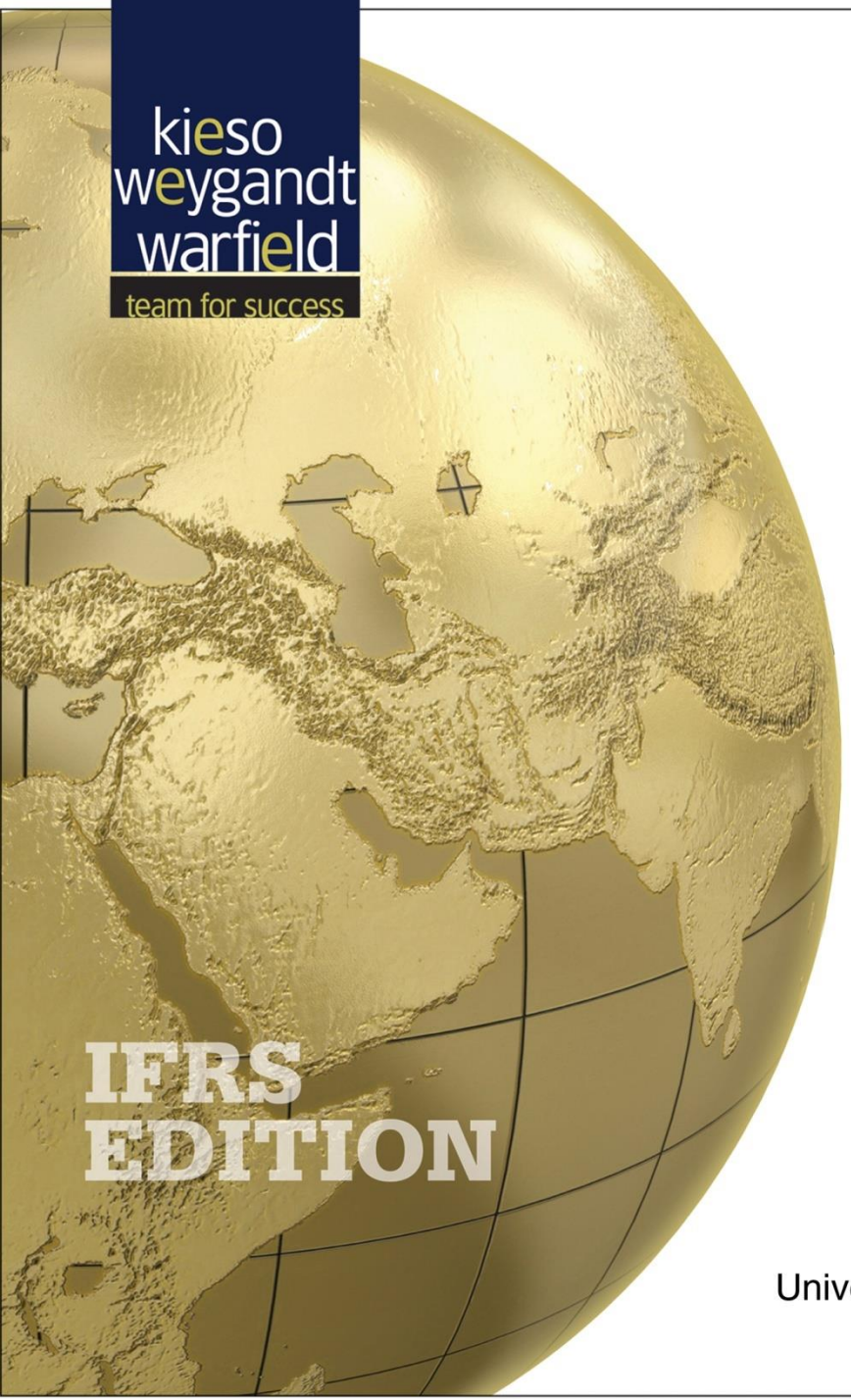
Adeng Pustikaningsih, M.Si.
Dosen Jurusan Pendidikan Akuntansi
Fakultas Ekonomi
Universitas Negeri Yogyakarta

CP: 08 222 180 1695
Email : adengpustikaningsih@uny.ac.id

kieso
weygandt
warfield
team for success



IFRS EDITION

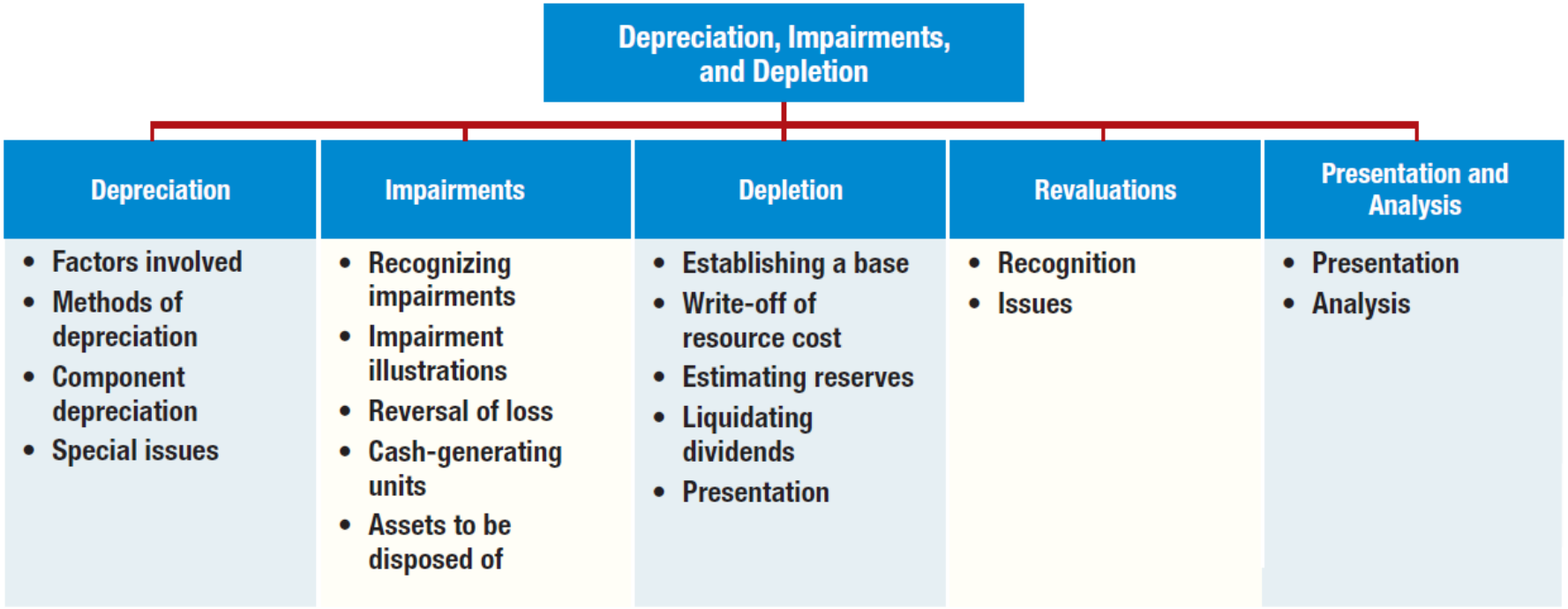
Prepared by
Coby Harmon
University of California, Santa Barbara
Westmont College

INTERMEDIATE ACCOUNTING

SECOND EDITION

WILEY

PREVIEW OF CHAPTER 11



Intermediate Accounting
IFRS 2nd Edition
Kieso, Weygandt, and Warfield

CHAPTER 11

Depreciation, Impairments, and Depletion

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. **Explain the concept of depreciation.**
2. Identify the factors involved in the depreciation process.
3. Compare activity, straight-line, and diminishing-charge methods of depreciation.
4. Explain component depreciation.
5. Explain the accounting issues related to asset impairment.
6. Explain the accounting procedures for depletion of mineral resources.
7. Explain the accounting for revaluations.
8. Explain how to report and analyze property, plant, equipment, and mineral resources.

