CHAPTER 7

PLANT & MACHINERY - KEY IN GENERATING PROFITS

42 BOOKS OF ACCOUNTS - A QUICK RECAP

In Chapter 3, we talked about the Books of Accounts which are normally used by a Business. The following Books are used for the purposes of Accounting for Plant & Equipment (also commonly referred to as "Fixed Assets"):

- General ledger.
- Cash & Bank Book.

In this Chapter, wherever Accounting entries are required to be shown, we will use these two Books of Accounts for illustration purposes.

Besides the two commonly used Books of Accounts, some Businesses may also use a Fixed Assets Register. This Register is used for recording of all item-wise transactions relating to each Asset.

A Fixed Assets Register is more relevant and useful where a Business has a large number of Fixed Assets. This is not considered to be the case for SMEs.

43 WHAT ARE FIXED ASSETS?

We have already discussed the definition of Fixed Assets in Chapter 2. Just to summarize, Fixed Assets are those assets which:

- Have a long life.
- Are used by a Business over a long period.
- Are not sold during the normal running of a Business.

Some of the commonly used examples of Fixed Assets are:

- Land
- Buildings
- Motor vehicles
- Plant & machinery
- Furniture
- Computers

In short, Assets which a Business acquires or purchases, and which do not get used or consumed as part of a Business's normal business activity, are usually called Fixed Assets.

44 TANGIBLE & INTANGIBLE ASSETS

All Fixed Assets are classified between:

- Tangible Assets.

- Intangible Assets.

44.1 TANGIBLE ASSETS

Fixed Assets which have a physical existence and which can be seen, touched and felt are called "Tangible Assets", e.g. Building, Plant, Machinery etc.

44.2 INTANGIBLE ASSETS

Fixed Assets which do not have physical existence and which can not be seen, touched or even felt are called "Intangible Assets". Some examples of such assets can include goodwill, patent rights and trade mark etc.

Intangible Assets are not like machinery or equipment which generate profits for a Business. Then, why do we need Intangible Assets? In accounting language, *a fixed asset is an item which may or may not have a physical form and generates economic and financial benefits for a Business through its use over a longer period of time*. Intangibles are similar to other forms of Fixed Assets because they also generate benefits for a Business – this can best be explained by considering the following example:

EXAMPLE # 7.1

Intangible Assets

A large textile company has decided to open retail outlets through which they will sell their own manufactured products. Because this manufacturer has a good name in the market, people are willing to pay Rs. 500,000 as 10-year license fee to open, manage and run these outlets as their individual Businesses

In this case, the License Fee of Rs. 500,000 will be recognized as an Intangible Asset. This cost will get charged as an expense over 10 years because this fee has entitled the Business to operate as a Franchisee for this time period.

We shall not include a more detailed discussion on Intangible Assets except that the Accounting treatment and concepts that apply to Tangible Assets are equally applicable to Intangible Assets as well.

45 WHAT IS COST OF FIXED ASSETS?

The value at which a Fixed Asset is recorded in the Books of Accounts represents its "fair market price" which, in simple terms, at the time of purchasing of asset, is usually the original cost of that Asset including all costs which are incurred by a Business in bringing the Asset to its intended use.

EXAMPLE # 7.2 (A)

Cost of Fixed Assets

Hanif Auto Engineering purchased machinery on 1/4/06 which cost Rs. 90,000. Other expenses spent on this machinery include:

	Rs.
Taxes paid at time of purchase	8,000
Transportation charges	2,000

In this case, the cost at which machinery will be recorded as Fixed Assets shall comprise of the following:

	Rs.
Purchase price	90,000
Taxes	8,000
Transportation charges	2,000
Total Cost	100,000

EXAMPLE # 7.2 (B)

Cost of Fixed Assets

Hussain Khaddar & Looms (Pvt) Limited purchased 30 looms on 1/2/06 after obtaining financing from a local Bank (please refer to Chapter 11 for more information on bank financing). Total purchase price was Rs. 1,600,000 and the following additional expenses were incurred:

	Rs.
Taxes paid at time of purchase	200,000
Freight charges	50,000
Installation Charges	150,000

In this case, the cost at which machinery will be recorded as Fixed Assets shall comprise of the following:

	Rs.
Purchase price	1,600,000
Taxes	200,000
Freight charges	50,000
Installation charges	150,000
Total Cost	2,000,000

Once the cost of Fixed Assets has been established, the next step is to record these Fixed Assets in the Books of Accounts. The following examples will be used to illustrate recording of Fixed Assets.

