

PRINCIPLES OF ACCOUNTING

CHAPTER 10

FIXED ASSETS AND INTANGIBLE ASSETS

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Chapter Introduction

CHAPTER OVERVIEW

Businesses use long-term assets across virtually every part of their operations:

- Produce goods
- Provide services
- Transport employees and products
- Store inventory
- Support administrative operations
- Generate revenue over several periods

These assets require accounting procedures different from those applied to current assets.

Why This Chapter Matters

CHAPTER OVERVIEW

Fixed and intangible assets may represent a substantial part of an organization's total assets. Incorrect accounting may materially affect:

- Asset balances
- Depreciation expense
- Amortization expense
- Gains and losses
- Net income
- Owner's equity
- Financial ratios
- Management decisions

Opening Business Case

CHAPTER OVERVIEW

An airline acquires aircraft, airport equipment, computer systems and route rights.

MANAGEMENT MUST DETERMINE

- Which costs should be capitalized
- Which costs should be expensed
- How depreciation should be calculated
- How assets should be reported
- How gains or losses should be recorded when assets are sold

Central Accounting Question

CHAPTER OVERVIEW

How should a business recognize, allocate, dispose of and report the costs of tangible and intangible resources that provide benefits over several accounting periods?

Learning Objectives

CHAPTER OVERVIEW

By the end of this chapter, students will be able to:

1. Define and classify fixed assets.
2. Determine the cost of fixed assets.
3. Distinguish capital from revenue expenditures.
4. Calculate depreciation using three methods.
5. Revise depreciation estimates.
6. Record the disposal of fixed assets.
7. Calculate and record depletion.
8. Account for patents, copyrights, trademarks and goodwill.
9. Report fixed and intangible assets in the financial statements.
10. Calculate and interpret fixed-asset turnover.
11. Apply the supplementary depreciation and exchange methods.

Chapter Roadmap

CHAPTER OVERVIEW

1. Nature of fixed assets
2. Classification of costs
3. Cost of fixed assets
4. Capital and revenue expenditures
5. Leasing fixed assets
6. Accounting for depreciation
7. Depreciation methods
8. Revision of estimates
9. Disposal of fixed assets
10. Natural resources
11. Intangible assets
12. Financial reporting
13. Fixed-asset turnover
14. Chapter appendices

Opening Reflection

CHAPTER OVERVIEW

A business purchases machinery for ETB 900,000. It also pays freight ETB 30,000, installation ETB 45,000, testing ETB 15,000 and annual insurance ETB 12,000.

QUESTIONS

- What amount should be recorded as Machinery?
- Which cost should be expensed?
- When should depreciation begin?
- How should the asset appear on the Balance Sheet?

What Are Fixed Assets?

SECTION 1 • NATURE OF FIXED ASSETS

Fixed assets are long-term tangible resources that are:

- Physically identifiable
- Owned and used by the business
- Used in normal operations
- Not normally purchased for resale
- Expected to provide benefits for more than one period

Also called plant assets or property, plant and equipment.

Main Characteristics

SECTION 1 • NATURE OF FIXED ASSETS

Physical substance

Fixed assets can be seen and touched.

Used in operations

They serve the normal activities of the business.

Not held for resale

They are not part of ordinary merchandise inventory.

Multi-period benefit

They provide service over several accounting periods.

Examples of Fixed Assets

SECTION 1 · NATURE OF FIXED ASSETS

- Land
- Buildings
- Machinery
- Factory equipment
- Office equipment
- Furniture
- Computers
- Vehicles
- Aircraft
- Land improvements

Fixed Assets versus Current Assets

SECTION 1 • NATURE OF FIXED ASSETS

Fixed Assets	Current Assets
Used for several periods	Used, sold or collected in the short term
Support operations	Support the operating cycle
Normally depreciated	Normally not depreciated
Not held for resale	May be held for sale
Examples: equipment, buildings	Examples: cash, inventory, receivables

Fixed Assets versus Investments

SECTION 1 • NATURE OF FIXED ASSETS

An asset's classification depends on its intended use.

Land used for operations

Reported as a fixed asset — Land.

Land held for future resale

Reported as an investment.

Key principle: the same physical asset may be classified differently depending on management's purpose.

Major Fixed-Asset Categories

SECTION 1 · NATURE OF FIXED ASSETS

Non-depreciable

Land

Depreciable

Buildings · Machinery · Vehicles ·
Furniture · Equipment · Land
improvements

Exhaustible

Minerals · Oil · Gas · Timber

The Cost Principle

SECTION 2 • CLASSIFYING ASSET COSTS

A fixed asset is initially recorded at cost. Cost includes:

- Purchase price
- Direct acquisition costs
- Transportation
- Installation
- Testing
- Other amounts necessary to place the asset in location and condition for use

Ready-for-Use Principle

SECTION 2 • CLASSIFYING ASSET COSTS

An expenditure is generally included in asset cost when it is necessary to:

- Acquire the asset
- Transport the asset
- Install the asset
- Prepare the operating site
- Test the asset
- Make the asset ready for its intended use

Capital Expenditure

SECTION 2 • CLASSIFYING ASSET COSTS

A capital expenditure:

- Acquires a long-term asset
- Increases an asset's useful life
- Increases productive capacity
- Improves operating efficiency
- Produces benefits beyond the current period

Accounting treatment: Debit the appropriate asset account.