DEPRECIATION—METHOD OF COST ALLOCATION

Depreciation is the accounting process of allocating the **cost of tangible assets to expense** in a systematic and rational manner to those periods expected to benefit from the use of the asset.

Allocating costs of long-lived assets:

- Fixed assets = Depreciation expense
- Intangibles = Amortization expense
- Mineral resources = Depletion expense

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DEPRECIATION—COST ALLOCATION

Factors Involved in the Depreciation Process

Three basic questions:

1. What depreciable base is to be used?
2. What is the asset's useful life?
3. What method of cost apportionment is best?

Factors Involved in Depreciation Process

Depreciable Base for the Asset

Original cost	€10,000
Less: Residual value	1,000
Depreciation base	€ 9,000

ILLUSTRATION 11-1
Computation of
Depreciation Base

Factors Involved in Depreciation Process

Estimation of Service Lives

- Service life often differs from physical life.
- Companies retire assets for two reasons:
  1. **Physical factors** (casualty or expiration of physical life).
  2. **Economic factors** (**inadequacy**, **supersession**, and **obsolescence**).

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DEPRECIATION—COST ALLOCATION

Methods of Depreciation

The profession requires the method employed be **"systematic and rational."** Methods used include:

1. Activity method (units of use or production).
2. Straight-line method.
3. Diminishing (accelerated)-charge methods:
   a) Sum-of-the-years'-digits.
   b) Declining-balance method.

Underlying Concepts

Depreciation attempts to match the cost of an asset to the periods that benefit from the use of that asset.

Methods of Depreciation

Activity Method

Data for Stanley Coal Mines

ILLUSTRATION 11-2
Data Used to Illustrate Depreciation Methods

Cost of crane	$500,000
Estimated useful life	5 years
Estimated salvage value	$ 50,000
Productive life in hours	30,000 hours

Illustration: If Stanley uses the crane for 4,000 hours the first year, the depreciation charge is:

ILLUSTRATION 11-3
Depreciation Calculation, Activity Method—Crane Example

$$\frac{\text{(Cost} - \text{Residual Value)} \times \text{Hours this Year}}{\text{Total Estimated Hours}} = \text{Depreciation Charge}$$

$$\frac{(\$500{,}000 - \$50{,}000) \times 4{,}000}{30{,}000} = \$60{,}000$$

Methods of Depreciation

Straight-Line Method

Data for Stanley Coal Mines

ILLUSTRATION 11-2
Data Used to Illustrate Depreciation Methods

Cost of crane	$500,000
Estimated useful life	5 years
Estimated salvage value	$ 50,000
Productive life in hours	30,000 hours

Illustration: Stanley computes depreciation as follows:

ILLUSTRATION 11-4
Depreciation Calculation, Straight-Line Method—Crane Example

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

$$\frac{\$500{,}000 - \$50{,}000}{5} = \$90{,}000$$

Methods of Depreciation

Diminishing-Charge Methods

ILLUSTRATION 11-2
Data Used to Illustrate Depreciation Methods

Data for Stanley Coal Mines

Cost of crane	$500,000
Estimated useful life	5 years
Estimated salvage value	$ 50,000
Productive life in hours	30,000 hours

Sum-of-the-Years'-Digits. Each fraction uses the sum of the years as a **denominator** (5 + 4 + 3 + 2 + 1 = 15). The **numerator** is the number of years of estimated life remaining as of the beginning of the year.

Alternate sum-of-the-years' calculation

$$\frac{n(n+1)}{2} = \frac{5(5+1)}{2} = 15$$

Methods of Depreciation

Sum-of-the-Years'-Digits

Year	Depreciation Base	Remaining Life in Years	Depreciation Fraction	Depreciation Expense	Book Value, End of Year
1	$450,000	5	5/15	$150,000	$350,000
2	450,000	4	4/15	120,000	230,000
3	450,000	3	3/15	90,000	140,000
4	450,000	2	2/15	60,000	80,000
5	450,000	1	1/15	30,000	50,000[a]
		15	15/15	$450,000	

[a]Residual value.

ILLUSTRATION 11-6
Sum-of-the-Years'-Digits Depreciation Schedule—Crane Example

Methods of Depreciation

Diminishing-Charge Methods

ILLUSTRATION 11-2
Data Used to Illustrate Depreciation Methods

Data for Stanley Coal Mines

Cost of crane	$500,000
Estimated useful life	5 years
Estimated salvage value	$ 50,000
Productive life in hours	30,000 hours

Declining-Balance Method.

- Utilizes a depreciation rate (percentage) that is some multiple of the straight-line method.
- Does not deduct the salvage value in computing the depreciation base.

Methods of Depreciation

Declining-Balance Method

Year	Book Value of Asset First of Year	Rate on Declining Balance[a]	Depreciation Expense	Balance Accumulated Depreciation	Book Value, End of Year
1	$500,000	40%	$200,000	$200,000	$300,000
2	300,000	40%	120,000	320,000	180,000
3	180,000	40%	72,000	392,000	108,000
4	108,000	40%	43,200	435,200	64,800
5	64,800	40%	14,800[b]	450,000	50,000

[a]Based on twice the straight-line rate of 20% ($90,000/$450,000 = 20%; 20% × 2 = 40%).
[b]Limited to $14,800 because book value should not be less than residual value.

ILLUSTRATION 11-7
Double-Declining Depreciation Schedule—Crane Example

CHAPTER 11

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8. Explain how to report and analyze property, plant, equipment, and mineral resources.

DEPRECIATION—COST ALLOCATION

Component Depreciation

IFRS requires that each part of an item of property, plant, and equipment that is significant to the total cost of the asset must be depreciated separately.

Component Depreciation

Illustration: EuroAsia Airlines purchases an airplane for €100,000,000 on January 1, 2016. The airplane has a useful life of 20 years and a residual value of €0. EuroAsia uses the straight-line method of depreciation for all its airplanes. EuroAsia identifies the following components, amounts, and useful lives.

Components	Component Amount	Component Useful Life
Airframe	€60,000,000	20 years
Engine components	32,000,000	8 years
Other components	8,000,000	5 years

ILLUSTRATION 11-8
Airplane Components

LO 4

Component Depreciation

Computation of depreciation expense for EuroAsia for 2016.

ILLUSTRATION 11-9
Computation of Component Depreciation

Components	Component Amount	÷	Useful Life	=	Component Depreciation
Airframe	€ 60,000,000		20		€3,000,000
Engine components	32,000,000		8		4,000,000
Other components	8,000,000		5		1,600,000
Total	€100,000,000				€8,600,000

Depreciation journal entry for 2016.

Depreciation Expense	8,600,000	
Accumulated Depreciation—Airplane		8,600,000

Component Depreciation

On the statement of financial position at the end of 2016, EuroAsia reports the airplane as a single amount.

Non-current assets	
Airplane	€100,000,000
Less: Accumulated depreciation—airplane	8,600,000
	€ 91,400,000

ILLUSTRATION 11-10
Presentation of Carrying Amount of Airplane

DEPRECIATION—COST ALLOCATION

Special Depreciation Issues

1. How should companies compute depreciation for partial periods?
2. Does depreciation provide for the replacement of assets?
3. How should companies handle revisions in depreciation rates?

LO 4

DEPRECIATION—COST ALLOCATION

Special Depreciation Issues

1. How should companies compute **depreciation for partial periods**?

   - Companies determine the **depreciation expense for the full year** and then
   - **prorate** this depreciation expense **between the two periods** involved.

   This process should continue throughout the useful life of the asset.

Depreciation and Partial Periods

Illustration—(Four Methods): Maserati Corporation purchased a new machine for its assembly process on August 1, 2015. The cost of this machine was €150,000. The company estimated that the machine would have a salvage value of €24,000 at the end of its service life. Its life is estimated at 5 years and its working hours are estimated at 21,000 hours. Year-end is December 31.

Instructions: Compute the depreciation expense under the following methods.

(a) Straight-line depreciation.

