

# *Financial reporting in the mining industry*

## International Financial Reporting Standards

6th edition





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# Foreword

International Financial Reporting Standards (IFRS) provide the basis for financial reporting to the capital markets in an increasing number of countries around the world. Over 100 countries either use or are adopting IFRS. Those companies already on IFRS have their own challenges as the pace of standard-setting from the International Accounting Standards Board (IASB) has been intense in recent years with a constant flow of changes.

One of the major challenges of any reporting framework is how best to implement it in the context of a specific company or industry. IFRS is a principles based framework and short on industry guidance. PwC looks at how IFRS is applied in practice by mining companies. This publication identifies the issues that are unique to the mining industry and includes a number of real life examples to demonstrate how companies are responding to the various accounting challenges along the value chain.

Of course, it is not just IFRSs that are constantly evolving but also the operational issues faced by mining companies with the heavy demand for capital and risks faced

by the industry driving more cooperative working relationships. We look at some of main developments in this context with a selection of reporting topics that are of most practical relevance to mining companies' activities. The new standards on joint arrangements, consolidated financial statements and disclosure of interests in other entities will be of particular interest to companies in the mining sector. The debate about specific guidance for exploration, evaluation, development and production of mineral resources continues.

This publication does not describe all IFRSs applicable to mining entities but focuses on those areas that are of most interest to companies in the sector. The ever-changing landscape means that management should conduct further research and seek specific advice before acting on any of the more complex matters raised. PwC has a deep level of insight into the industry and commitment to helping companies in the sector report effectively. For more information or assistance, please do not hesitate to contact your local office or one of our specialist mining partners.

**Tim Goldsmith**  
Global Mining Leader  
November 2012

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# Introduction

## **What is the focus of this publication?**

This publication considers the significant accounting practices adopted by the mining industry under International Financial Reporting Standards (IFRS).

The need for this publication is driven by:

- the continuing absence of an extractive industries standard under IFRS;
- the adoption of IFRS by mining entities across a number of jurisdictions, with overwhelming acceptance that applying IFRS in this industry will be a continual challenge; and
- ongoing transition projects in a number of other jurisdictions, for which companies can draw on the existing interpretations of the industry.

## **Who should use this publication?**

This publication is intended for:

- executives and financial managers in the mining industry;
- investors and other users of mining industry financial statements, so they can identify some of the accounting practices adopted to reflect features unique to the industry; and
- accounting bodies, standard-setting agencies and governments throughout the world interested in accounting and reporting practices and responsible for establishing financial reporting requirements.

## **What is included?**

Included in this publication are issues that we believe are of financial reporting interest due to:

- their particular relevance to mining entities; and/or
- historical varying international practice.

The mining industry has not only experienced the transition to IFRS, it has also seen:

- significant growth in corporate acquisition activity;
- increased globalisation;
- continued increase in its exposure to sophisticated financial instruments and transactions; and
- an increased focus on environmental rehabilitation liabilities.

This publication has a number of sections designed to cover the main issues raised.

This publication is based on the experience gained from the worldwide leadership position of PwC in the provision of services to the mining industry. This leadership position enables PwC's Global Mining Industry Group to make recommendations and lead discussions on international standards and practice.

The IASB is currently considering its agenda for 2013 and beyond. The *Extractive activities* project is one of the subjects on which preparers and users have provided comment. The mining industry is arguably one of the most global industries and many would welcome international comparability.

We hope you find this publication useful.

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# *1 Mining value chain*

# 1 Mining value chain

Mining activities begin with the exploration and evaluation of an area of interest. If the exploration and evaluation is successful, a mine can be developed, and commercial mining production can commence.

The phases before production begins can be prolonged and expensive. The appropriate accounting treatment

for this investment is essential. However, before we examine the accounting implications of the phases of operations, we need to define the phases. There are five terms in common use that describe the different phases of a mine's operations, although other terms are sometimes used.