Revenue Expenditure

SECTION 2 • CLASSIFYING ASSET COSTS

A revenue expenditure:

- Maintains normal operating condition
- Provides benefits mainly in the current period
- Does not materially extend useful life
- Does not substantially increase capacity

Accounting treatment: Debit an expense account.

Capital versus Revenue Decision

SECTION 2 • CLASSIFYING ASSET COSTS

Ask the following questions:

1. Does the expenditure create a new asset?
2. Does it extend useful life?
3. Does it increase capacity?
4. Does it improve efficiency?
5. Does it benefit future periods?

If yes

Capitalize the expenditure.

If no

Record it as an expense.

Effect of Incorrect Classification

SECTION 2 • CLASSIFYING ASSET COSTS

Expense incorrectly capitalized	Capital cost incorrectly expensed
Assets overstated	Assets understated
Expenses understated	Expenses overstated
Net income overstated	Net income understated
Owner's equity overstated	Owner's equity understated

Cost of Land

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Land cost may include:

- Purchase price
- Legal fees
- Title fees
- Recording fees
- Survey costs
- Unpaid property taxes assumed
- Demolition of unwanted structures
- Grading and clearing

Proceeds from selling demolished materials reduce the cost of land.

Land-Cost Example

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Cost	ETB
Purchase price	1,500,000
Legal and title fees	40,000
Demolition	80,000
Grading	45,000
Less: Salvage proceeds	(15,000)
Cost of Land	1,650,000

Account	Debit	Credit
Land	1,650,000	
Cash or Payables		1,650,000

Land Improvements

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Land improvements are additions to land with limited useful lives.

- Parking areas
- Fences
- Outdoor lighting
- Driveways
- Irrigation systems
- Landscaping with limited life

Record separately

Do not combine with the Land account.

Depreciate

Allocate cost over the estimated useful life.

Cost of Buildings

SECTION 3 · COST OF SPECIFIC FIXED ASSETS

Building cost may include:

- Purchase price
- Legal fees
- Renovation before use
- Architect fees
- Building permits
- Contractor charges
- Materials and labour for construction
- Professional fees directly related to construction

Cost of Machinery and Equipment

SECTION 3 · COST OF SPECIFIC FIXED ASSETS

Machinery and equipment cost may include:

- Invoice price
- Freight
- Transit insurance
- Installation
- Special foundations
- Assembly
- Testing
- Trial runs
- Necessary modifications before use

Equipment-Cost Example

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Item	ETB
Purchase price	900,000
Freight	30,000
Installation	45,000
Testing	15,000
Recorded Machinery Cost	990,000

Annual insurance of ETB 12,000 is recorded as an expense because it relates to the current period.

Equipment Acquisition Entry

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Account	Debit	Credit
Machinery and Equipment	990,000	
Insurance Expense	12,000	
Cash or Accounts Payable		1,002,000

Only the costs necessary to bring the machine into operating condition are capitalized.

Lump-Sum Purchase

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

A business may acquire several assets for one total price. The total cost is allocated based on the relative fair values of the individual assets.

$$\text{Allocated Cost} = \text{Package Price} \times (\text{Asset Fair Value} \div \text{Total Fair Value})$$

Lump-Sum Purchase Example

SECTION 3 · COST OF SPECIFIC FIXED ASSETS

Package price: ETB 5,400,000

Asset	Fair Value	Percentage
Land	2,000,000	33.33%
Building	3,000,000	50.00%
Equipment	1,000,000	16.67%
Total	6,000,000	100%

Lump-Sum Allocation

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Asset	Allocated Cost
Land	ETB 1,800,000
Building	2,700,000
Equipment	900,000
Total	ETB 5,400,000

Each asset is then depreciated according to its own useful life; land is not depreciated.

Self-Constructed Assets

SECTION 3 · COST OF SPECIFIC FIXED ASSETS

The cost of a self-constructed asset may include:

- Direct materials
- Direct labour
- Architect and engineering costs
- Construction permits
- Directly attributable overhead
- Site-preparation costs

General operating expenses unrelated to construction are not part of asset cost.

Installation and Testing

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

Testing costs are capitalized when necessary to ensure that the asset:

- Operates correctly
- Meets specifications
- Is safe for intended use
- Is ready for production

Costs incurred after the asset is ready for use are generally operating expenses unless they improve the asset.