(b) Activity method

(c) Sum-of-the-years'-digits.

(d) Double-declining balance.

Depreciation and Partial Periods

Straight-line Method

Year	Depreciable Base		Years		Annual Expense		Partial Year		Current Year Expense	Accum. Deprec.
2015	€ 126,000	/	5	=		x		=		
2016	126,000	/	5	=						
2017	126,000	/	5	=						
2018	126,000	/	5	=						
2019	126,000	/	5	=						
2020	126,000	/	5	=		x		=		

Journal entry:

2015	Depreciation expense		
	Accumultated depreciation		

Depreciation and Partial Periods

Activity Method (Assume 800 hours used in 2015)

(€126,000 / 21,000 hours = €6 per hour)

Year	(Given) Hours Used		Rate per Hours		Annual Expense	Partial Year	Current Year Expense	Accum. Deprec.
2015	800	x	$6	=	€ 4,800			
2016		x		=				
2017		x		=				
2018		x		=				
2019		x		=				
	800							

Journal entry:

2015	Depreciation expense		
	Accumultated depreciation		

Advance slide in presentation mode to reveal answer.

Depreciation and Partial Periods

Sum-of-the-Years'-Digits Method

5/12 = .416667
7/12 = .583333

Year	Depreciable Base		Years		Annual Expense		Partial Year	Current Year Expense	Accum. Deprec.
2015	€ 126,000	x		=		x			
2016	126,000	x		=					
2017	126,000	x		=					
2018	126,000	x		=					
2019	126,000	x		=					
2020	126,000	x		=					

Journal entry:

2015	Depreciation expense		
	Accumultated depreciation		

Advance slide in presentation mode to reveal answer.

LO 4

Depreciation and Partial Periods

Double-Declining Balance Method

Year	Depreciable Base		Rate per Year		Annual Expense		Partial Year		Current Year Expense
2015		x		=		x		=	
2016		x		=					
2017		x		=					
2018		x		=					
2019		x		=				→	

Journal entry:

2015	Depreciation expense		
	Accumultated depreciation		

Advance slide in presentation mode to reveal answer.

DEPRECIATION—COST ALLOCATION

Special Depreciation Issues

2. Does depreciation provide for the **replacement of assets**?
   - Does not involve a current cash outflow.
   - Funds for the replacement of the assets come from the revenues.

DEPRECIATION—COST ALLOCATION

Special Depreciation Issues

3. How should companies handle **revisions in depreciation rates**?

   - Accounted for in the current and prospective periods
   - Not handled retrospectively
   - Not considered errors or extraordinary items

Revision of Depreciation Rates

Arcadia HS, purchased equipment for $510,000 which was estimated to have a useful life of 10 years with a residual value of $10,000 at the end of that time. Depreciation has been recorded for 7 years on a straight-line basis. In 2015 (year 8), it is determined that the total estimated life should be 15 years with a residual value of $5,000 at the end of that time.

Questions:

- What is the journal entry to correct the prior years' depreciation?
- Calculate the depreciation expense for 2015.

No Entry Required

Revision of Depreciation Rates

After 7 years

Equipment cost	$510,000
Salvage value	- 10,000
Depreciable base	500,000
Useful life (original)	10 years
Annual depreciation	$ 50,000

First, establish NBV at date of change in estimate.

x 7 years = **$350,000**

Balance Sheet (Dec. 31, 2014)

Equipment	$510,000
Accumulated depreciation	350,000
Net book value (NBV)	**$160,000**

Revision of Depreciation Rates

After 7 years

Net book value	**$160,000**
Salvage value (new)	5,000
Depreciable base	155,000
Useful life remaining	8 years
Annual depreciation	**$ 19,375**

Depreciation Expense calculation for 2015.

Journal entry for 2015

Depreciation Expense	19,375	
Accumulated Depreciation		19,375

What do the numbers mean?

DEPRECIATION CHOICES

The amount of depreciation expense recorded depends on both the depreciation method used and estimates of service lives and residual values of the assets. Differences in these choices and estimates can significantly impact a company's reported results and can make it difficult to compare the depreciation numbers of different companies.

For example, **Veolia Environment** (FRA) provided information regarding useful lives of its assets in the note to its financial statements, as shown to the right.

With the information provided, an analyst determines the impact of these management choices and judgments on the amount of depreciation expense for classes of property, plant, and equipment.

1.7 Property, Plant, and Equipment

Property, plant, and equipment are recorded at historical acquisition cost to the Group, less accumulated depreciation and any accumulated impairment losses.

Property, plant, and equipment are recorded by component, with each component depreciated over its useful life.

Useful lives are as follows:

	Range of Useful Lives in Number of Years*
Buildings	20 to 50
Technical systems	7 to 24
Vehicles	3 to 25
Other plant and equipment	3 to 12

*The range of useful lives is due to the diversity of property, plant and equipment concerned.

CHAPTER 11

Depreciation, Impairments, and Depletion

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8. Explain how to report and analyze property, plant, equipment, and mineral resources.

IMPAIRMENTS

Recognizing Impairments

A long-lived tangible asset is **impaired** when a company is not able to recover the asset's carrying amount either through using it or by selling it.

On an **annual basis, companies review the asset for indicators of impairments—**that is, a decline in the asset's cash-generating ability through use or sale.

Recognizing Impairments

If impairment indicators are present, then an **impairment test** must be conducted.