## 1.1 Phases of operations



### 1.2 Distinguishing between the phases

The points at which one phase ends and another begins are important when accounting for the costs of each phase. The phases often overlap, and sometimes several phases may occur simultaneously. It is not always easy, therefore, to determine the cut-off points for costs between the various phases.

#### 1.2.1 Phases 1 & 2—*exploration and evaluation*

The costs of exploration are for discovering mineral resources; the costs of evaluation are for proving the technical feasibility and commercial viability of any resources found.

#### 1.2.2 Phases 2 & 3—*evaluation and development*

The cut-off between evaluation and development is often critical when making capitalisation decisions (see sections 2.3.2 and 3.1). Development commences once the technical feasibility and commercial viability of extracting the mineral resource has been determined. Management will usually make a decision to develop based on receipt of a feasibility study (sometimes known as a 'bankable', 'definitive' or 'final' feasibility study).

The feasibility study:

- establishes the commercial viability of the project;
- establishes the availability of financing;
- identifies the existence of markets or long-term contracts for the product; and
- decides whether or not the mine should be developed.

#### 1.2.3 Phases 3 & 4—*development and production*

Determining the cut-off point between the development and production phases is rarely simple.

Assets must be 'available for use' before they can be depreciated. For mining entities, assets are 'available for use' when commercial levels of production are achieved.

The decision on commercial production is usually made after discussions between the accountants, engineers and metallurgists, and may be based on a range of criteria, such as:

- a nominated percentage of design capacity for the mine and mill;
- mineral recoveries at or near expected levels; and
- the achievement of continuous production or other output.

The percentages and levels of recovery are nominated well before they occur. These factors need to be reconsidered in the event of any significant delays in development or if pre-determined commercial levels of production are not achieved.

Development may continue after production has begun, such as:

- stripping costs where removal of overburden occurs before production in additional pits; and
- stripping activity which benefits both current and future activity.

Similar examples occur in underground mining operations with the extension of a shaft or major underground excavations.

#### 1.2.4 Phases 4 & 5—*production and closure*

A mine's operational life is considered to end either when the ore body is depleted or when the mine is closed for other reasons and the normal ore feed to the plant stops or production ceases. The likely costs of the closure phase include employee severance costs, restoration and rehabilitation and environmental expenditure.

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## **2 *Exploration and evaluation activities***

## 2 Exploration and evaluation activities

### 2.1 Overview

Mining activities comprise the exploration for and discovery of mineral reserves. They also include the evaluation and development of these reserves and resources, and their subsequent extraction (production).

### 2.2 Reserves and resources

Mineral reserves and resources are the most significant source of value for mining entities. They are the most important economic asset for a mining entity. The reserves and resources, along with the ability of management to successfully transform reserves and resources into cash inflows, are the key drivers of value. Reserves and resources also provide the basis for acquiring funds through borrowings and equity financing.

IAS 16 “Property, Plant and Equipment” and IAS 38 “Intangible assets” exclude mineral reserves from their scope. Traditionally, the accounting standard setters (including the IASB) have concluded that development of reserve and resource definitions are outside their technical expertise. Resource and reserve definitions are normally established by professional bodies of engineers and geologists. Capital markets regulators will often specify which set of definitions should be used and often prescribe separate disclosures of reserve information. This information usually accompanies the financial statements but is not formally part of the financial statements.

Most mining entities recognise the cost incurred to find and develop mineral reserve and resource assets on the balance sheet at historical cost. Reserves and resources acquired in a business combination or an asset transaction are also recognised at the cost of acquisition. However, the finding and proving of reserves does not have an immediate accounting impact.

Reserves and resources have a pervasive impact on a mining entity’s financial statements, namely the:

- charge for depreciation and amortisation;
  - calculation of stripping adjustments;
  - determination of impairment charges;
  - expected timing of future decommissioning and restoration, termination and pension benefit cash flows (which impacts on discounted value of those obligations);
- allocation of the purchase price in business combinations;
  - capitalisation of exploration and evaluation costs; and
  - accounting for financial instruments.

