

Chapter 11 :-

Depreciation, Impairments, and depletion :-

* Depreciation :-

توزيع تكلفة asset على فترة حياته.

↓ ينقل كوسيلة الوكيلين إلى استهلاك

• Allocating costs of long-lived asset :-

- Fixed asset = Depreciation expense

- Intangibles = Amortization expense

- Natural resources = Depletion expense

~~depreciable~~ * depreciable base :-

Cost - Salvage value

Depreciable Base for the asset :-

Original cost 10000

Less Salvage value 1000

Depreciation Base 9000

Estimation of Service lives

① Service life often differs from physical life

(الحياة المادية غالباً تختلف عن العمر الفعلي)

② Companies retire assets for two reasons :-

(1) إهلاك طبيعي (2) إهلاك اقتصادي

A *Physical Factors (casualty or expiration of Physical life)

انتهاء صلاحية ال asset وعموماً انتهي

B* Economic Factors (inadequacy, ~~supperse~~ supersession, obsolescence)

عوامل اقتصادية (عدم كفاية، التقادم التكنولوجي، التآكل)

*Methods of depreciation:-

- 1) Activity method (unit of activity)
- 2) Straight-line method
- 3) Sum of the years digits
- 4) Declining balance method.] → Decreasing charge method
- 5) Group and composite methods
- 6) Hybrid or combination methods] → Special method

⇒ 3, 4 - Decreasing charge method

لأنهم يخططوا depreciation على السنوات الأولى

و بعد ما يبلت يقل (أكثر شئ يطبقه ال

matching principle) ⇒ 3, 4

⇒ 5, 6 - Special method من أجل تطبيقه

① Activity method:-

Cost of crane 5000000

Estimated useful life 5 years

Estimated Salvage Value 50000

Productive life in hours 30000 hours

- If Stanley uses the crane for 4000 hours the first year, the depreciation charge is ?

Depreciation Charge = $\frac{\text{Cost} - \text{salvage value}}{\text{total estimated hours}} \times \text{Hours this Year}$

$$\begin{aligned} \text{units of activity} &= \frac{4500000}{30000} \\ &= 150 \end{aligned} \quad \left\{ \begin{aligned} &\frac{(5000000 - 50000) \times 4000}{30000} \\ &= 60000 \text{ (annual)} \end{aligned} \right.$$

② Straight line method

$$\begin{aligned} \text{Depreciation Charge} &= \frac{\text{Cost} - \text{Salvage value}}{\text{Estimated service life (in years)}} \\ &= \frac{5000000 - 50000}{5} \\ &= 900000 \end{aligned}$$

③ decreasing Charge method

⇒ double declining balance method.

Rate $\frac{1}{\text{Useful life}} \times 2$

$$\text{Rate} = \frac{900000}{4500000} = 20\%$$

① Activity method:-

Cost of crane 500000

Estimated useful life 5 years

Estimated Salvage Value 50000

Productive life in hours 30000 hours

- If Stanley uses the crane for 4000 hours the first year, the depreciation charge is ?

$$\text{Depreciation Charge} = \frac{(\text{Cost} - \text{salvage value}) \times \text{Hours this Year}}{\text{total estimated hours}}$$

$$\begin{aligned} \text{units of activity} &= \frac{450000}{30000} \\ &= 15 \end{aligned}$$

$$\begin{aligned} &= \frac{(500000 - 50000) \times 4000}{30000} \\ &= 60000 \text{ (annual)} \end{aligned}$$

② Straight-line method

$$\begin{aligned} \text{Depreciation Charge} &= \frac{(\text{Cost} - \text{Salvage value})}{\text{Estimated service life (in years)}} \\ &= \frac{500000 - 50000}{5} \\ &= 90000 \end{aligned}$$

③ decreasing Charge method

→ double declining balance method.

