IAS 16
Property, Plant and Equipment

By: Martin Kelly, BSc (Econ) Hons, DIP. Acc, FCA, MBA, MCMI.
Teaching Fellow in Accounting – Queens University Belfast
Examiner: Professional 1 Corporate Reporting

This article the accounting treatment of property, plant and equipment will be of interest to students at the F2 Financial Accounting, P1 Corporate Reporting and P2 Advanced Corporate Reporting.

Introduction

IAS 16 refers to tangible non-current assets as property, plant and equipment (PPE) and recognises that they possess a physical substance, are held for use in the production of goods or delivery of services or for an administrative purpose, and are expected to be used for more than one accounting period. In practice this definition causes few problems. PPE includes freehold and leasehold land, buildings and plant and machinery. The objective of IAS 16 is to prescribe in relation to PPE the accounting treatment for:

- The recognition of assets;
- The determination of their carrying amounts; and
- The depreciation charges and any losses relating to them.

IAS 16 should be followed when accounting for PPE unless another IAS or IFRS requires a different treatment. A business should recognise an asset when the risks and rewards associated with the asset pass to the business. The rewards are their custody, use and a claim on the benefits arising from the assets. The asset is under the control of the business, the control is as a direct result of a past transaction or event and future economic benefit will arise. The risks are the costs of repairs and maintenance and any loss arising from the asset. There should be an expectation that future economic benefits will flow to the owner and any costs can be measured reliably. This is in line with the definition of an asset as set out in the IASB *Framework for the Preparation and Presentation of Financial Statements*.

The cost of PPE can be measured reliably in the case of an acquired asset by the cost of the market transaction (purchase price). The directly attributable costs of bringing the asset to the location and the condition for use will include incidental costs of acquisition, such as import duties, site preparation and professional fees such as architects' fees. The inclusion of these costs should cease once substantially all activities necessary to get the asset ready for use are completed, even if the asset has not yet been brought into use. Costs that would be excluded include: cost of opening new facility, administration and general overhead costs and cost of introducing new products. Where, as a result of the acquisition of an item of PPE, an obligation arises to dismantle it at the end of its useful life and/or to restore the site, then that obligation must be recorded as a liability at the same time the asset is recognised (e.g. decommissioning costs associated with nuclear power stations). In the case of a self-constructed asset, the cost of the acquired materials, labour and other costs must be recognised.

It should be noted that legal ownership of an item of PPE is not a requirement, provided economic benefits arising from the asset flow to the organisation using the asset. For example, under IAS 17 *leases*, an item of PPE held under a finance lease is treated as an asset belonging to the user (lessee).

Example 1

Paul Boyle incurs the following costs in relation to the construction of a new factory and the introduction of its products to the local market.

	€'000
Site preparation costs	240
Materials used	1,500
Labour costs, including €90,000 incurred during an industrial dispute. No construction occurred during the period of the dispute.	3,190
Testing of various processes in factory	150
Consultancy fees re installation of equipment	220
Relocation of staff to new factory	110
General overheads	500
Costs to dismantle the factory at end of its useful life in 10 years time	100

Question: *How much of the costs should be capitalised?*

Solution

	€'000
Site preparation costs	240
Materials used	1,500
Labour costs (€3,190 - €90)	3,100
Testing of various processes in factory	150
Consultancy fees re installation of equipment	220
Relocation of staff to new factory	-
General overheads	-
Costs to dismantle the factory at end of its useful life in 10 years time	100
	5,310

There are a number of costs which arise subsequent to acquisition which may be capitalised throughout the life of the asset. Enhancement costs which significantly enhance the economic benefits by increasing the capacity, improving the quality of output, extending the economic life of the asset or by reducing the operating costs of the assets can be capitalised. The replacement costs of major components and overhaul costs which improve the economic benefit that can be generated can also be capitalised. Where PPE consists of a number of assets of different economic lives, it may be appropriate to recognise and account for each component separately for depreciation and inclusion of subsequent expenses. The component approach is also applied where regular major inspections of an asset are a condition of continuing to use it. The cost of each inspection is treated as a separate item (replacement) of PPE, provided recognition criteria are satisfied. Any remaining carrying amount in respect of the previous inspection is derecognised.

Example 2

(a) A company buys an aircraft for €9,000,000. Under civil aviation rules, the aircraft requires a major inspection every three years at a cost of €200,000. Three years after the purchase of the aircraft it undergoes its first major inspection. The costs in relation to the inspection amounted to €220,000.

(b) On 1 June 2009, a company spent €100,000 to replace the wall lining of one of its two furnaces. The furnace had been acquired six years previously and had a carrying value, at 1 June 2009, amounting to €420,000. Of this amount, €20,000 related to the original wall lining.