#### 2.2.1 Defining mineral reserves and resources

Deposits of minerals are often located deep beneath the earth’s surface and are often irregular in shape, making them difficult to measure. The relative quality or percentage of metal content of ore may also vary throughout a single deposit. Estimating mineral reserves and resources is therefore a matter of considerable technical difficulty and uncertainty. It typically involves an assessment of the geological confidence of the deposit and the economic viability of extraction of the ore.

Geologists measure and classify the resources. There is currently no global standard used by geologists for the measurement and classification of reserves and resources. The IASB’s *Extractive activities* discussion paper released in April 2010 assessed some of the more prominently used sets of definitions to consider whether one framework could serve as a consistent set of rules for the mining industry. It concluded that the Committee for Mineral Reserves International Reporting Standards (‘CRIRSCO’) had developed an appropriate international reporting template that could be used to promote greater consistency under IFRS. The CRIRSCO template was considered the preferred option by the IASB’s project team as it:

- is a comprehensive classification system that is broad in scope to cover all types of minerals;
- has kept pace with industry developments and generally accepted current practices; and
- has wide acceptance and consistency with a number of national codes.

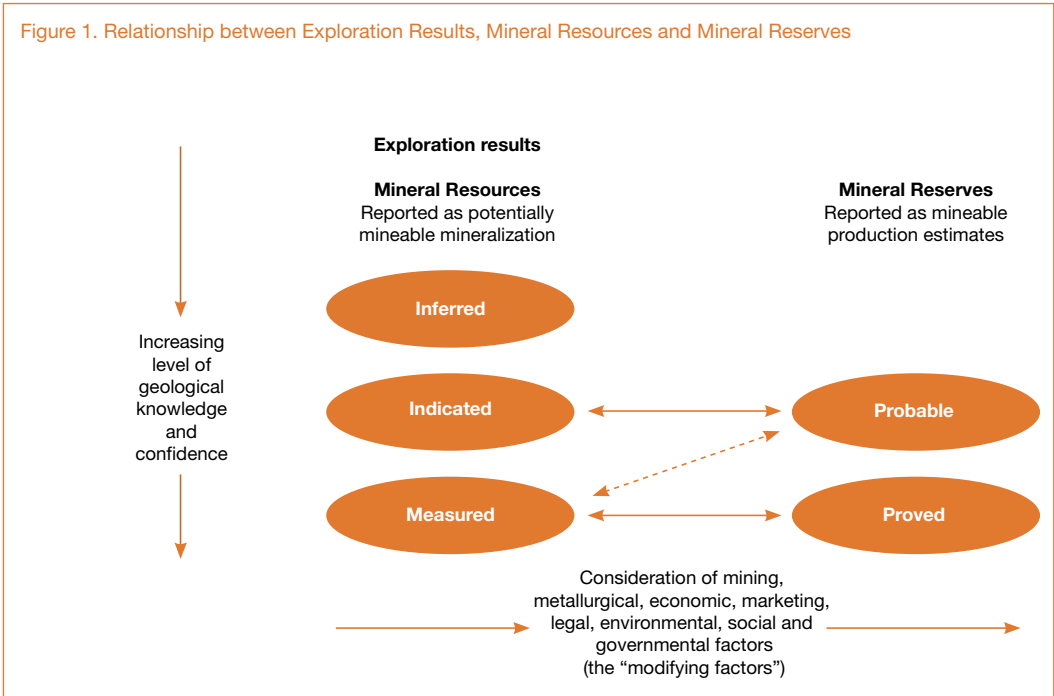
Regulators often require the use of their own reserves standards for the purposes of capital market disclosures. However, given the absence of specific guidance in IFRS until the discussion paper progresses, entities must consider the application and disclosure of accounting policies that are dependent on reserves and resources. These definitions and measures should be clearly disclosed and applied consistently.



2.2.2 Resources vs reserves

Mineral reserves and resources are categorised based on the level of geological confidence. See the diagram below, taken from the CRIRSCO international reporting template. The distinction between mineral reserves and resources is based on the economic viability of extraction (as opposed to geological confidence):

- resources are an identified mineral occurrence with reasonable prospects for eventual economic extraction;
- reserves are the economically mineable part of a resource—appropriate assessments demonstrate that economic extraction can reasonably be justified.



