not fully depreciated at the time of disposal, the business incurs a loss.

Another means of disposing of a plant asset is sale of plant asset. While selling plant assets, if the selling price exceeds the book (carrying) value of the asset, there is a gain, and the gain should be reported in the income statement for the period under other income section because it results from no operating activities. On the other hand, if the cash received through sales of plant asset is less than the book (carrying) value of the asset sold, there is a loss, and this loss is reported among the other expense section on the income statement. If the amount of cash received through sale of a plant assert is exactly equal to the book value of the asset, neither gain nor loss is realized.

Business also dispose of plant assets by trading them in on the purchase of other plant assets- Exchanges may involve similar assets that serves the same function, or it may involve dissimilar assets that serve different functions.

The basic accounting for exchanges of plant assets is similar to accounting for sales of plant assets for cash. If the trade-in allowance received on old asset is greater than the carrying (book) value of the asset surrendered, there has been a gain. In contrast, if the trade-in allowance is less than the carrying (book) value, there has been a loss.

There are special rules for recognizing these gains and losses, depending on the nature of the assets exchanged.

If the assets exchanged are dissimilar (perform different functions), both gains and loses are recognized. If the assets exchanged are similar (perform the same function), loss on exchanges is recognized, but if the exchange results in a gain, the gain should not be recognized for financial reporting purposes.

For income tax purposes, neither gain nor loss is recognized from the exchange of similar assets. However, income tax law allows the recognition of both gains and losses from the exchange of dissimilar assets.

The chapter also discussed accounting for intangible assets and natural resources. Intangible assets are long-term assets without a physical substance, and inmost cases related to legal rights or advantages held. Intangible assets include patents, copyrights, trademarks, franchising, organization costs, leaseholds, leasehold improvements, and goodwill. The cost allocation of intangible assets to the periods they benefit is called amortization.

Natural resources are another group of long-term assets that are extracted from the earth such as minerals, oils, (or petroleum), and timber (or lumber). The periodic cost allocation of these natural resources is referred to as ***depletion***.

Unlike plant assets, natural resources are consumed physically over the period of use and do not maintain their physical characteristics.

**5.5 answers to check your progress exercises**

***Check Your Progress Exercise 1***

1. Gains on exchanges of similar assets are not recognized for financial reporting purposes because the earning lives of the asset surrendered are not considered to be completed.

***Check Your Progress Exercise 2***

1. Amortization is the periodic cost allocation of intangible assets to the periods that benefit from the assets.

Whereas, depletion is the process of allocating the cost of natural resources tot he periods in which the resources are used.

**5.6 model examination questions**

**type a** – Answer the Following Questions:

1. Explain the accounting procedures for discarding of plant assets.
2. Explain the entries required in selling a plant asset for cash.
3. Distinguish between amortization and depletion.
4. What is meant by Intangible Asset?

**Type b** – Choose the best answer for the following questions:

1. If plant asset is retired before it is fully depreciated, and no salvage value or scrap value is received.
	1. a gain on disposal will be recorded
	2. Loss on disposal will be recorded
	3. Neither gain nor loss on disposal will be recorded
	4. All of the above.
2. One of the following is not an example of intangible assets.

 A) patents B) Franchise C) Trademarks

 D) Organization cost E) None

1. A plant asset priced at Br. 100,000 is acquired by trade-in a similar asset that has a book value of Br. 25,000. Assuming that the trade-in allowance is Br. 30,000 and that Br. 70,000 cash is paid for the new asset. What is the cost basis for the new assets for financial reporting purpose?

A) Br. 100,000 B) Br. 70,000 C) Br. 30,000

D) Br. 125,000 E) Non

1. Good will in the amount of Br. 60,000 was purchased on January 15, the first month of the fiscal year. It is decided to amortize over the maximum period allowable. The current amortization expense would be:

A) Br. 5000 C) Br. 1,500

B) Br. 6000 D) Br. 10,000 E) None

**Type c**- Work out the following problem:

1. Sold a truck for Br. 950.00. The truck had been purchased two years ago on January 2 for Br. 2300.00.The amount of depreciation is Br. 400.00 a year. Accumulated depreciation for that amount was recorded at the end of the two previous years.
	1. Record the depreciation for the current year to June 30.
	2. Record the sale of the truck.
2. Discarded office equipments for which there was no further use and which could not be sold. The office equipment cost Br. 160.00 and had a book value of Br. 20.00 at the time was discarded.

**5.7 recommended (reference) books**

**1. Fees and Warren** : Principles of Accounting, 16 Edition

**2. Horngren, Sundem** : Introduction to Financial Accounting and Elliot 8th Edition, (2002) Parson Education Inc.

**3. Roger H. Hermanson,** : Accounting Principles, 4th Edition ,1989,

 Jems D, Edwards and: IRWIN Inc.

 **4. R.F. Salmonson** : Principles of Accounting , 14th Edition.

 **5. Kieso and Weygandt** : Intermediate Accounting, 9th Edition,

 (998) John Wiley & sons ,Inc.

**5.8 glossary**

**1. Amortization:** When referring to long-lived assets, it usually means the allocation of the costs of intangible assets to the periods that benefits from these intangible assets.

**2. APB Opinions**: A series of thirty-one opinions of the accounting principles Board, many of which are still the “accounting law of the land.”

**3. Depletion:** The process of allocating the cost of natural resources to the periods in which the resources are used.

**4. Franchises (Licenses):** Privileges granted by a government, manufacturer, or distributor to sell a product or service in accordance with specified conditions.

**5. Goodwill:** The excess of the cost of an acquired company over the sum of the fair market value of its identifiable individual assets less the liability.

**6. Leasehold**: The right to use a fixed asset for a specified period of time, typically beyond one year.

**7. Leasehold Improvement:** Investments by a lessee in items that are not permitted to be removed from the premises when a lease expires, such as installation of new fixtures, panels, walls and air-condition equipment.

**8. Patents:** Granted by the federal government to an invent bestowing (in the united states) the exclusive right for 17 years to produce and sell the in invention.

**9. Trademarks:** Distinctive identification of a manufactured product or of a service taking the form of a name, a sign, a slogan, a logo, or an emblem.