Costs Normally Excluded

SECTION 3 • COST OF SPECIFIC FIXED ASSETS

The following are normally expensed as incurred:

- Employee training
- Advertising a new facility
- Opening ceremony
- Initial operating losses
- Routine insurance
- Routine maintenance
- Abnormal damage caused by negligence
- General administrative expenses

Ordinary Repairs and Maintenance

SECTION 4 • EXPENDITURES AFTER ACQUISITION

Ordinary repairs maintain normal operating condition, do not materially increase useful life or capacity, and are recorded as expenses.

EXAMPLES

- Oil changes
- Routine servicing
- Minor repairs
- Regular cleaning

Ordinary-Repair Entry

SECTION 4 • EXPENDITURES AFTER ACQUISITION

A vehicle receives routine servicing costing ETB 8,000.

Account	Debit	Credit
Repairs and Maintenance Expense	8,000	
Cash		8,000

Extraordinary Repairs

SECTION 4 • EXPENDITURES AFTER ACQUISITION

Extraordinary repairs may:

- Extend useful life
- Improve efficiency
- Increase capacity
- Reduce future operating costs

These costs are generally capitalized.

Improvement Example

SECTION 4 • EXPENDITURES AFTER ACQUISITION

A machine receives a major upgrade costing ETB 120,000 that increases production capacity.

Account	Debit	Credit
Machinery and Equipment	120,000	
Cash or Accounts Payable		120,000

Replacements and Improvements

SECTION 4 • EXPENDITURES AFTER ACQUISITION

A replacement may involve:

- Removing an old component
- Installing a new component
- Increasing useful life
- Improving output
- Reducing operating costs

The old component should be removed from the accounting records when its carrying amount can be identified.

Additions

SECTION 4 • EXPENDITURES AFTER ACQUISITION

An addition creates a new component or expands an existing asset.

- Adding a floor to a building
- Constructing a warehouse extension
- Installing an additional production line

Treatment: Capitalize the cost.

Expenditure Classification Activity

SECTION 4 • EXPENDITURES AFTER ACQUISITION

Expenditure	Treatment
Routine vehicle service	Expense
Construction of an additional room	Capitalize
Replacement that extends useful life	Capitalize
Painting an office	Expense
Installation of production equipment	Capitalize
Employee training on equipment	Expense

What Is a Lease?

SECTION 5 • LEASING FIXED ASSETS

A lease is an agreement that allows one party to use an asset owned by another party.

Lessor

Owner of the asset.

Lessee

Party receiving the right to use the asset.

The 23rd-edition chapter includes leasing as part of fixed-asset accounting.

Why Businesses Lease Assets

SECTION 5 • LEASING FIXED ASSETS

- Reduce initial cash requirements
- Access modern equipment
- Avoid ownership risks
- Match payments with asset use
- Maintain operational flexibility
- Obtain specialized assets

Lease Accounting Considerations

SECTION 5 · LEASING FIXED ASSETS

Accounting for a lease depends on:

- Length of the lease
- Transfer of ownership
- Purchase options
- Economic life of the asset
- Present value of payments
- Applicable reporting requirements

A lease that is economically similar to a purchase may require recognition of an asset and a related liability.

Lease Internal Controls

SECTION 5 · LEASING FIXED ASSETS

Organizations should maintain:

- Approved lease agreements
- Central lease register
- Payment schedule
- Asset-location records
- Responsibility for maintenance
- Renewal and termination dates
- Reconciliation between agreements and accounting records

What Is Depreciation?

SECTION 6 • ACCOUNTING FOR DEPRECIATION

Depreciation is the systematic allocation of a fixed asset's cost over the periods benefiting from its use.

It recognizes the reduction in the asset's ability to provide services.

Except for Land, fixed assets are generally depreciated.

Depreciation Is Not Valuation

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Depreciation does not directly measure:

- Market-value decline
- Replacement cost
- Selling price
- Physical deterioration alone

It is a process of allocating cost to expense.

Assets Normally Depreciated

SECTION 6 • ACCOUNTING FOR DEPRECIATION

- Buildings
- Machinery
- Equipment
- Vehicles
- Furniture
- Computers
- Land improvements

Asset normally not depreciated: Land

Three Depreciation Factors

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Asset cost

The amount capitalized on acquisition.

Residual value

Estimated value at the end of useful life.

Useful life

Estimated life or productive capacity.

Asset Cost

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Asset cost is the amount capitalized when the asset is acquired and prepared for use.

Machinery Cost = ETB 990,000

Residual Value

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Residual value is the estimated value of an asset at the end of its useful life.

IT MAY ALSO BE CALLED

- Salvage value
- Scrap value
- Disposal value

Useful Life

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Useful life is the period during which the asset is expected to provide benefits. It may be expressed as:

- Years
- Hours
- Kilometres
- Production units
- Machine cycles

Depreciable Cost

SECTION 6 · ACCOUNTING FOR DEPRECIATION

$$\text{Depreciable Cost} = \text{Asset Cost} - \text{Estimated Residual Value}$$

Example

$$\text{ETB } 990,000 - \text{ETB } 90,000 = \text{ETB } 900,000$$

Depreciation Entry

SECTION 6 • ACCOUNTING FOR DEPRECIATION

Account	Debit	Credit
Depreciation Expense—Equipment	XXX	
Accumulated Depreciation—Equipment		XXX

The asset account remains recorded at its original cost.