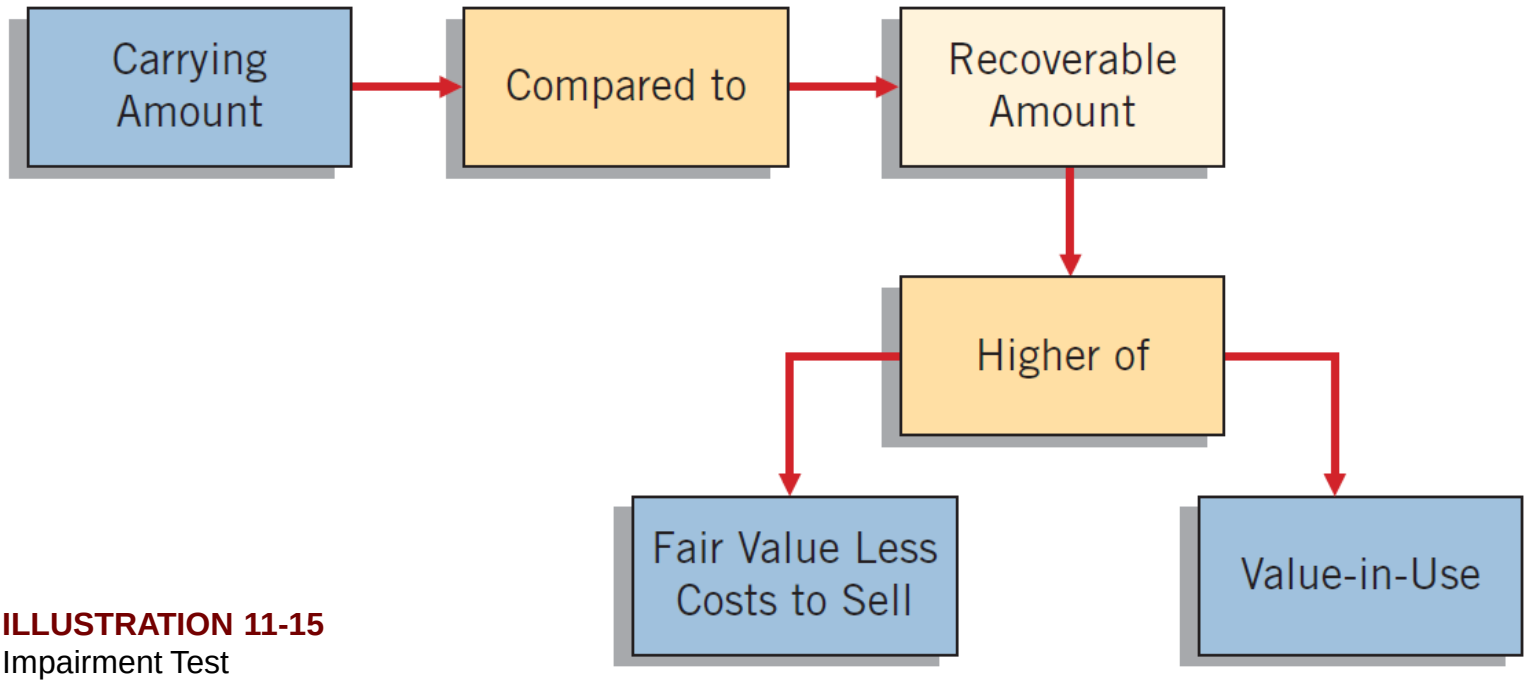


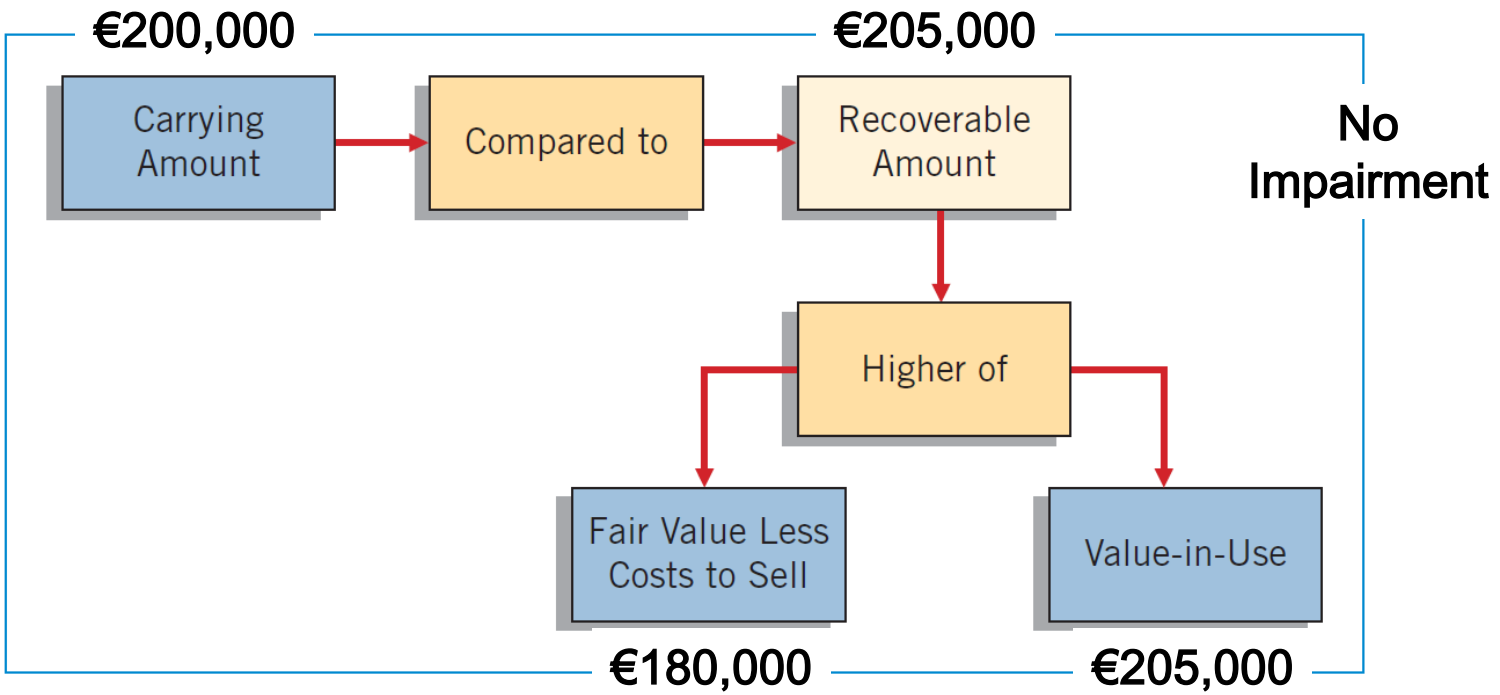
ILLUSTRATION 11-15
Impairment Test

LO 5

Recognizing Impairments

Example: Assume that Cruz Company performs an impairment test for its equipment. The carrying amount of Cruz's equipment is €200,000, its fair value less costs to sell is €180,000, and its value-in-use is €205,000.

ILLUSTRATION 11-15



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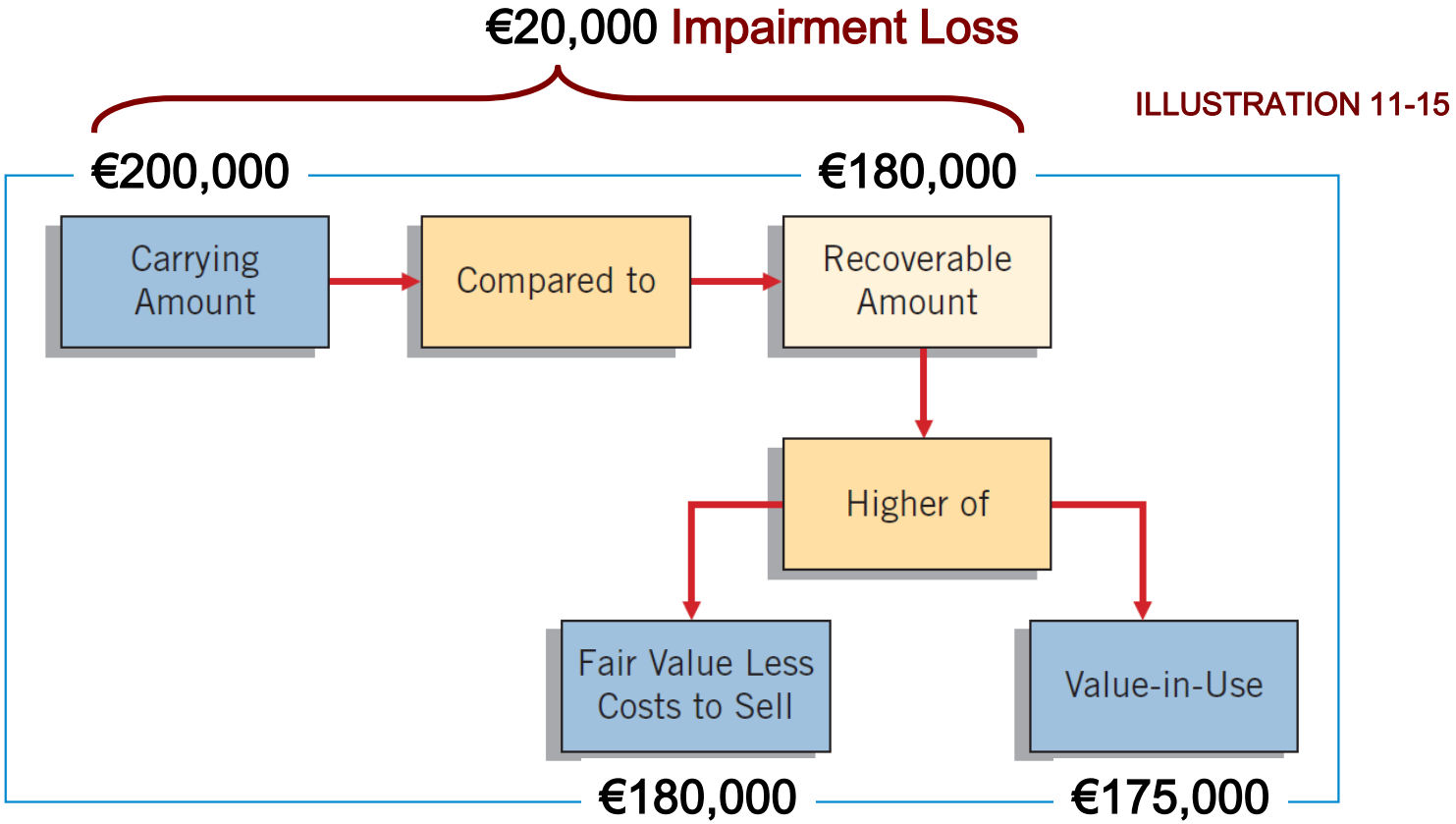
Recognizing Impairments

Example: Assume the same information for Cruz Company except that the value-in-use of Cruz's equipment is €175,000 rather than €205,000.