In this publication we use the CRIRSCO definitions of reserves and resources.

The concept of “economically mineable” does not take into account the intention of entities to develop their mineral deposits within a reasonable time-frame. Another way of saying this is that reserves can be “economically mineable” without a company having any intention of proceeding to development in the near future.

Most national codes take some or all of the following matters into account in their measurement and classification of reserves and resources.

- the grade (the relative quality or percentage of metal content) in various parts of the mineral resource;
- continuity of geology between samples;
- the proportion of the mineral resource that will be extracted (allowing for the partially offsetting factors of dilution and non-recovery);
- future commodity prices;
- future exchange rates;
- future production costs;
- future capital expenditure; and
- technological changes.

## 2 Exploration and evaluation activities

All assumptions are important if there is any doubt about operating at profitable levels.

Information about the characteristics of mineral reserves and resources tends to expand as the development progresses. Expectations of future mineral prices and production costs also vary as a result of changes in economic and technological factors. Estimates of reserves and resources may therefore fluctuate during the life of a mine. Some securities regulators require entities to update the estimations at least annually.

### 2.2.3 Assumptions and estimates

Assumptions play a critical part in the estimation of reserves and resources and in their use in financial reporting. There are many variables both financial and non-financial that a mining entity must take into consideration when developing reserve estimates including:

- the location of the commodity to be mined and its impact on pricing of the minerals to be sold;
- the quality and grade of minerals to be produced;
- the cost of capital, operating costs and refining / treatment costs;
- timing of cash flows and production quantities; and
- other external financial conditions including views on commodity prices, costs of labour, materials and equipment, foreign exchange rates and discount rates.

The combination of the many variables and the required pure geological interpretation can explain why two co-venturers can record quite different reserve estimates for the same mineral deposit.

Reserves and resources are often used as the basis for estimates of fair value to be used in purchase price allocations in a business combination. An entity is expected to use as many observable inputs as possible when estimating fair value to be used in financial reporting.

### 2.2.4 Extractive activities project

As mentioned in section 2.2.1, the *Extractive activities* discussion paper released in April 2010 made recommendations on the use of the CRIRSCO template for the classification of reserves and resources.

Proposals were included for a significant increase in the level of disclosure to be provided, including various reserve quantities, value-based information and revenue and cash flow information.

The paper also proposed that mineral assets be recognised when the entity acquired a legal right to explore. Information gained from exploration and evaluation activities, as well as development activities, would represent an enhancement of the exploration/ reserves and resources asset. The asset's unit of account would initially be the geographical area of the exploration right. This would be refined as exploration and development plans are developed, resulting in one or more smaller units of account, generally at the level of the individual mine. Costs incurred outside this mine would be considered separately for impairment and potential derecognition. These proposals would change how many entities currently account for exploration activity (discussed in the following sections), leading to earlier capitalisation of costs.

The IASB is currently considering its agenda for 2013 and beyond. This will include deciding whether extractive activities should be added to the active agenda for future projects.

## 2.3 Exploration and evaluation

Exploration costs are incurred to discover mineral resources. Evaluation costs are incurred to assess the technical feasibility and commercial viability of the resources found. Exploration, as defined in IFRS 6 "Exploration and Evaluation of Mineral Resources", starts when the legal rights to explore have been obtained. Expenditure incurred before obtaining the legal right to explore is generally expensed; an exception to this would be separately acquired intangible assets such as payment for an option to obtain legal rights.

The accounting treatment of exploration and evaluation (“E&E”) expenditures (capitalising or expensing) can have a significant impact on the financial statements and reported financial results, particularly for entities at the exploration stage with no production activities.

### 2.3.1 Accounting for E&E under IFRS 6

An entity accounts for its E&E expenditure by developing an accounting policy that complies with the IFRS Framework or in accordance with the exemption permitted by IFRS 6 [IFRS 6 para 7]. IFRS 6 allows an entity to carry forward a pre-existing policy under national GAAP with certain limitations.