Accumulated Depreciation

SECTION 6 · ACCOUNTING FOR DEPRECIATION

Accumulated Depreciation is:

- A contra-asset account
- Related to a specific fixed asset
- Normally maintained with a credit balance
- Deducted from asset cost on the Balance Sheet

Book Value

SECTION 6 · ACCOUNTING FOR DEPRECIATION

$$\text{Book Value} = \text{Asset Cost} - \text{Accumulated Depreciation}$$

ALSO CALLED

- Carrying amount
- Net book value

Book Value Example

SECTION 6 • ACCOUNTING FOR DEPRECIATION

Item	ETB
Equipment cost	990,000
Accumulated depreciation	(180,000)
Book Value	810,000

Balance-Sheet Presentation

SECTION 6 • ACCOUNTING FOR DEPRECIATION

Item	ETB
Machinery and Equipment, at cost	990,000
Less: Accumulated Depreciation	(180,000)
Book Value	810,000

Partial-Year Depreciation

SECTION 6 • ACCOUNTING FOR DEPRECIATION

When an asset is acquired during the year, depreciation is recorded only for the period it is available for use.

$$\text{Partial-Year Depreciation} = \text{Annual Depreciation} \times (\text{Months Used} \div 12)$$

Depreciation Methods

SECTION 6 • ACCOUNTING FOR DEPRECIATION

Straight-line

Equal expense each full year.

Units-of-production

Expense follows actual usage.

Double-declining balance

Accelerated, front-loaded
expense.

The 23rd edition also includes sum-of-the-years'-digits depreciation in an appendix.

Straight-Line Formula

SECTION 7 • STRAIGHT-LINE METHOD

$$\text{Annual Depreciation} = (\text{Cost} - \text{Residual Value}) \div \text{Useful Life}$$

The method allocates an equal amount of depreciation to each full year.

Straight-Line Example

SECTION 7 · STRAIGHT-LINE METHOD

- Cost: ETB 990,000
- Residual value: ETB 90,000
- Useful life: 5 years

$$(990,000 - 90,000) \div 5 = \text{ETB } 180,000 \text{ per year}$$

Straight-Line Depreciation Rate

SECTION 7 · STRAIGHT-LINE METHOD

$$\text{Straight-Line Rate} = 1 \div \text{Useful Life} = 1 \div 5 = 20\%$$

Annual depreciation may also be calculated as:

$$\text{ETB } 900,000 \times 20\% = \text{ETB } 180,000$$

Straight-Line Schedule

SECTION 7 • STRAIGHT-LINE METHOD

Year	Depreciation	Accumulated Depreciation	Book Value
Beginning	—	—	ETB 990,000
1	180,000	180,000	810,000
2	180,000	360,000	630,000
3	180,000	540,000	450,000
4	180,000	720,000	270,000
5	180,000	900,000	90,000

Straight-Line Entry

SECTION 7 • STRAIGHT-LINE METHOD

Account	Debit	Credit
Depreciation Expense—Machinery	180,000	
Accumulated Depreciation—Machinery		180,000

Partial-Year Straight-Line Example

SECTION 7 • STRAIGHT-LINE METHOD

The machinery is placed in use on July 1. Annual depreciation is ETB 180,000.

$$180,000 \times 6 \div 12 = \text{ETB } 90,000$$

When Straight-Line Is Appropriate

SECTION 7 • STRAIGHT-LINE METHOD

Straight-line is suitable when:

- Benefits are relatively equal each year
- Usage is reasonably constant
- Obsolescence is not concentrated in early years
- Simplicity and consistency are important

Units-of-Production Method

SECTION 8 • UNITS-OF-PRODUCTION METHOD

The units-of-production method allocates depreciation according to actual use or output.

POSSIBLE ACTIVITY MEASURES

- Units produced
- Machine hours
- Kilometres travelled
- Operating hours

Depreciation Rate per Unit

SECTION 8 • UNITS-OF-PRODUCTION METHOD

$$\text{Depreciation per Unit} = (\text{Cost} - \text{Residual Value}) \div \text{Estimated Total Production}$$

Units-of-Production Example

SECTION 8 • UNITS-OF-PRODUCTION METHOD

- Depreciable cost: ETB 900,000
- Estimated total output: 300,000 units

$$900,000 \div 300,000 = \text{ETB } 3 \text{ per unit}$$

First-Year Depreciation

SECTION 8 • UNITS-OF-PRODUCTION METHOD

First-year production: 60,000 units

$$60,000 \text{ units} \times \text{ETB } 3 = \text{ETB } 180,000$$

Units-of-Production Schedule

SECTION 8 • UNITS-OF-PRODUCTION METHOD

Year	Units Produced	Depreciation	Book Value
Beginning	—	—	ETB 990,000
1	60,000	180,000	810,000
2	80,000	240,000	570,000
3	70,000	210,000	360,000
4	50,000	150,000	210,000
5	40,000	120,000	90,000
Total	300,000	900,000	