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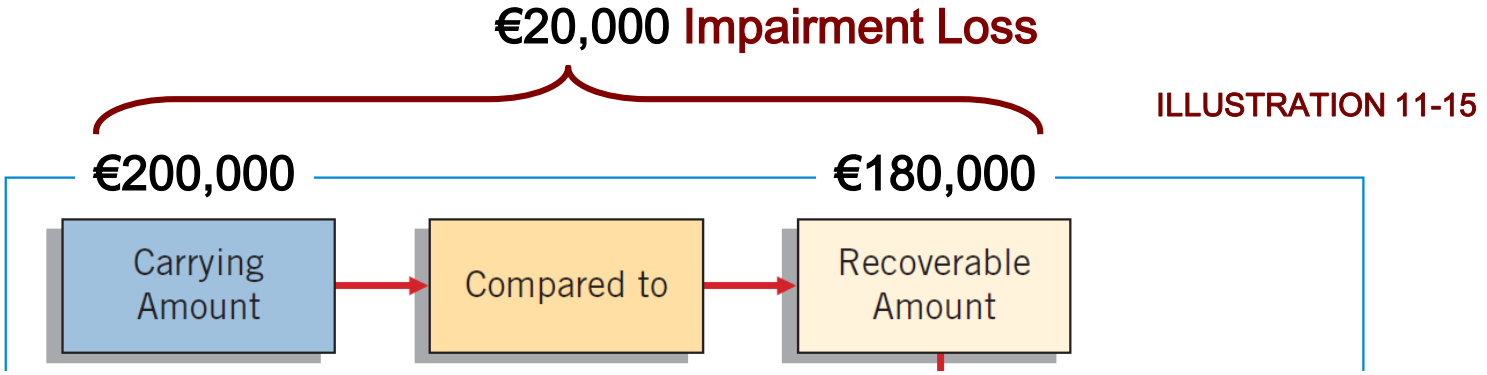
Recognizing Impairments

Example: Assume the same information for Cruz Company except that the value-in-use of Cruz's equipment is €175,000 rather than €205,000.



Cruz makes the following entry to record the impairment loss.

Loss on Impairment	20,000	
Accumulated Depreciation—Equipment		20,000

Impairment Illustrations

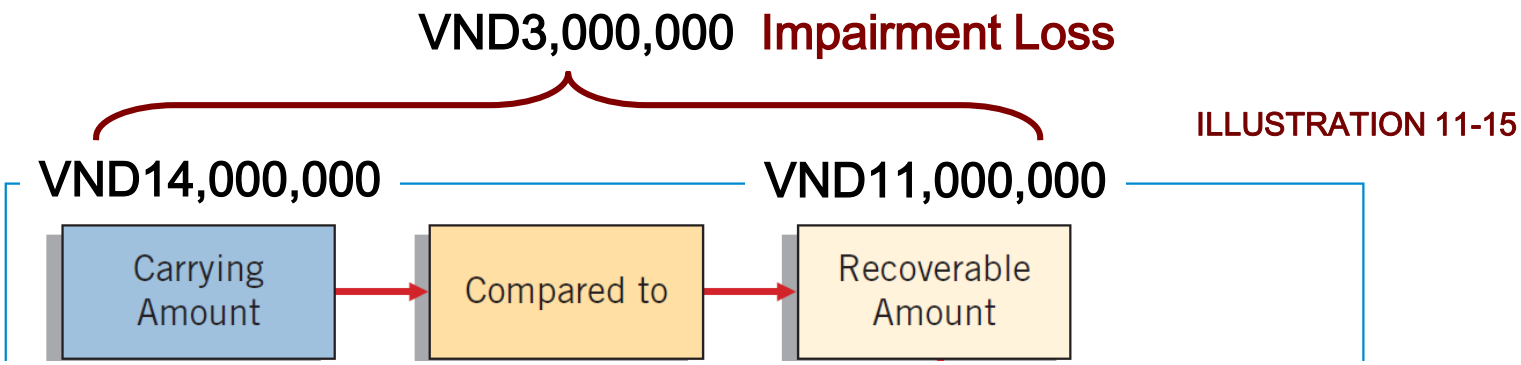
Case 1

At December 31, 2016, Hanoi Company has equipment with a cost of VND26,000,000, and accumulated depreciation of VND12,000,000. The equipment has a total useful life of four years with a residual value of VND2,000,000. The following information relates to this equipment.

1. The equipment's carrying amount at December 31, 2016, is VND14,000,000 (VND26,000,000 - VND12,000,000).
2. Hanoi uses straight-line depreciation. Hanoi's depreciation was VND6,000,000 [(VND26,000,000 - VND2,000,000) ÷ 4] for 2016 and is recorded.
3. Hanoi has determined that the recoverable amount for this asset at December 31, 2016, is VND11,000,000.
4. The remaining useful life of the equipment after December 31, 2016, is two years.

Impairment Illustrations

Case 1: Hanoi records the impairment on its equipment at December 31, 2016, as follows.



Loss on Impairment	3,000,000	
Accumulated Depreciation—Equipment		3,000,000

Impairment Illustrations

Equipment	VND 26,000,000
Less: Accumulated Depreciation-Equipment	15,000,000
Carrying value (Dec. 31, 2016)	VND 11,000,000

Hanoi Company determines that the equipment's total useful life has not changed (remaining useful life is still two years). However, the estimated residual value of the equipment is now zero. Hanoi continues to use straight-line depreciation and makes the following journal entry to record depreciation for 2017.

Depreciation Expense	5,500,000	
Accumulated Depreciation—Equipment		5,500,000

Impairment Illustrations

Case 2

At the end of 2015, Verma Company tests a machine for impairment. The machine has a **carrying amount of $200,000**. It has an estimated remaining remaining **useful life of five years**. Because there is little market-related information on which to base a recoverable amount based on fair value, Verma determines the machine's recoverable amount should be **based on value-in-use**. Verma uses a **discount rate of 8 percent**. Verma's analysis indicates that its future **cash flows will be $40,000 each year for five years**,