EXAMPLE # 7.3

Purchase of Fixed Assets

Continuing from Example # 7.2(A) above for Hanif Auto Engineering, out of Rs. 100,000 spent on machinery, Rs. 25,000 was paid through a crossed cheque to one supplier and the balance machinery was purchased from another supplier, Asif & Co., on credit with payment to be made in the next 30 days.

(i) Recording purchase of Machinery through bank payment:

GENERAL LEDGER

MACHINERY ACCOUNT GL-53

Debit				Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
1/4/06	GL-25	Bank Account	25,000				

CASH & BANK BOOK

BANK ACCOUNT GL-25

Debit				Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				1/4/06	GL-53	Machinery Account	25,000

(ii) Recording purchase of machinery on credit from Asif & Co.:

GENERAL LEDGER

MACHINERY ACCOUNT GL-53

Debit				Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
1/4/06	GL-3	Suppliers Control Account	75,000				

GENERAL LEDGER							
		SUPPLIERS CONTROL ACCOUNT					GL-3
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				1/4/06	GL-53	Machinery Account	75,000

And, memorandum Purchase Ledger also gets updated:

PURCHASE LEDGER					
	ASIF & CO.			PL-25	
			Amount (Rs.)		Balance
Date	Ref	Description	Debit	Credit	(Rs.)
1/4/06	2	Machinery Purchased		75,000	75,000

Where Fixed Assets have been purchased through bank financing, the Accounting entries are similar to those described above – the following example will further illustrate this:

EXAMPLE # 7.3 (B)

Purchase of Fixed Assets

Continuing from Example # 7.2(B) above for Hussain Khaddar & Looms (Pvt) Limited, the 30 looms costing an aggregate of Rs. 2,000,000 were purchased through long term financing from a local bank on 1/2/06. In addition, as given in Chapter 11, bank financing was also taken on 1/2/06 & on 1/3/06 for purchase of 4 kanals of land amounting to Rs. 1,000,000 each while Rs. 1,600,000 was spent on extending the factory building on 31/3/06.

The following entries will be passed to record these additions to Fixed Assets.

GENERAL LEDGER							
		MACHINERY ACCOUNT					GL-25
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
1/2/06	GL-32	Long-Term Financing Account	2,000,000				

GENERAL LEDGER							
			LAND ACCOUNT				GL-17
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
1/2/06	GL-32	Long-Term Financing Account	1,000,000				
1/3/06	GL-32	Long-Term Financing Account	1,000,000				

GENERAL LEDGER							
		FACTORY BUILDING ACCOUNT					GL-19
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
31/3/06	GL-32	Long-Term Financing Account	1,600,000				

GENERAL LEDGER							
		LONG TERM FINANCING ACCOUNT					GL-32
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				1/2/06	GL-17	Land Account	1,000,000
				1/2/06	GL-25	Machinery Account	2,000,000
				1/3/06	GL-17	Land Account	1,000,000
				31/3/06	GL-19	Factory Building Account	1,600,000

46 UNDERSTANDING THE TERMINOLOGY

Before we illustrate Accounting of Fixed Assets in more detail, an understanding of key terms used in context of Fixed Assets is very important. These are briefly explained below:

Cost of an asset	This is an expense incurred by a Business in bringing the asset to its intended purpose and use.
Book value	Book value of an asset is the cost of an asset as reduced by the amount of depreciation charged to date.
Depreciation Expense	The amount of depreciation which has been charged as an expense in any given period for each type of a Fixed Asset.
Accumulated depreciation	'Accumulated depreciation' is the aggregate of depreciation expenses charged against each type of a Fixed Asset. This amount increases (or accumulates) with every passing period.
Salvage value (or residual value or scrap value)	This is that portion of the cost of a Fixed Asset for which the Asset can be sold at the end of its useful life.
Useful life	'Useful life' is the estimate of number of years for which a Business can expect to generate economic benefits from the use of that Asset.

47 WHAT IS DEPRECIATION?

It is common knowledge that after an asset has been used, its value changes (normally, reduces) over time. There are various reasons why this may happen including some or all of the following:

- Wear and tear.
- Rusting.
- Technology advancement.

You will also remember our earlier discussions on the matching concept (in Chapter 2) which requires that income should be matched with those expenses which have been incurred to generate the income – Fixed Assets have a certain cost which needs to be charged to income that has been generated from the use of those Fixed Assets.