Units-of-Production Entry

SECTION 8 • UNITS-OF-PRODUCTION METHOD

If annual output is 80,000 units: $80,000 \times \text{ETB } 3 = \text{ETB } 240,000$

Account	Debit	Credit
Depreciation Expense—Machinery	240,000	
Accumulated Depreciation—Machinery		240,000

When Units-of-Production Is Appropriate

SECTION 8 • UNITS-OF-PRODUCTION METHOD

It is useful when:

- Wear depends directly on use
- Output can be measured reliably
- Usage varies significantly by year
- Time is less important than operating activity

Accelerated Depreciation

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

The double-declining-balance method records:

- Higher depreciation in early years
- Lower depreciation in later years

It applies a constant rate to the asset's beginning book value.

Double-Declining Rate

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

$$\text{Double-Declining Rate} = 2 \times \text{Straight-Line Rate}$$

For a five-year life:

$$2 \times 20\% = 40\%$$

First-Year Depreciation (DDB)

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Item	ETB
Beginning book value	990,000
Depreciation at 40%	(396,000)
Ending book value	594,000

Second-Year Depreciation (DDB)

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Item	ETB
Beginning book value	594,000
Depreciation at 40%	(237,600)
Ending book value	356,400

Double-Declining Schedule

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Year	Beginning Book Value	Depreciation	Ending Book Value
1	ETB 990,000	396,000	594,000
2	594,000	237,600	356,400
3	356,400	142,560	213,840
4	213,840	85,536	128,304
5	128,304	38,304	90,000

Residual-Value Limitation

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Under double-declining balance:

- Residual value is not deducted when calculating annual depreciation.
- Depreciation must stop when book value reaches residual value.
- The final year's depreciation may need to be limited.

Partial-Year Double-Declining Example

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Asset placed in use on July 1:

$$990,000 \times 40\% \times 6 \div 12 = \text{ETB } 198,000$$

Double-Declining Entry

SECTION 9 • DOUBLE-DECLINING-BALANCE METHOD

Account	Debit	Credit
Depreciation Expense—Machinery	396,000	
Accumulated Depreciation—Machinery		396,000

Method Comparison

SECTION 10 • COMPARING DEPRECIATION METHODS

Method	Basis	Pattern
Straight-line	Time	Equal annual expense
Units-of-production	Actual output	Expense varies with use
Double-declining balance	Beginning book value	Higher expense in early years

The 23rd edition added a dedicated comparison exhibit to reinforce these differences.

First-Year Comparison

SECTION 10 • COMPARING DEPRECIATION METHODS

Method	First-Year Depreciation
Straight-line	ETB 180,000
Units-of-production at 60,000 units	180,000
Double-declining balance	396,000

Effect on Early-Year Income

SECTION 10 • COMPARING DEPRECIATION METHODS

A higher depreciation expense causes:

- Lower income from operations
- Lower net income
- Lower book value
- Lower owner's equity

Double-declining balance generally reports the highest early-year depreciation.

Total Depreciation

SECTION 10 • COMPARING DEPRECIATION METHODS

$$\text{Total Depreciation} = \text{Cost} - \text{Residual Value}$$

For the example: $990,000 - 90,000 = \text{ETB } 900,000$

The methods differ mainly in the timing of expense recognition, not in the total amount.

Choosing a Depreciation Method

SECTION 10 • COMPARING DEPRECIATION METHODS

The selected method should reflect the expected pattern in which the asset's benefits are consumed.

Equal annual benefit

Straight-line

Usage-based benefit

Units-of-production

Greater early benefit

Accelerated method

Knowledge Check

SECTION 10 • COMPARING DEPRECIATION METHODS

A machine costs ETB 500,000, has a residual value of ETB 50,000 and a five-year useful life.

STRAIGHT-LINE DEPRECIATION

$$(500,000 - 50,000) \div 5 = \text{ETB } 90,000$$

DOUBLE-DECLINING RATE AND FIRST-YEAR DEPRECIATION

$$2 \times 20\% = 40\% \quad 500,000 \times 40\% = \text{ETB } 200,000$$

Financial versus Tax Depreciation

SECTION 10 • COMPARING DEPRECIATION METHODS

The depreciation method used for financial reporting may differ from the method permitted for income-tax purposes. The textbook discusses federal income-tax depreciation separately from financial-reporting depreciation.

Application note: Ethiopian tax treatment should be determined using applicable tax legislation rather than automatically applying the textbook's United States tax rules.

Estimates May Change

SECTION 11 • REVISING DEPRECIATION ESTIMATES

Depreciation depends on estimates of:

- Useful life
- Residual value
- Productive capacity

New information may require these estimates to be revised.