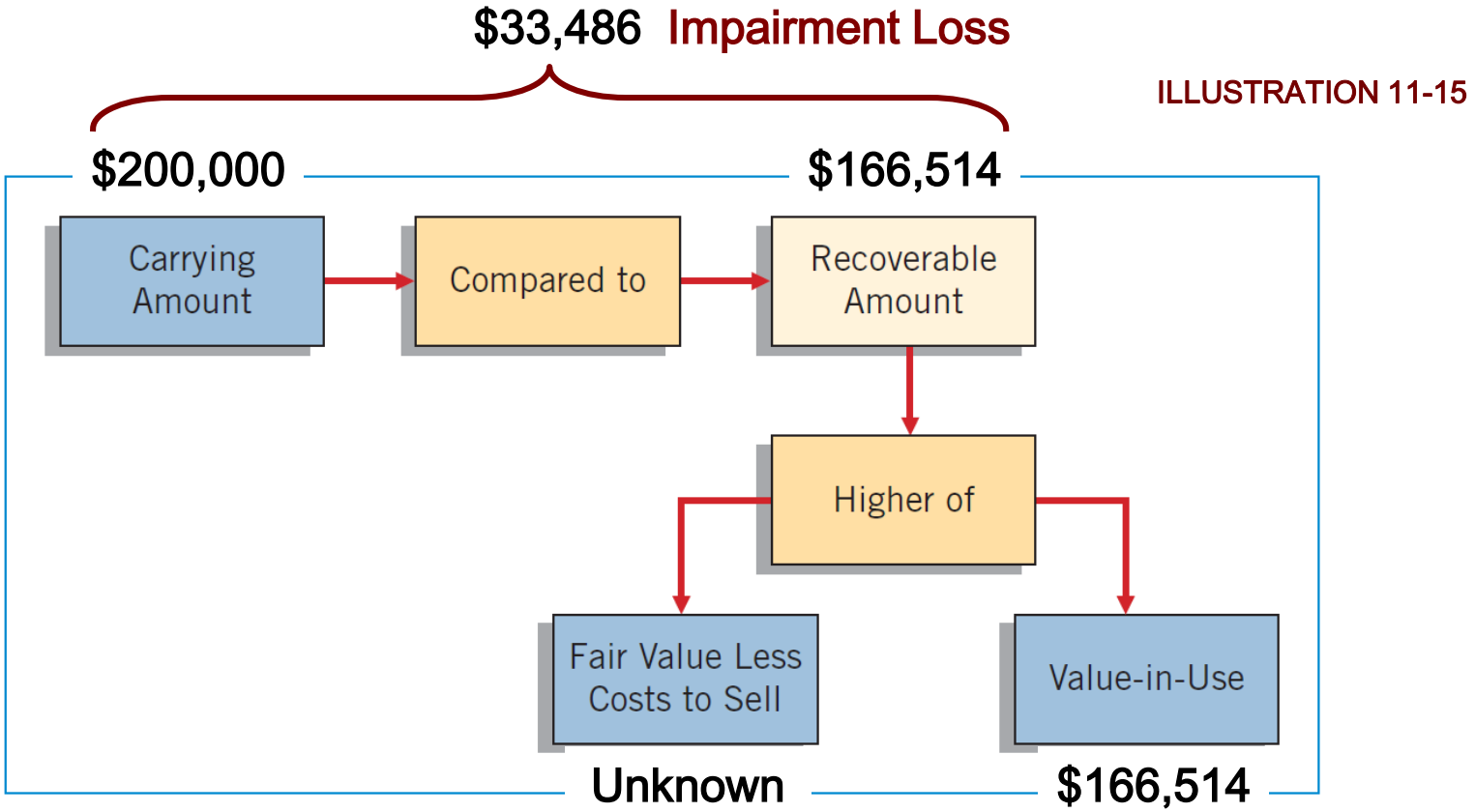
Present value of 5 annual payments of $40,000 ($40,000 × 3.99271, Table 6-4)	$159,708.40
Present value of residual value of $10,000 ($10,000 × .68058, Table 6-1)	6,805.80
Value-in-use related to machine	$166,514.20

ILLUSTRATION 11-16
Value-in-Use Computation

LO 5

Impairment Illustrations

Case 2: Computation of the impairment loss on the machine at the end of 2015.



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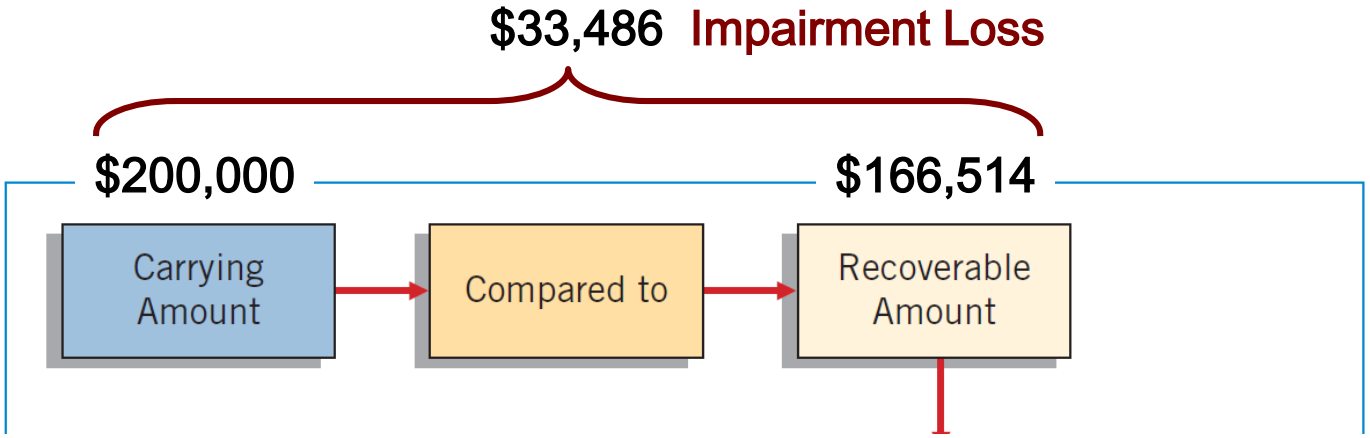
Impairment Illustrations

Case 2: Computation of the impairment loss on the machine at the end of 2015.



Loss on Impairment	33,486	
Accumulated Depreciation—Machinery		33,486

Reversal of Impairment Loss

Illustration: Tan Company purchases equipment on January 1, 2015, for HK$300,000, useful life of three years, and no residual value.

Year	Depreciation Expense	Carrying Amount
2015	HK$100,000 (HK$300,000/3)	HK$200,000
2016	HK$100,000 (HK$300,000/3)	HK$100,000
2017	HK$100,000 (HK$300,000/3)	0

At December 31, 2015, Tan records an impairment loss of HK$20,000.

Loss on Impairment	20,000	
Accumulated Depreciation—Equipment		20,000

Reversal of Impairment Loss

Depreciation expense and related carrying amount after the impairment.

Year	Depreciation Expense	Carrying Amount
2016	HK$90,000 (HK$180,000/2)	HK$90,000
2017	HK$90,000 (HK$180,000/2)	0

At the end of 2016, Tan determines that the recoverable amount of the equipment is HK$96,000. Tan reverses the impairment loss.

Accumulated Depreciation—Equipment	6,000	
Recovery of Impairment Loss		6,000

IMPAIRMENTS

Cash-Generating Units

When it is not possible to assess a single asset for impairment because the single asset generates cash flows only in combination with other assets, companies **identify the smallest group of assets** that can be identified that generate cash flows independently of the cash flows from other assets.

IMPAIRMENTS

Impairment of Assets to Be Disposed Of

- Report the impaired asset at the lower-of-cost-or-net realizable value (fair value less costs to sell).
- No depreciation or amortization is taken on assets held for disposal during the period they are held.
- Can write up or down an asset held for disposal in future periods, as long as the carrying amount after the write up never exceeds the carrying amount of the asset before the impairment.