Question: *Explain how each of these matters should be accounted for in accordance with the requirements of IAS 16.*

Solution

(a)

The original carrying value would have been allocated as follows:

	€
Aircraft	8,800,000
Costs of inspection	200,000
	9,000,000

The original cost of inspection will be derecognised and the new inspection costs will be recognised in the carrying amount of the asset. Therefore, the new inspection costs are accounted for as an asset addition and the original inspection costs as an asset disposal.

	€
Aircraft	8,800,000
Original costs of inspection	(200,000)
New costs of inspection	220,000
	8,820,000

(b)

The cost of replacement wall lining should be recognised as an asset and the carrying amount of the original lining should be derecognised. The carrying amount of the furnace becomes €500,000 (€420,000 + €100,000 - €20,000). The gain or loss on the disposal of the old lining is included in the calculation of the company's statement of comprehensive income (SCI) for the accounting period in which derecognition occurs. This will be the amount received on disposal less the carrying amount of €20,000.

Measurement of PPE after initial recognition

IAS 16 sets out two models for measuring PPE subsequent to its initial recognition as an asset. These are the **'cost model'** and the **'revaluation model'**.

Under the cost model an item of PPE is carried at cost less any accumulated depreciation and any accumulated impairment losses. Under the revaluation model an item of PPE is carried at a revalued amount, being **fair value** less accumulated depreciation and impairment losses. IAS 16 defines fair value as '*the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction'*. The choice of model is an accounting policy choice, which must be applied across an entire class of PPE. Therefore, where an item of PPE is revalued, all other assets in the same class should also be revalued. This is to prevent companies being selective about which items to revalue. IAS 16 provides examples of separate classes of assets including: land; land and buildings; machinery; motor vehicles; and office equipment. Revaluations should be made with sufficient regularity to ensure the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Accounting for revaluations
If the carrying amount of an item of PPE is increased as a result of a revaluation, the increase must normally be credited to a revaluation reserve and shown as 'other comprehensive income' in the entity's SCI. Revaluation losses are recognised as an expense in determining the profit or loss unless they relate to an earlier revaluation surplus. A revaluation increase must be recognised as income when calculating the entity's profit or loss to the extent that it reverses any revaluation decrease in respect of the same item that was recognised as an expense.

Example 3

(a) Asset X was bought for €500,000 five years ago and has been depreciated at 10% on cost per annum. It is now revalued at €800,000. There is no change to the useful life.

(b) An item of land originally cost €30,000. Two years ago it was revalued to €35,000. The value of the land has now fallen to €29,000. Assume the profit for the year before adjusting for the fall in value of the land was €60,000.

Question: *Show how the above items should be treated in the financial statements.*

Solution

(a)

		€	€
Debit	Asset X – cost/valuation (€800,000 - €500,000)	300,000	
Debit	Asset X – accumulated depreciation (€500,000 x 5 x10%)	250,000	
Credit	Revaluation surplus		550,000

Statement of financial position (extract)

	€
Property, plant and equipment	800,000
Revaluation surplus	550,000

The revaluation increase should be shown as other comprehensive income in the entity's SCI. **Note**: you could also increase the carrying value to €800,000 by debiting €550,000 and crediting revaluation surplus with same.

(b)

When the land was revalued two years ago, the revaluation surplus of €5,000 would have been recognised as other comprehensive income and credited to the revaluation surplus as part of equity. The asset has fallen by €6,000, of which €5,000 should reverse the previous revaluation surplus via other comprehensive income and the remaining €1,000 should be recognised in profit or loss.

		€	€
Debit	Revaluation surplus	5,000	
Debit	SCI	1,000	
Credit	Asset value		6,000

Statement of comprehensive income (extract)

Profit for year (€60,000 - €1,000)	59,000
Other comprehensive income:	
Loss on land revaluation	(5,000)
Total comprehensive income for the year	54,000

Statement of changes in equity

	Retained earnings	Revaluation surplus	Total
	€	€	€
Total comprehensive income for the year	59,000	(5,000)	54,000

Where an asset has been revalued, the deprecation charge is based on the revalued amount, less any residual value, from the date of revaluation. The whole of the depreciation charge is recognised in profit or loss via the SCI. None is recognised in other comprehensive income and consequently set against the revaluation surplus.

However, IAS 16 **permits,** and *it is considered best practice* to make, a transfer between reserves, of the 'excess' depreciation arising as a result of the revaluation. The effect is that SCI shows the economic benefit consumed, but distributable profits are not affected by extra depreciation on revalued assets. The amount of transfer is actual depreciation charged less equivalent charge based on original historical cost of assets (Debit revaluation surplus, Credit retained earnings). The transfer is shown in the statement of changes in equity.

Example 4

An item of PPE was purchased for €900,000 on 1 January 2007. It is estimated to have a useful life of 10 years and is depreciated on a straight line basis. On 1 January 2009, the asset is revalued to €960,000. The useful life remains unchanged at ten years.