Rate $\frac{1}{\text{Useful life}} \times 2$

$$\text{Rate} = \frac{90000}{450000} = 20\%$$

Declining Balance method = BV at the Beging Period
 $\times$ DB Rate

④ Sum of Years digits (SYD)

SYD = Dep. Cost = $\frac{\text{Remaning UL at Beg. of the period}}{\text{Sum of the year}}$
 (cost - SV)

*Year	Dep. Base	Dep. expense	BV
Y ₁	450000	5/15 = 150000	
Y ₂	450000	4/15	120000
Y ₃	450000	3/15	90000
Y ₄	450000	2/15	60000
Y ₅	450000	1/15	30000
		15/15	

← نزول بابت سنوات

* Sum of the Years = $\frac{n(n+1)}{2}$

Example Slide 17 :-

A) Strigh line method

$$SLM = \text{Cost} - SV$$

$$= 150000 - 24000$$

$$= 126000$$

$$\Rightarrow \frac{SLM}{UL} = \frac{126000}{5} = 25200$$

$$Y_1 = 25200 \times 5/12 = \boxed{10500}$$

$$Y_2 = 25200 \text{ (ثلاثة أشهر)}$$

$$Y_3 = 25200$$

$$Y_4 = 25200$$

$$Y_5 = 25200$$

$$Y_6 = 25200 \times (7/12) = \boxed{14700}$$

$$= 25200$$

* دفعة من أصلها في الأرباح
من أصلها في الأرباح

B) Activity method $\Rightarrow$

$$\frac{\text{Dep Base}}{\text{Est. Unit}} = \frac{126000}{21000} = 6\$$$

$$\text{Dep cost per hour} = 6 \times 800 = 4800$$

C) Double deding method

$$= BV \times \text{Rate (2)}$$

40%

Y ₁	150000	x 40%	60000	x 5/12 = 25000
Y ₂	125000	x 40%	50000	
Y ₃	75000	x 40%	30000	
Y ₄	45000	x 40%	18000	
Y ₅	27000	x 40%	10800	plug 3000

D) SYD = Depreciable Cost x Remaining V.L.

Sum of Years

$$Y_1 = 126000 \times \frac{5}{15} = 42000 \times \frac{5}{12} = 17500$$

$$Y_2 = 126000 \times \frac{4.5833}{15} = 38500$$

$$Y_3 = 126000 \times \frac{3.5833}{15} = 30100$$

$$Y_4 = 126000 \times \frac{2.5833}{15} = 21700$$

$$Y_5 = 126000 \times \frac{1.5833}{15} = 13300$$

$$Y_6 = 126000 \times \frac{0.5833}{15} = 4900$$

* Special method 8 -

Example Slide 24g -

BS 8 - Cars, Trucks, Campers 224000

Loss $\Rightarrow$ Acc. Dep.

Dr Depreciation Expense 56000

Cr Accumulated depreciation 56000

SLM = composite depreciation Rate

$$= \frac{\text{Total dep. expense}}{\text{Total original cost}} = \frac{56000}{224000} = 25\%$$

Composite life = $\frac{\text{Total depreciation cost}}{\text{Total depreciation exp}}$

$$= \frac{190000}{56000} \rightarrow 3.39$$

Example Slide 25g -

Item

Campers $\Rightarrow$ Cost 5000 $\downarrow$ cash 2600
Acc. Depreciation

Acc. Depreciation 2400

Cash 2600

Cars, Trucks, Campers 5000

← الفرق بين cash و cost
 ما يكون لا gain ولا loss بسيط
 Acc. Depreciation

Example Slide 20 ⇒

Five Fractional Year Policies

SLM ⇒ Machine = 45000

↓

U.L = 5 years

June 10

Y₁

Y₂

Y₃

Y₄

Y₅

Y₆

5000

9000

9000

9000

9000

4000

45000

0

$$SLM = \frac{Cost - SV}{U.L}$$

5 U.L

= 9000

• Nearest a fraction of a Year

10 June ⇒ $\frac{20}{30} = 0.6667 \approx 2/3$ Days

10 June → Dec 31 (6/12)

← Month

$$9000 \times \frac{6.6667}{12} = 5000$$

* Nearest Full month

1-15 June

Full

16-30

Zero

Y₁ ⇒ $9000 \times 7/12$

= 5250

Y₆

= $9000 \times 5/12$

= 3750

- Half Year in period of acquisition and disposal

بفترة اثنى عشر شهرا اول سنة واحدة والثاني في آخر سنة

$$Y_1 = 4500$$

$$Y_6 = 4500$$

- Full Year in Period

بفترة اثنى عشر شهرا اول سنة واحدة والثاني في آخر سنة

$$Y_1 = 9000$$

$$Y_6 = \emptyset$$

- None Year in Period

$$Y_1 = \emptyset$$

$$Y_6 = 9000$$

Cost = actual

SV = Est.