IMPAIRMENTS

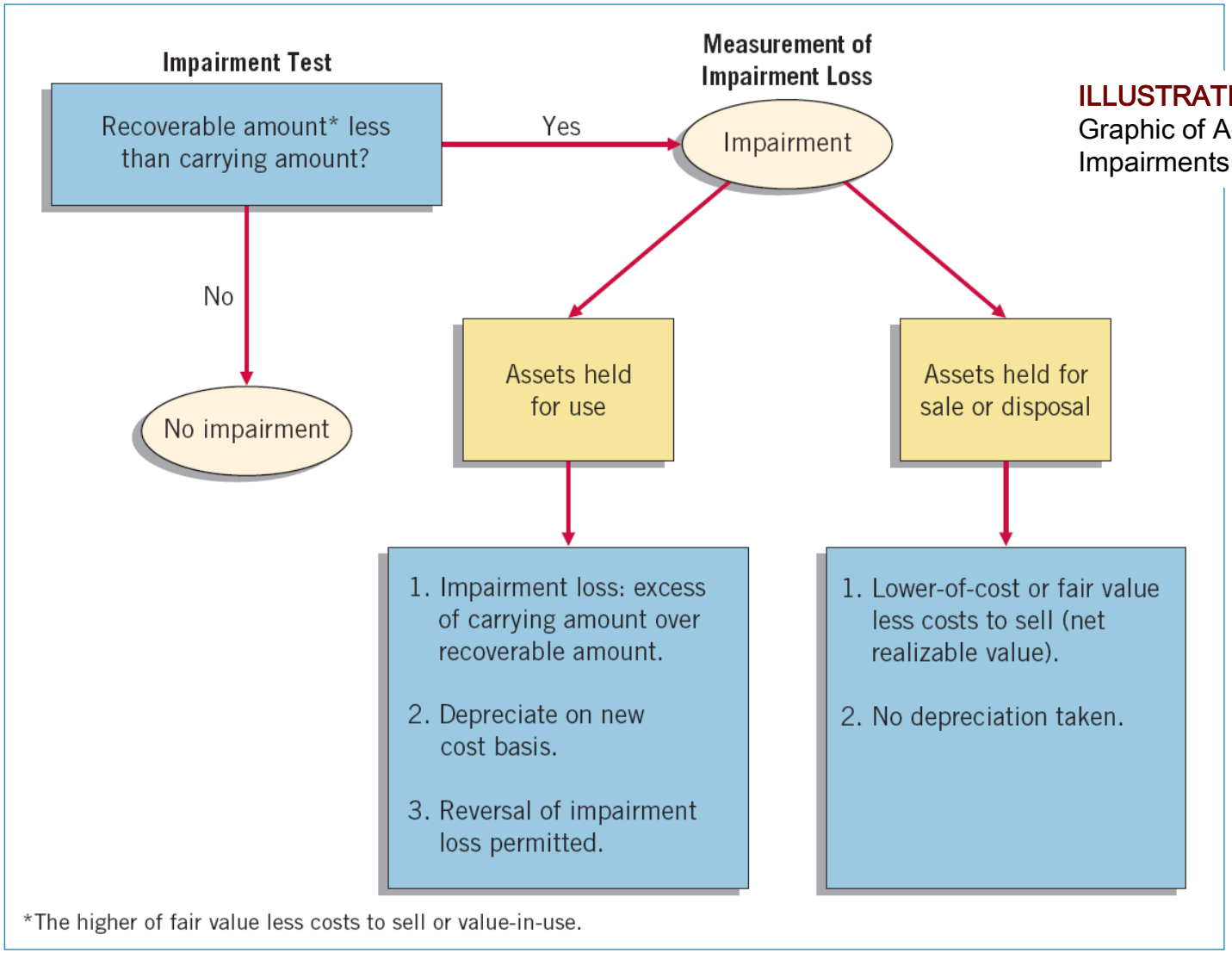


ILLUSTRATION 11-18
Graphic of Accounting for Impairments

LO 5

CHAPTER 11

Depreciation, Impairments, and Depletion

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DEPLETION

Natural resources can be divided into two categories:

1. **Biological assets** (timberlands)
   - Fair value approach (chapter 9)
2. **Mineral resources** (oil, gas, and mineral mining).
   - Complete removal (consumption) of the asset.
   - Replacement of the asset only by an act of nature.

Depletion - process of allocating the cost of mineral resources.

DEPLETION

Establishing a Depletion Base

Computation of the depletion base involves:

1. Pre-exploratory costs.
2. Exploratory and evaluation costs.
3. Development costs.

DEPLETION

Write-off of Resource Cost

Normally, companies compute depletion on a **units-of-production method** (activity approach). Depletion is a function of the number of units extracted during the period.

Calculation:

$$\frac{\text{Total Cost} - \text{Residual value}}{\text{Total Estimated Units Available}} = \text{Depletion Cost Per Unit}$$

$$\text{Units Extracted} \times \text{Cost Per Unit} = \text{Depletion}$$

DEPLETION

Illustration: MaClede Co. acquired the right to use 1,000 acres of land in South Africa to mine for silver. The lease cost is €50,000, and the related exploration costs on the property are €100,000. Intangible development costs incurred in opening the mine are €850,000. MaClede estimates that the mine will provide approximately 100,000 ounces of gold.

ILLUSTRATION 11-19
Computation of Depletion Rate

$$\frac{\text{Total Cost} - \text{Residual Value}}{\text{Total Estimated Units Available}} = \text{Depletion Cost per Unit}$$

$$\frac{\qquad\qquad}{\qquad\qquad} =$$

DEPLETION

If MaClede extracts 25,000 ounces in the first year, then the depletion for the year is €250,000 (25,000 ounces x €10).

Inventory	250,000	
Accumulated Depletion		250,000

MaClede's statement of financial position:

ILLUSTRATION 11-20
Statement of Financial Position
Presentation of Mineral Resource

Silver mine (at cost)	€1,000,000	
Less: Accumulated depletion	250,000	€750,000

Depletion cost related to inventory sold is part of cost of goods sold.

DEPLETION

Estimating Recoverable Reserves

- Same as accounting for changes in estimates.
- Revise the depletion rate on a prospective basis.
- Divide the remaining cost by the new estimate of the recoverable reserves.

DEPLETION

Liquidating Dividends - Dividends greater than the amount of accumulated net income.

Illustration: Callahan Mining had a retained earnings balance of £1,650,000, accumulated depletion on mineral properties of £2,100,000, and share premium of £5,435,493. Callahan's board declared a dividend of £3 a share on the 1,000,000 shares outstanding. It records the £3,000,000 cash dividend as follows.

Retained Earnings	1,650,000	
Share Premium—Ordinary	1,350,000	
Cash		3,000,000

DEPLETION

Presentation on the Financial Statements

Disclosures related to E&E expenditures should include:

1. Accounting policies for exploration and evaluation expenditures, including the recognition of E&E assets.
2. Amounts of assets, liabilities, income and expense, and operating cash flow arising from the exploration for and evaluation of mineral resources.

CHAPTER 11

Depreciation, Impairments, and Depletion

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. Explain the concept of depreciation.
2. Identify the factors involved in the depreciation process.
3. Compare activity, straight-line, and diminishing-charge methods of depreciation.
4. Explain component depreciation.
5. Explain the accounting issues related to asset impairment.
6. Explain the accounting procedures for depletion of mineral resources.
7. **Explain the accounting for revaluations.**
8. Explain how to report and analyze property, plant, equipment, and mineral resources.

REVALUATIONS

Recognizing Revaluations

Companies may **value long-lived tangible asset** subsequent to acquisition at **cost or fair value**.

Network Rail (GBR) elected to use fair values to account for its railroad network.

- Increased long-lived tangible assets by £4,289 million.
- Change in the fair value accounted for by adjusting the asset account and establishing an unrealized gain.
- Unrealized gain is often referred to as **revaluation surplus**.

Recognizing Revaluation

Revaluation—Land

Illustration: **Siemens Group (DEU)** purchased land for €1,000,000 on January 5, 2015. The company elects to use revaluation accounting for the land in subsequent periods. At December 31, 2015, the land's fair value is €1,200,000. The entry to record the land at fair value is as follows.

Land	200,000	
Unrealized Gain on Revaluation - Land		200,000

Unrealized Gain on Revaluation—Land increases other comprehensive income in the statement of comprehensive income.

Recognizing Revaluation

Revaluation—Depreciable Assets

Illustration: **Lenovo Group (CHN)** purchases equipment for ¥500,000 on January 2, 2015. The equipment has a useful life of five years, is depreciated using the straight-line method of depreciation, and its residual value is zero. Lenovo chooses to revalue its equipment to fair value over the life of the equipment. Lenovo records depreciation expense of ¥100,000 (¥500,000 ÷ 5) at December 31, 2015, as follows.

Depreciation Expense	100,000	
Accumulated Depreciation—Equipment		100,000

Recognizing Revaluation

Revaluation—Depreciable Assets

After this entry, Lenovo's equipment has a carrying amount of ¥400,000 (¥500,000 - ¥100,000). Lenovo receives an independent appraisal for the fair value of equipment at December 31, 2015, which is ¥460,000.