An entity may have a past practice of deferring all exploration and evaluation expenditure as an asset even if the outcome is highly uncertain. This policy is common among junior mining companies with no major producing assets where exploration and evaluation expenditure is ongoing and for which an outcome has not yet been determined. Other entities may have a past practice of expensing all exploration and evaluation expenditure until the technical feasibility and commercial viability of extracting a mineral resource has been established. Expenditure from this point is development expenditure (see section 3). There are a variety of policies that can be adopted between these two extremes.

Practice also varies in relation to the treatment of the amounts payable to third parties to acquire exploration licences. Some entities capitalise these costs even if the subsequent expenditure incurred in relation to those licences is expensed, on the basis that they can expect to recover the acquisition cost through resale. Others treat such acquisition costs on the same basis as any other exploration and evaluation expenditure on the same area of interest (see 2.3.2 below)—costs are expensed if the viability of the mine has not yet been established and other expenditure is expensed as incurred.

IFRS 6 allows an entity to continue to apply its existing accounting policy under national GAAP for E&E. The policy need not be in full compliance with the IFRS Framework [IFRS 6 para 6–7]. An entity can change its accounting policy for E&E only if the change results in an accounting policy that is closer to the principles of the Framework [IFRS 6 para 13]. The change must result in a new policy that is more relevant and no less reliable or more reliable and no less relevant than the previous policy. The policy, in short, can move closer to the Framework but not further away. This restriction on changes to the accounting policy includes changes implemented on adoption of IFRS 6.

The criteria used to determine if a policy is relevant and reliable are those set out in paragraph 10 of IAS 8 “Accounting Policies, Changes in Accounting Estimates and Errors”. That is, it must be:

- Relevant to decision making needs of users;
- Provide a faithful representation;
- Reflect the economic substance;
- Neutral (free from bias);
- Prudent; and
- Complete.

### Changes to accounting policy when IFRS 6 first applied

Can an entity make changes to its policy for capitalising exploration and evaluation expenditures when it first adopts IFRS?

#### Background

Entity A has been operating in the gold mining sector for many years. It is transitioning to IFRS in 20X5 with a transition date of 1 January 20X4. Management has decided to adopt IFRS 6 to take advantage of the relief it offers for capitalisation of exploration costs and the impairment testing applied.

Entity A has followed a policy of expensing geological study costs under its previous GAAP. The geological studies that entity A has performed do not meet the Framework definition of an asset in their own right, however management has noted that IFRS 6 permits the capitalisation of such costs [IFRS 6 para 9(b)].

Can entity A's management change A's accounting policy on transition to IFRS to capitalise geological and geotechnical costs?

#### Solution

No. IFRS 6 restricts changes in accounting policy to those which make the policy more reliable and no less relevant or more relevant and no less reliable. One of the qualities of relevance is prudence. Capitalising more costs than under the previous accounting policy is less prudent and therefore is not more relevant. Entity A's management should therefore not make the proposed change to the accounting policy.

The above solution is based on entity A being a standalone entity. However, if entity A was a group adopting IFRS and at least one entity in the group had been capitalising exploration and evaluation expenditures, entity A as a group could adopt a policy of capitalisation.

A new entity that has not reported under a previous GAAP and is preparing its initial set of financial statements can choose a policy for exploration cost. Management can choose to adopt the provisions of IFRS 6 and capitalise such costs. This is subject to the requirement to test capitalised E&E for impairment if there are indications that the carrying amount of any assets will not be recoverable. The mine-by-mine approach to impairment and depreciation is applied when the asset moves out of the exploration phase.

### 2.3.2 Initial recognition

#### 2.3.2.1 Initial recognition of E&E under the IFRS 6 exemption

As exploration expenditure is often made in the hope (rather than the expectation) that there will be future economic benefits and success rates tend to be low it is difficult for an entity to demonstrate that the recovery of exploration expenditure is probable.