Prospective Treatment

SECTION 11 • REVISING DEPRECIATION ESTIMATES

A revision of an estimate:

- Does not change prior-period depreciation
- Does not correct previous entries
- Is applied to the current and future periods
- Uses the asset's current book value

Revision Example

SECTION 11 · REVISING DEPRECIATION ESTIMATES

Original information:

- Cost: ETB 600,000
- Residual value: ETB 60,000
- Useful life: 6 years

$$(600,000 - 60,000) \div 6 = \text{ETB } 90,000 \text{ per year}$$

Book Value at Revision Date

SECTION 11 • REVISING DEPRECIATION ESTIMATES

After two years	ETB
Accumulated depreciation ($90,000 \times 2$)	180,000
Cost	600,000
Book Value	420,000

Revised Depreciation

SECTION 11 • REVISING DEPRECIATION ESTIMATES

New estimates: remaining useful life of 4 years and residual value of ETB 20,000.

$$(420,000 - 20,000) \div 4 = \text{ETB } 100,000 \text{ per year}$$

Revision Entry

SECTION 11 • REVISING DEPRECIATION ESTIMATES

Account	Debit	Credit
Depreciation Expense—Equipment	100,000	
Accumulated Depreciation—Equipment		100,000

Depreciation Error Effects

SECTION 11 • REVISING DEPRECIATION ESTIMATES

Failure to record depreciation causes:

- Expenses to be understated
- Net income to be overstated
- Accumulated depreciation to be understated
- Asset book value to be overstated
- Owner's equity to be overstated

Methods of Disposal

SECTION 12 • DISPOSAL OF FIXED ASSETS

Fixed assets may be disposed of by:

- Discarding
- Selling
- Exchanging
- Donating
- Retiring from use

The 23rd-edition chapter directly covers discarding and selling, with exchanges presented in an appendix.

Disposal Procedure

SECTION 12 • DISPOSAL OF FIXED ASSETS

1. Record depreciation to the disposal date.
2. Determine updated accumulated depreciation.
3. Calculate book value.
4. Determine proceeds received.
5. Calculate gain or loss.
6. Remove the asset and accumulated depreciation.

Gain or Loss Formula

SECTION 12 • DISPOSAL OF FIXED ASSETS

$$\text{Gain or Loss} = \text{Disposal Proceeds} - \text{Book Value}$$

Proceeds greater than book value

Gain

Proceeds less than book value

Loss

Fully Depreciated Asset Still in Use

SECTION 12 • DISPOSAL OF FIXED ASSETS

A fully depreciated asset may remain in operation. While it remains in use:

- Keep its cost in the asset account.
- Keep accumulated depreciation in the contra account.
- Do not record additional depreciation below residual value.

Discarding a Fully Depreciated Asset

SECTION 12 • DISPOSAL OF FIXED ASSETS

Equipment cost ETB 400,000; accumulated depreciation ETB 400,000.

Account	Debit	Credit
Accumulated Depreciation—Equipment	400,000	
Equipment		400,000

No gain or loss is recorded.

Discarding before Full Depreciation

SECTION 12 • DISPOSAL OF FIXED ASSETS

Item	ETB
Equipment cost	500,000
Accumulated depreciation	(350,000)
Book Value	150,000

Entry for Early Discard

SECTION 12 • DISPOSAL OF FIXED ASSETS

Account	Debit	Credit
Accumulated Depreciation—Equipment	350,000	
Loss on Disposal of Fixed Asset	150,000	
Equipment		500,000

Sale at Book Value

SECTION 12 · DISPOSAL OF FIXED ASSETS

Cost ETB 500,000 · Accumulated depreciation ETB 350,000 · Book value ETB 150,000 · Cash proceeds ETB 150,000.

Account	Debit	Credit
Cash	150,000	
Accumulated Depreciation	350,000	
Equipment		500,000

Sale above Book Value

SECTION 12 • DISPOSAL OF FIXED ASSETS

Item	ETB
Cash proceeds	180,000
Book value	(150,000)
Gain on Disposal	30,000

Entry for Gain on Sale

SECTION 12 • DISPOSAL OF FIXED ASSETS

Account	Debit	Credit
Cash	180,000	
Accumulated Depreciation	350,000	
Equipment		500,000
Gain on Disposal		30,000

Sale below Book Value

SECTION 12 • DISPOSAL OF FIXED ASSETS

Item	ETB
Cash proceeds	120,000
Book value	(150,000)
Loss on Disposal	30,000

Entry for Loss on Sale

SECTION 12 • DISPOSAL OF FIXED ASSETS

Account	Debit	Credit
Cash	120,000	
Accumulated Depreciation	350,000	
Loss on Disposal	30,000	
Equipment		500,000

Partial-Year Disposal

SECTION 12 • DISPOSAL OF FIXED ASSETS

- Cost: ETB 600,000
- Accumulated depreciation on January 1: ETB 300,000
- Annual depreciation: ETB 60,000
- Sale date: June 30
- Sale proceeds: ETB 250,000

Depreciation to sale date: $60,000 \times 6 \div 12 = \text{ETB } 30,000$

Partial-Year Disposal Solution

SECTION 12 • DISPOSAL OF FIXED ASSETS

Item	ETB
Updated accumulated depreciation (300,000 + 30,000)	330,000
Book value (600,000 – 330,000)	270,000
Proceeds	250,000
Loss on Disposal	20,000

Disposal Entry

SECTION 12 • DISPOSAL OF FIXED ASSETS

Account	Debit	Credit
Cash	250,000	
Accumulated Depreciation	330,000	
Loss on Disposal	20,000	
Equipment		600,000

Natural Resources and Depletion

SECTION 13 • NATURAL RESOURCES

Natural resources include oil, natural gas, minerals, coal, timber and stone deposits.