Accumulated Depreciation—Equipment	100,000	
Equipment		40,000
Unrealized Gain on Revaluation—Equipment		60,000

Recognizing Revaluation

Revaluation—Depreciable Assets

ILLUSTRATION 11-22
Financial Statement Presentation—Revaluations

Statement of Comprehensive Income	
Other comprehensive income	
Unrealized gain on revaluation—equipment	¥ 60,000
Statement of Financial Position	
Non-current assets	
Equipment (¥500,000 − ¥40,000)	¥460,000
Accumulated depreciation—equipment (¥100,000 − ¥100,000)	−0−
Carrying amount	¥460,000
Equity	
Accumulated other comprehensive income	¥ 60,000

Under no circumstances can the Accumulated Other Comprehensive Income account related to revaluations have a negative balance.

Recognizing Revaluation

Revaluations Issues

Company can select to value only one class of assets, say buildings, and not revalue other assets such as land or equipment.

If a company selects only buildings,

- revaluation applies to all assets in that class of assets.
- A class of assets is a grouping of items that have a similar nature and use in a company's operations.
- Companies must also make every effort to keep the assets' values up to date.

CHAPTER 11

Depreciation, Impairments, and Depletion

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. Explain the concept of depreciation.
2. Identify the factors involved in the depreciation process.
3. Compare activity, straight-line, and diminishing-charge methods of depreciation.
4. Explain component depreciation.
5. Explain the accounting issues related to asset impairment.
6. Explain the accounting procedures for depletion of mineral resources.
7. Explain the accounting for revaluations.
8. **Explain how to report and property, plant, equipment, and mineral resources**.

PRESENTATION AND ANALYSIS

Presentation of Property, Plant, Equipment, and Mineral Resources

Depreciating assets, use Accumulated Depreciation.

Depleting assets may include use of Accumulated Depletion account, or the direct reduction of asset.

Disclosures

- Basis of valuation (usually cost)
- Pledges, liens, and other commitments

Analysis of Property, Plant, and Equipment

Asset Turnover Ratio

adidas AG	
Net sales	€14,883
Total assets, 12/31/12	11,651
Total assets, 12/31/11	11,237
Net income	524

Measures how efficiently a company uses its assets to generate sales.

$$\text{Asset Turnover} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

$$= \frac{\phantom{\text{Net Sales}}}{\phantom{\text{Average Total Assets}}}$$

$$= \phantom{\frac{\text{Net Sales}}{\text{Average Total Assets}}}$$

ILLUSTRATION 11-24
Asset Turnover

LO 8

PRESENTATION AND ANALYSIS

Analysis of Property, Plant, and Equipment

Profit Margin on Sales

adidas AG	
Net sales	€14,883
Total assets, 12/31/12	11,651
Total assets, 12/31/11	11,237
Net income	524

Measure of the ability to generate operating income from a particular level of sales.

Profit Margin on Sales = Net Income / Net Sales
= ____ / ____
=

ILLUSTRATION 11-25
Profit Margin on Sales

LO 8

Analysis of Property, Plant, and Equipment

Return on Assets (ROA)

adidas AG	
Net sales	€14,883
Total assets, 12/31/12	11,651
Total assets, 12/31/11	11,237
Net income	524

Measures a firm's success in using assets to generate earnings.

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

$$= \frac{}{}$$

$$=$$

ILLUSTRATION 11-26
Return on Assets

PRESENTATION AND ANALYSIS

Analyst obtains further insight into the behavior of ROA by **disaggregating** it into components of profit margin on sales and asset turnover as follows:

Rate of Return on Assets	=	Profit Margin on Sales	x	Asset Turnover
$\frac{\text{Net Income}}{\text{Average Total Assets}}$	=	$\frac{\text{Net Income}}{\cancel{\text{Net Sales}}}$	x	$\frac{\cancel{\text{Net Sales}}}{\text{Average Total Assets}}$

PRESENTATION AND ANALYSIS

Analyst obtains further insight into the behavior of ROA by **disaggregating** it into components of profit margin on sales and asset turnover as follows:

Rate of Return on Assets	=	Profit Margin on Sales	x	Asset Turnover
€524 / (€11,651 + €11,237) / 2	=	€524 / €14,883	x	€14,883 / (€11,651 + €11,237) / 2
4.6%	=	3.5%	x	1.30

GLOBAL ACCOUNTING INSIGHTS

PROPERTY, PLANT, AND EQUIPMENT

U.S. GAAP adheres to many of the same principles as IFRS in the accounting for property, plant, and equipment. Major differences relate to use of component depreciation, impairments, and revaluations.

GLOBAL ACCOUNTING INSIGHTS

Relevant Facts

Following are the key similarities and differences between U.S. GAAP and IFRS related to property, plant, and equipment.

Similarities

- The definition of property, plant, and equipment is essentially the same under U.S. GAAP and IFRS.
- Under both U.S. GAAP and IFRS, changes in depreciation method and changes in useful life are treated in the current and future periods. Prior periods are not affected.
- The accounting for plant asset disposals is the same under U.S. GAAP and IFRS.

GLOBAL ACCOUNTING INSIGHTS

Relevant Facts

Similarities

- The accounting for the initial costs to acquire natural resources is similar under U.S. GAAP and IFRS.
- Under both U.S. GAAP and IFRS, interest costs incurred during construction must be capitalized. Recently, IFRS converged to U.S. GAAP.
- The accounting for exchanges of non-monetary assets is essentially the same between U.S. GAAP and IFRS. U.S. GAAP requires that gains on exchanges of non-monetary assets be recognized if the exchange has commercial substance. This is the same framework used in IFRS.
- U.S. GAAP and IFRS both view depreciation as allocation of cost over an asset's life. U.S. GAAP and IFRS permit the same depreciation methods (straight-line, diminishing-balance, units-of-production).

GLOBAL ACCOUNTING INSIGHTS

Relevant Facts

Differences

- Under U.S. GAAP, component depreciation is permitted but is rarely used. IFRS requires component depreciation.
- U.S. GAAP does not permit revaluations of property, plant, equipment, and mineral resources. Under IFRS, companies can use either the historical cost model or the revaluation model.
- In testing for impairments of long-lived assets, U.S. GAAP uses a different model than IFRS. Under U.S. GAAP, as long as future undiscounted cash flows exceed the carrying amount of the asset, no impairment is recorded. The IFRS impairment test is stricter. However, unlike U.S. GAAP, reversals of impairment losses are permitted under IFRS.

About The Numbers

As indicated, impairment testing under U.S. GAAP is a two-step process. The graphic on page 520 summarizes impairment measurement under U.S. GAAP. The key distinctions relative to IFRS relate to the use of a cash flow recovery test to determine if an impairment test should be performed. Also, U.S. GAAP does not permit reversal of impairment losses for assets held for use.

On the Horizon

With respect to revaluations, as part of the conceptual framework project, the Boards will examine the measurement bases used in accounting. It is too early to say whether a converged conceptual framework will recommend fair value measurement (and revaluation accounting) for property, plant, and equipment. However, this is likely to be one of the more contentious issues, given the long-standing use of historical cost as a measurement basis in U.S. GAAP.

APPENDIX 11A REVALUATION OF PROPERTY, PLANT, AND EQUIPMENT

The general rules for revaluation accounting are as follows.

1. When a company revalues its long-lived tangible assets above historical cost, it reports an unrealized gain that increases other comprehensive income. Thus, the unrealized gain bypasses net income, increases other comprehensive income, and increases accumulated other comprehensive income.

2. If a company experiences a loss on impairment (decrease of value below historical cost), the loss reduces income and retained earnings. Thus, gains on revaluation increase equity but not net income, whereas losses decrease income and retained earnings (and therefore equity).

LO 9 Explain revaluation accounting procedures.

APPENDIX 11A REVALUATION OF PROPERTY, PLANT, AND EQUIPMENT

3. If a revaluation increase reverses a decrease that was previously reported as an impairment loss, a company credits the revaluation increase to income using the account Recovery of Impairment Loss up to the amount of the prior loss. Any additional valuation increase above historical cost increases other comprehensive income and is credited to Unrealized Gain on Revaluation.

4. If a revaluation decrease reverses an increase that was reported as an unrealized gain, a company first reduces other comprehensive income by eliminating the unrealized gain. Any additional valuation decrease reduces net income and is reported as a loss on impairment.

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