The decrease in value and charging of the cost of Fixed Asset is called depreciation and the manner in which depreciation is calculated is called method of depreciation. The two most commonly used methods to calculate depreciation are now described below:

47.1 STRAIGHT LINE METHOD

It is probably the most popular method because of its simplicity and ease of use. Under this method, an equal amount is depreciated every year which is worked out by using the following formula:

$$\text{Annual Depreciation} = \frac{\text{Cost of the Asset} - \text{Residual Value}}{\text{No. of years of useful life}}$$

Straight-line depreciation can be understood with the help of following example:

EXAMPLE # 7.4

Depreciation – Straight Line

Continuing from Example # 7.3, Hanif Auto Engineering had spent Rs. 100,000 on purchasing a new machine on 1/4/06. This machine is estimated to have a useful life of 10 years with a salvage value of Rs. 10,000. Hanif Auto has chosen to use the straight line method for depreciation with the proviso that full year's depreciation is charged in the year of purchase.

Using the formula given above, the annual depreciation charge is calculated as follows:

$$\text{Annual Depreciation} = \frac{100{,}000 - 10{,}000}{10}$$

Thus, Rs. 9,000/- will be charged as a depreciation expense annually in each of the next 10 years starting from the year of purchase.

In the Books of Accounts, this depreciation expense can be booked once a year, half yearly, quarterly or even monthly. All depends on how frequently a Business wants to prepare Accounts. Given the annual charge of Rs. 9,000/-, depreciation expense for shorter periods will be reduced on the basis of time period.

Since the Accounts are being prepared for the first year, accounting entries will be as follows.

GENERAL LEDGER							
	DEPRECIATION EXPENSE ACCOUNT – MACHINE						GL-11
	Debit			Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-12	Accumulated Depreciation Account – Machine	9,000				

GENERAL LEDGER							
	ACCUMULATED DEPRECIATION ACCOUNT – MACHINE						GL-12
	Debit			Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-11	Depreciation Expense Account – Machine	9,000

What is an Accumulated Depreciation Account? In Accounting, cost of Fixed Assets is not reduced by the amount of depreciation expense charged in the Accounts. The “credit” entry for depreciation expense is recorded in an “Accumulated Depreciation Account” and the balance on this Account increases whenever depreciation is charged. When Accounts are prepared, the balance on this Account is subtracted from the cost of Fixed Assets and the net amount is shown on the Balance Sheet. This way, while the Fixed Assets Account has the original cost, the reduced value gets shown in the Accounts i.e. in the balance sheet.

47.2 DIMINISHING BALANCE METHOD

Under this method, the amount of depreciation expense decreases with each passing year, with the highest amount charged in the first year. Under this method, original cost is the basis to calculate depreciation charge for the first year, after which the net book value (NBV) becomes the basis of calculating depreciation for each subsequent year.

The following example will illustrate calculation of depreciation under this method.

EXAMPLE # 7.5

Depreciation – Diminishing Balance, using data in example 7.4

In the following illustration, we have only shown the depreciation expense for the first three years for Looms on the basis that, in the year of purchase, depreciation is charged for the exact number of months. Depreciation will be charged at the rate of 10% using the Diminishing Balance method.

Calculation of depreciation in this case will be as follows:

		Rs.
Cost of Looms		2,000,000
Depreciation of 1st year	2,000,000 x 10% x 5/12	83,333
Net Book Value @ the end of 1st year		1,916,667
Depreciation of 2nd year	1,916,667 x 10%	191,667
Net Book Value @ the end of 2nd year		1,725,000
Depreciation of 3rd year	1,725,000 x 10%	172,500
Net Book Value @ the end of 3rd year		1,552,500

On this basis, the Accounting entries, in the first year will be as follows:

GENERAL LEDGER

DEPRECIATION EXPENSE ACCOUNT – LOOMS							GL-11
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-12	Accumulated Depreciation Account – Looms	83,333				

GENERAL LEDGER							
	ACCUMULATED DEPRECIATION ACCOUNT – LOOMS						GL-12
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-11	Depreciation Expense Account - Looms	83,333

48 DEPRECIATION IS NOT ALWAYS CHARGED

As you will recall, the reason for charging depreciation is to recognize the deterioration in value of Fixed Assets. Where there are Assets which do not reduce in value, there is no reason to charge depreciation against them.

Land is the only such Fixed Asset – land normally always appreciates in value which means that the rationale for charging depreciation does not hold in this case.