The systematic allocation of a natural resource's cost is called depletion.

$$\text{Depletion per Unit} = (\text{Resource Cost} - \text{Residual Value}) \div \text{Estimated Recoverable Units}$$

Depletion Example and Entry

SECTION 13 · NATURAL RESOURCES

Cost ETB 5,000,000 · Residual value ETB 500,000 · Recoverable quantity 900,000 tonnes.

$$(5,000,000 - 500,000) \div 900,000 = \text{ETB } 5 \text{ per tonne} \quad 120,000 \text{ tonnes} \times 5 = \text{ETB } 600,000$$

Account	Debit	Credit
Depletion Expense	600,000	
Accumulated Depletion		600,000

Presentation	ETB
Mineral property, at cost	5,000,000
Less: Accumulated depletion	(600,000)
Book Value	4,400,000

Intangible Assets

SECTION 14 • INTANGIBLE ASSETS

Intangible assets are long-term resources that lack physical substance, provide legal or economic rights, support future operations and may have definite or indefinite useful lives.

EXAMPLES

- Patents
- Copyrights
- Trademarks
- Franchise rights
- Licences
- Goodwill

Accounting for Intangible Assets

SECTION 14 • INTANGIBLE ASSETS

Initial measurement

Purchased intangibles are recorded at acquisition cost.

Limited useful life

Allocate cost through amortization.

Indefinite useful life

Do not amortize; review for loss of value under applicable requirements.

$$\text{Annual Amortization} = (\text{Cost} - \text{Residual Value}) \div \text{Useful Life}$$

Patent Amortization

SECTION 14 • INTANGIBLE ASSETS

A patent is a legal right to control the production or use of an invention. Patent cost ETB 360,000 with a useful life of 6 years.

$$360,000 \div 6 = \text{ETB } 60,000 \text{ per year}$$

Account	Debit	Credit
Amortization Expense—Patent	60,000	
Patent		60,000

Copyrights, Trademarks and Goodwill

SECTION 14 • INTANGIBLE ASSETS

Copyright

Protects original literary, artistic or creative work.

Trademark

Protects a name, symbol, logo or identifying design.

Goodwill

Reputation, customer loyalty, location and organizational strength.

Goodwill is recorded only when a business is purchased and the price exceeds the fair value of identifiable net assets.

Goodwill Example

SECTION 14 • INTANGIBLE ASSETS

Item	ETB
Purchase price	4,400,000
Fair value of assets	5,000,000
Fair value of liabilities	(1,200,000)
Fair value of net assets	3,800,000
Goodwill (4,400,000 – 3,800,000)	600,000

Financial-Statement Reporting

SECTION 15 • REPORTING AND ANALYSIS

INCOME STATEMENT MAY REPORT

- Depreciation expense
- Depletion expense
- Amortization expense
- Gain on disposal
- Loss on disposal

Balance-sheet category	Presentation
Land	Cost
Depreciable fixed assets	Cost less accumulated depreciation
Natural resources	Cost less accumulated depletion
Limited-life intangibles	Cost less accumulated amortization
Goodwill	Separately reported intangible asset

Fixed-Asset Turnover

SECTION 15 • REPORTING AND ANALYSIS

The fixed-asset turnover ratio assesses how efficiently a business uses its fixed assets to generate sales.

$$\text{Fixed-Asset Turnover} = \text{Net Sales} \div \text{Average Book Value of Fixed Assets}$$

Fixed-Asset Turnover Example

SECTION 15 · REPORTING AND ANALYSIS

- Net sales: ETB 12,000,000
- Beginning book value: ETB 4,000,000
- Ending book value: ETB 5,000,000

Average fixed assets = $(4,000,000 + 5,000,000) \div 2 = \text{ETB } 4,500,000$

$12,000,000 \div 4,500,000 = 2.67 \text{ times}$

A higher ratio generally indicates that more sales are generated from each birr invested in fixed assets, although interpretation should consider the industry and the age of the assets.

Appendix 1: Sum-of-the-Years'-Digits

CHAPTER APPENDICES

For a five-year life: $5 + 4 + 3 + 2 + 1 = 15$. Depreciable cost: ETB 900,000.

Year	Fraction	Depreciation
1	5/15	ETB 300,000
2	4/15	240,000
3	3/15	180,000
4	2/15	120,000
5	1/15	60,000
Total		ETB 900,000

The method records greater depreciation in early years and declining amounts in later years.