	€
Actual depreciation for 2009 based on revalued amount (960,000/8)	120,000
Depreciation for 2009 based on historical cost (900,000/10)	(90,000)
Difference	30,000

In the SCI for 2009, a depreciation expense of €120,000 will be charged. A reserve transfer, which will be shown in the statement of changes in equity, may be undertaken as follows:

Debit revaluation surplus	30,000	
Credit retained earnings		30,000

The closing balance on the revaluation surplus on 31 December 2009 will therefore be as follows:

Balance arising on revaluation (€960,000 - €720,000)	240,000
Transfer to retained earnings	(30,000)
	210,000

Depreciation and disclosure

IAS 16 defines depreciation as the *'systematic allocation of the depreciable amount of an asset over its useful life'.* Each significant part of an item of PPE should be depreciated separately, although they may be grouped together for depreciation charge purposes if they have the same useful lives and depreciation methods.

Thus, an aircraft's engines would be depreciated separately from the main airframe when they have different useful lives. Land and buildings are separable assets and are accounted for separately. The residual value and useful life of an asset must be reviewed at least each year end; any change would be a change in accounting estimate and must be accounted for under IAS8 *Accounting Policies, Changes in Accounting Estimates and Errors.*

IAS 16 outlines extensive disclosure requirements but the main ones include:

a. For each class of PPE:
- The measurement basis used
- The depreciation methods used
- Useful lives or depreciation rates used
- Gross carrying amount and accumulated depreciation at the beginning and end of the accounting period
- A reconciliation of the carrying amount at the beginning and end of the period, showing additions, disposals, revaluation increases and decreases, depreciation, impairment losses and any other movements.

b. The amount of any PPE pledged as security for liabilities.

c. For items which have been revalued:
- The effective date(s)
- Whether an independent valuer was involved
- Assumptions used
- Extent to which fair values were determined by reference to market prices
- For each revalued class of PPE, the carrying amount that would have been recognised if the cost model had been used.

IAS 16 also encourages (but does not require) entities to disclose any additional information that might be relevant to the needs of users.

Borrowing costs

IAS 23 states that the borrowing costs that are directly attributable to the acquisition, construction or production of a 'qualifying asset' should be capitalised as part of the cost of the asset. Other borrowing costs should be recognised as an expense. The standard defines a qualifying asset as '*an asset that necessarily takes a substantial period of time to get ready for its intended use or sale*'. The capitalisation period should begin when expenditure on the asset is incurred, borrowing cost is incurred or construction starts whichever is the latest. Interest cannot be capitalised for any extended period where construction work is interrupted. Once the asset is substantially complete the capitalisation period will cease, and interest on the borrowing can no longer be regarded as the cost on the asset. If the asset is financed from general borrowings then it will normally be necessary to calculate a weighted average cost (interest rate) and apply it to the borrowings used in relation to the qualifying asset.

Government grants

IAS 20 distinguishes between two main types of grants, grants relating to income and grants relating to assets. Government grants should only be recognised in the financial statements if there is reasonable assurance that the entity will comply with all relevant conditions in relation to grant. Grants relating to income are credited in the SCI or deducted from the related expense. Grants in relation to assets can be treated as deferred income and a transfer made (on a systematic basis) to the SCI over the useful life of the asset.

Alternatively, the grant can be deducted from the carrying amount of the asset. This will result in reduced depreciation charges over the asset's useful life.

Investment properties

IAS 40 is applicable to property, which is acquired as an investment rather than for use, is not consumed in the entity's operations and does not have a useful life. Examples of investment properties provided in IAS 40 include: land held for long-term capital appreciation and buildings leased out under one or more operating leases. It should be noted that property being constructed or developed for third parties is covered by IAS 11 *Construction Contracts* and property leased under a finance lease is covered by IAS 17 *Leases*. If the property is owner-occupied then IAS 16 applies. Once it has been ascertained that the property is an investment property, IAS 40, similar to IAS 16, allows a choice of two models; the 'fair value model ' or the 'cost model'. If the fair value model is used then any gain or loss arising from a change in the fair value of the investment property must be recognised in the calculation of profit and loss in the SCI for the period in which it arises.

This is in contrast to the IAS 16 treatment of revaluation gains and losses discussed earlier, which requires revaluation gains to be excluded from profit. In addition, under the fair value model, no deprecation is charged on investment properties.

Candidates presenting themselves for examinations in corporate reporting should be aware that IAS 16 is interrelated with several other key IFRS's including: IAS 20 *Accounting for Government Grants*, IAS 23, *Borrowing Costs*, IAS 40 *Investment Properties*, and IAS 36 *Impairment of Assets* (not examinable at Corporate Reporting 1, Professional 1 Stage). Accounting issues in relation to these standards are often included in examination questions which require the preparation of financial statements.