49 MY FIXED ASSETS ARE WORTH MORE NOW!

Accounting of Fixed Assets requires that Assets should be stated at original cost in the Books of Accounts. In certain circumstances, Accounting rules allow Businesses to re-state the value of an Asset at a higher value e.g. at its current market value. The rationale behind increasing the value is where it is felt that the new or higher value will give a better indication of the "worth" of the Business rather than its original cost. This change or increase in value is called Revaluation.The following example will further illustrate this:

EXAMPLE # 7.6

Revaluation of Fixed Assets

Hussain Khaddar had bought two kanals of land in 1985 at a total cost of Rs. 500,000/, i.e., Rs. 250,000 per kanal. In 2005, 4 more kanals were purchased in the same area at a total cost of Rs. 2,000,000 i.e. Rs. 500,000 per kanal. Since the current market price has doubled, the company has decided to revalue the existing 2 kanals to the current market price as of 30/6/06.

Revaluation of Fixed Assets is calculated as follows:

	Rs.
Net Book Value of existing 2 kanals of Land	500,000
Current market price	1,000,000
Excess of current market price over book value	500,000

This excess of current market price over Net Book Value is called "Revaluation Surplus" which is incorporated in the Books of Accounts.

The following accounting entries are made:

GENERAL LEDGER							
		LAND ACCOUNT					GL-17
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-34	Revaluation Reserve Account	500,000				

GENERAL LEDGER							
		REVALUATION RESERVE ACCOUNT					GL-34
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-17	Land Account	500,000

Note: You will have noted that when Revaluation Surplus is calculated, the term Net Book Value was used. If this same calculation was done for another Fixed Asset against which depreciation had been charged, the Net Book Value (original cost less accumulated depreciation) would have been compared to the current market price to calculate Revaluation Surplus.

50 WHAT HAPPENS WHEN A FIXED ASSET IS SOLD OR LOST?

What we have described so far are the basics of Accounting for Fixed Assets. There can also be other situations which may be faced by Businesses and are briefly explained on next page.

50.1 SALE OF FIXED ASSETS

A Business may need to sell a Fixed Asset, perhaps because it is too old, inefficient, requires too much to be spent on repair & maintenance and many other reasons. For every Asset which has been disposed of, the Business needs to find out whether there was a profit or loss or neither on disposal.

This is done by eliminating all entries relating to that Asset and passing them through an Asset Disposal Account – after all entries have been passed, the balance on this account will show whether the Business has made a profit or loss or neither on that Asset.

The following example will show this:

EXAMPLE # 7.7

Sale of Fixed Assets

Hussain Khaddar & Looms (Pvt) Limited sold 6 Looms for Rs. 15,000 each totaling Rs. 90,000 on 30/6/06 which were originally purchased in 1992. These Looms had cost Rs. 240,000. Hussain Khaddar charges full years depreciation in the year of disposal.

Original cost of Looms which have been sold will be eliminated:

GENERAL LEDGER							
	MACHINERY ACCOUNT						GL-25
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-40	Asset Disposal Account	240,000

GENERAL LEDGER							
	ASSET DISPOSAL ACCOUNT						GL-40
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-25	Machinery Account	240,000				

Accumulated depreciation, on account of these Looms already charged in the accounts between 1992 to 2006 also needs to be eliminated.

This is where a Fixed Assets Register will be especially useful. In such a Register, depreciation expense will be itemized for each Asset. The Business would not have to re-calculate depreciation in such a case – simply, the asset will looked up in the Register which will give the amount of depreciation charged to date. But, in the absence of such a Register, we will have to calculate depreciation which would already have been charged between 1992 and 2006.

This is done by following the simple calculation as shown:

Year	WDV	Rate of Depreciation	Depreciation for the year	Accumulated Depreciation
1992	240,000	10%	24,000	24,000
1993	216,000	10%	21,600	45,600
1994	194,400	10%	19,440	65,040
1995	174,960	10%	17,496	82,536
1996	157,464	10%	15,746	98,282
1997	141,718	10%	14,172	112,454
1998	127,546	10%	12,755	125,209
1999	114,791	10%	11,479	136,688
2000	103,312	10%	10,331	147,019
2001	92,981	10%	9,298	156,317
2002	83,683	10%	8,368	164,685
2003	75,315	10%	7,531	172,217
2004	67,783	10%	6,778	178,995
2005	61,005	10%	6,100	185,096
2006	54,904	10%	5,490	190,586