UL = Est.

depreciation

أغلب الـ dep. في آخر سنة

Example Slide 328-

$$\text{Cost} = 510000$$

$$\text{SV} = 10000$$

$$\text{UL} = 10 \text{ Years}$$

$$\text{SV} = 5000$$

$$\text{UL} = 15 \text{ Years}$$

• SLM

↑ New Est.

$$\begin{aligned} & \text{Revision Dep. Exp.} \\ &= \text{Beg. BV} - \text{New SV} \\ & \quad \text{Remaining UL} \end{aligned}$$

$$SLM = \frac{510000 - 10000}{10} = 50000$$

$$50000 \times 7 \text{ Years} \\ = 350000$$

$$\begin{aligned} BV &= \text{Cost} - \text{Acc. Dep} \\ &= 510000 - 350000 \\ &= 160000 \\ &\quad - SV (5) \\ &\quad \hline &155000 \end{aligned}$$

Impairments-

Going concern assumptions-

⇓

Recoverability concept.

test (Impairment loss) Dr

Cr Acc. Dep.

Carrying value $\Rightarrow$ Cost - Acc. Dep.

Test #1 Recoverability Test

Sum of expected Net future cash flow

إذا كان أكبر من CV ~~فإنه ليس~~ $\Rightarrow$ impairment $\neq$ CV

إذا كان أقل من CV $\Rightarrow$ Yes impairment $\neq$ CV

Test #2 Amount of impairment loss

$CV > \text{Fair value or PV of Expected NCF}$

Dr Impairment loss

Cr Acc. Dep.

Asset held for

1 - Test (2) Fair value

$\Rightarrow$ amount of impairment loss.

$CV > \text{fair value or PV of Exp}$

2 - Depreciation Expense

(New cost basis)

$\frac{BV \text{ at beg.} - SR}{\text{remaining U.L.}}$

3 Restoration (write up)

~~مبلغ~~ $\uparrow$ مبلغ

Limit: not above CV before imp.

المبلغ المسموح به للإصلاح = impairment + المبلغ قبل الإهلاك

Asset held for disposal

1 - Test (2) fair value amount of impairment loss

$CV > \text{net fair value}$

(PV - cost of disposal)

2 - Depreciation (No Dep.)

3 - Restoration is allowed (write off)

المبلغ المسموح به للإصلاح

Dr Acc. Dep.

Cr Restoration of previously impairment loss.

Example Slide 39:-

Test (1) Recoverability test

Sum of Exp NCF CV

$$650000 > 600000$$

No impairment

$$CV = \text{Cost} - \text{Acc. Dep.}$$

$$= 80000 - 200000$$

$$= 600000$$

~~No impairment~~

Example Slide 40:-

Sum of Expense NCF

$$\text{① } 580000$$

CV

$$600000$$

Yes impairment

Test ② Fair value test (impairment of imp. loss)

⇒ Asset held for use

$$CV > FV$$

$$600000 > 525000 \leftarrow \text{New cash basis}$$

$$75000 \leftarrow \text{impairment cost}$$

Dr Impairment loss 75000

Cr Acc. Dep. 75000

Assume: the asset is held for disposal

Test (2) FV test:-

CV > net FV

$$600000 > 522000$$

78000 ← loss

* net FV = FV - cost of disposal

$$= 525000 - 3000$$

$$= 522000$$

* Depletion :-

BS ← PP&E

- Natural resources wasting assets.

الأصول المستنفدة التي تخضع على الموارد الطبيعية (تستنفد بشكل دائم).

• Depletion: process of allocating the cost of natural resources.

← مرحلة من مراحل توزيع وتخصيص تكلفة المصادر الطبيعية.

* Establishing a Depletion base

① Acquisition cost تعريف شراء الموارد الطبيعية

② Cash paid for undeveloped land

(I have the right to search and explore)

نحن إذا شريتموها وحقوقنا أو بترولنا في المنطقة
اكتشف الأرض واتأكدنا إذا فيها موارد.