Appendix 2: Exchange of Similar Fixed Assets

CHAPTER APPENDICES

- Old equipment cost: ETB 600,000
- Accumulated depreciation: ETB 400,000
- Book value: ETB 200,000
- Trade-in value: ETB 250,000
- Cash paid: ETB 450,000

New asset cost = 250,000 + 450,000 = ETB 700,000 Gain = 250,000 – 200,000 = ETB 50,000

Exchange Entry

CHAPTER APPENDICES

Account	Debit	Credit
New Equipment	700,000	
Accumulated Depreciation—Old Equipment	400,000	
Old Equipment		600,000
Cash		450,000
Gain on Exchange		50,000

The chapter places exchanges of similar fixed assets in an appendix and separately illustrates gains and losses.

Chapter Summary — Acquisition and Cost

CHAPTER CLOSING

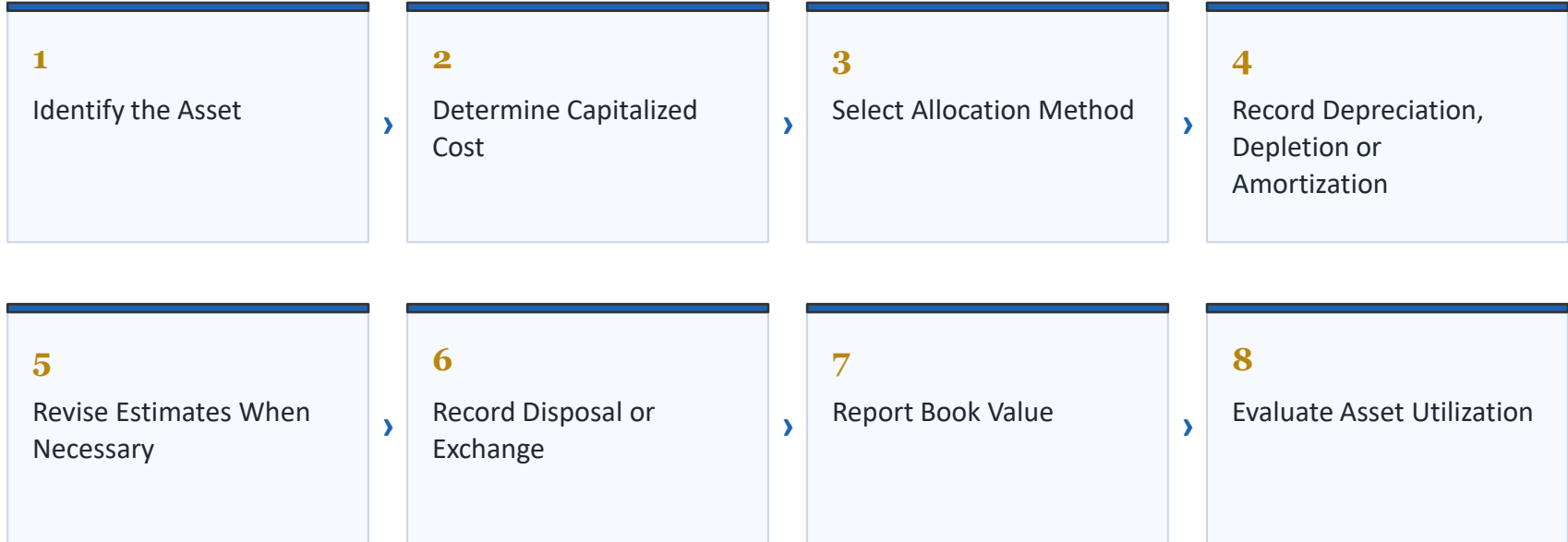
- Fixed assets are tangible resources used in business operations.
- Asset cost includes amounts necessary to acquire and prepare the asset for use.
- Capital expenditures benefit future periods.
- Revenue expenditures relate mainly to the current period.
- Land is not depreciated.
- Depreciable cost equals cost less residual value.

Chapter Summary — Allocation and Disposal

CHAPTER CLOSING

- Straight-line depreciation produces equal annual expense.
- Units-of-production depreciation depends on usage.
- Double-declining balance accelerates depreciation.
- Estimate revisions are applied prospectively.
- Disposal requires updating depreciation and removing the asset from the records.
- A gain occurs when proceeds exceed book value; a loss when proceeds fall below it.
- Depletion allocates the cost of natural resources; amortization allocates the cost of limited-life intangibles.
- Goodwill is recognized only in connection with the purchase of a business.
- Fixed-asset turnover measures asset-use efficiency.

The Long-Term Asset Accounting Cycle



Key Message

CHAPTER CLOSING

Long-term asset accounting matches the cost of productive resources with the accounting periods that benefit from their use, while preserving clear records of acquisition cost, accumulated allocation and remaining book value.

THANK YOU

Questions and Discussion

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Principles of Accounting

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