The table shows that Rs. 190,586 was charged as depreciation till 2006. Accounting entries will be:

GENERAL LEDGER							
	ACCUMULATED DEPRECIATION ACCOUNT– LOOMS						GL-12
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-40	Asset Disposal Account	190,586				

GENERAL LEDGER							
		ASSET DISPOSALS ACCOUNT			GL-40		
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-12	Accumulated Depreciation Account	190,586

Sale proceeds on disposal of Looms will also be recorded:

CASH & BANK BOOK							
	BANK ACCOUNT						GL-20
	Debit			Credit			
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-40	Asset Disposal Account	90,000				

GENERAL LEDGER							
			ASSET DISPOSALS ACCOUNT			GL-40	
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
				30/6/06	GL-20	Bank Account	90,000

After incorporating all of the above entries, the Asset Disposal Account will show the following transactions:

GENERAL LEDGER							
	ASSET DISPOSALS ACCOUNT					GL-40	
	Debit				Credit		
Date	Folio	Description	Amount (Rs.)	Date	Folio	Description	Amount (Rs.)
30/6/06	GL-25	Machinery Account	240,000	30/6/06	GL-12	Accumulated Depreciation Account	190,586
				30/6/06	GL-20	Bank Account	90,000

When the Asset Disposal Account is closed (please refer to Chapter 14 to understand what “Closing an Account” means), the balance on this account will determine whether the Business has incurred a loss or a profit or neither on this disposal. On this disposal, the Business has made a profit of Rs. 40,586.

50.2 DESTRUCTION OR THEFT OF AN ASSET

During the course of a Business, due to unforeseen circumstances, an Asset may get destroyed or stolen. In such cases, because the Business is no longer in ownership and possession of that Asset, all entries relating to that Asset will need to be eliminated from the Books of Accounts – this is same as the disposal of an asset except that in this case, there are no “Sale Proceeds”.

The accounting entries are similar to those already described in section 9.1 except for “Sale Proceeds” which will be “Nil” – what that means is that there will always be a “loss” for the Business!

51 USING FIXED ASSETS TO YOUR BENEFIT!

Fixed Assets are very important for every Business - proper running and maintenance of these Assets is very critical for a Business’s success. However, Fixed Assets are generally expensive and take up a large chunk of a Business’s capital.

Below are some useful suggestions on how a Business can get maximum benefit from its Fixed Assets:

51.1 REDUCTION IN TAX LIABILITIES

Under the existing income tax regulations, Businesses are entitled to Tax Depreciation and First Year Allowances (please refer to Chapter 16) which are treated as “expenses” for the purposes of calculating income tax liabilities for a Business.

What this means is that while the initial cost of purchasing an Asset is high, a Business is somewhat compensated by way of reduced tax liabilities.

51.2 REVALUATION RESERVE IS EQUITY!

Banks prefer to see that the debt : equity mix of a Business to whom financing (especially, long term financing) is being extended should be around the 60:40 level.

In order to help Businesses to get financing, State Bank of Pakistan has permitted Revaluation Reserves to be counted as part of “equity”. What this means is that Businesses which have Fixed Assets still recorded at the original cost can now restate those Assets at the current market price and the excess, i.e., Revaluation Surplus will count towards meeting the 60:40 requirement for Banks.

Having said that, the relevant section of Prudential Regulations (in which this concession has been allowed) also describes other conditions in the application of this Regulation. As a result, this Regulation may not apply to every Business. Please consult your professional advisor in this regard.

CHAPTER HIGHLIGHTS

What have we covered?

1. Fixed assets are those assets which have long life and which are bought for use for a long period of time.
2. Fixed assets are not held for sale purposes.

3. Fixed assets can be tangible or intangible.

4. Cost of Fixed Assets includes any other cost which has been incurred to bring the Asset to its intended use and location.

5. Depreciation is the process of allocating cost of an asset over its useful life.

6. Straight line and Diminishing Balance methods are two of the more commonly used methods for calculating depreciation.

7. Residual values are subtracted from the cost of Fixed Assets to calculated depreciation.

8. When a fixed asset is sold, its cost and accumulated depreciation get transferred to an asset disposal account. Any profit and loss on such disposal of an asset will become a part of the profit and loss account.

9. Assets may be revalued from time to time to show their fair market value.

10. Tax depreciation is an expense which is available to Businesses to reduce their tax liabilities.

11. Prudential Regulations allow Revaluation Reserves to be counted as part of “equity” of a Business.