Entry الرأبكونة

Dr undeveloped land

Cr cash

⇒ positive results

نتيجة إيجابية وفراً لثبات
Dr mine gold undeveloped land

⇒ negative results

Dr exploration expense / loss

Cr undeveloped land

② Cash paid purchase price for ready all discovered resources

طريق الأرض والتملكة التوفيقا natural resources

Dr mine Silver / oil / etc

Cr cash

③ PS of future payments ← الدفقات المستقبلية لازم نصب

ch 6/4 ordinary annuity جدول التوزيع العادي

Dr lease mine

بشرط

Cr cash

lease liability

② exploration cost

□ successful efforts concept

□ Full cost concept

الجهود ناجحة

2

Assume ⇒ ten holes (عشر حفر)

the first 7 holes were dry (unsuccessful efforts)

the last 3 holes were successful

كل حفر 10000 \$ each hole cost ⇒ 10000 \$

Dr exploration expenses 70000 (7 x 10000)

Dr mine oil 30000

Cr Cash 100000

② Full cost concept

$$\text{Depletion exp.} = \frac{\text{Depletion Base (cost - SV)}}{\text{\# of unit Estimated}}$$

→ 10 holes

→ 6 unsuccessful - 60000 (6 x 10000)

→ 4 successful = 40000 (4 x 10000)

each hole ⇒ 10000

Dr Mine Silver 100000

Cr cash 100000

→ ③ Development costs - (تكاليف التطوير)

① Tangible Equipment ② Intangible Development.

→ ① Equipment that can be used moved from one location to other locations.

→ ② Fixed Equipment (drilling Foundation)

← الأجزاء المستدامة

② Tunnels, Shafts, Wells

Dr exploration expenses 70000 (7 x 10000)

Dr mine oil 30000

Cr Cash 100000

② Full cost concept

$$\text{Depletion exp.} = \frac{\text{Depletion Base (cost - SV)}}{\# \text{ of unit Estimated}}$$

→ 10 holes

→ 6 unsuccessful - 60000 (6 x 10000)

→ 4 successful - 40000 (4 x 10000)

each hole ⇒ 10000

Dr Mine Silver 100000

Cr cash 100000

→ ③ Development costs - (مصاريف التطوير)

① Tangible Equipment ② Intangible Development.

→ ① Equipment that can be used moved from one location to other locations.

→ ② Fixed Equipment (drilling foundation)

← الأجهزة الثابتة

② Tunnels, Shafts, Wells

↳ ④ Restoration cost
Asset retirement obligation (ARO)
at the end of the mine's UL
(Future Payment) Present value

tip: solution 80

*
$$\text{Depletion Base (expense) Per unit} = \frac{\text{Cost} - \text{SV}}{\text{Estimated units extracted during UL for the N/R}}$$

$$\text{Depletion cost Per unit} \times \text{number of units extracted \& sold} = \text{Depletion Expense}$$

Example Slide 498-
lease cost 50000

exploration cost 100000

opening the mine 850000

↳ Cost = 1000000

SV = 0

$$\frac{1000000 - 0}{100000} = 10 \text{ Depletion cost per unit}$$

$$10 \times 25000$$

$$\text{Depletion Expense} = 250000$$

Dr Mine Silver 250000
 Cr Accumulated depreciation 250000

⇒ Sales of 250000

• Dr cash / Acc. Receivable.
 Cr Sales Revenue.

Dr C.G.S

Cr Mine Silver

* Estimating Recoverable Reserves.

Revision of Depletion Exp. = $\frac{BV \text{ at Beg.} - \text{new SV}}{\text{Remaining units to be extracted}}$

New E. = $150000 - 25000 = 125000$

Subst. = 125000

* Liquidating dividends -

Cash dividends = 3×1000000
 = 3000000

Dr RE 1650000

Dr APIC (paid in capital) 1350000

Cr Cash

* Asset turnover ratio

= $\frac{\text{Net Sales} \rightarrow \text{IS}}{\text{Average total Assets} \rightarrow \text{BS}}$

(Beginning total asset + Ending total asset)
2

* Profit margin on Sales

= $\frac{\text{Net income}}{\text{Net Sales}}$

* Return on assets

= $\frac{\text{Net income}}{\text{Average total assets}}$

(Bq. - End.)

2