Most entities transitioning to IFRS have chosen to use the IFRS 6 shelter rather than develop a policy under the Framework. The exemption in IFRS 6 allows an entity to continue to apply the same accounting policy to exploration and evaluation expenditures as it did before the application of IFRS 6. The costs capitalised under this policy might not meet the IFRS Framework definition of an asset, as the probability of future economic benefits has not yet been demonstrated. However, IFRS 6 deems these costs to be assets. E&E expenditures might therefore be capitalised earlier than would otherwise be the case under the Framework.

In practice, the policies previously adopted by many entities are specific to the location and nature of an operation and will reflect a different approach to the activity based on mineral deposits already found in the surrounding area:

- **‘Greenfield’ site**—this is an area where the entity does not have any mineral deposits that are already being mined or developed. Expenditure will often be expensed as incurred until a feasibility study has been performed.
- **‘Brownfield site’**—this is an area around an existing mine, where the entity has substantial knowledge about the mineral deposit and has constructed the infrastructure and/or processing facilities needed to exploit the additional resources that it expects to find. There may also be a proven history of return on amounts spent. Expenditure is normally capitalised at an earlier point.

As noted in section 6.4, resources acquired in a business combination or an asset transaction are recognised at the cost of acquisition.

After recognition has been deemed appropriate, an entity must determine the ‘unit’ to which exploration and evaluation expenditures should be allocated. The most common approach in the mining industry is to allocate costs between areas of interest. This involves identifying the different geological areas that are being examined and tracking separately the costs incurred for each area. An area of interest normally contracts in size over time as work progresses towards the identification of individual mineral deposits.

An area of interest will normally comprise a single mine or deposit when economic viability is established.

The shelter of IFRS 6 only covers the exploration and evaluation phase, until the point at which the commercial viability of the property has been established.

### 2.3.2.2 Initial recognition under the Framework

Expenditures incurred in exploration activities should be expensed unless they meet the definition of an asset. An entity recognises an asset when it is probable that economic benefits will flow to the entity as a result of the expenditure [F4.44]. The economic benefits might be available through commercial exploitation of mineral reserves or sales of exploration findings or further development rights. It is often difficult for an entity to demonstrate that the recovery of exploration expenditure is probable. Where entities do not adopt IFRS 6 and instead develop a policy under the Framework, expenditures on an exploration property are normally expensed until:

- i. the point at which the fair value less costs to sell of the property can be reliably determined as higher than the total of the expenses incurred and costs already capitalised (such as licence acquisition costs); and
- ii. an assessment of the property demonstrates that commercially viable reserves are present and hence there are probable future economic benefits from the continued development and production of the resource.

### Cost of survey that provide evidence of unproductive areas but result in an increase in the fair value of the licence—Should they be capitalised?

#### Background

Entity B operates in the copper mining sector and has chosen to develop accounting policies for exploration and evaluation expenditures that are fully compliant with the requirements of the IFRS Framework rather than continue with its previous accounting policies. It also chooses not to group exploration and evaluation assets with producing assets for the purposes of impairment testing.

Entity B has acquired a transferable interest in an exploration licence. Initial surveys of the licence area already completed indicate that there are mineral deposits present but further surveys are required in order to establish the extent of the deposits and whether they will be commercially viable.

Management are aware that third parties are willing to pay a premium for an interest in an exploration licence if additional geological and geotechnical information is available. This includes licences where the additional information provides evidence of where further surveys would be unproductive.

#### Question

Can entity B capitalise the costs of a survey if it is probable before the survey is undertaken that the results of the survey will increase the fair value of the licence interest regardless of the survey outcome?

#### Solution

Yes. Entity B may capitalise the costs of the survey provided that the carrying amount does not exceed recoverable amount. Entity B's management are confident before the survey is undertaken that the increase in the fair value less costs to sell of the licence interest will exceed the cost of the additional survey.

Capitalisation of the costs of the survey therefore meets the accounting policy criteria set out by the entity.

#### 2.3.2.3 Tangible/Intangible classification

Exploration and evaluation assets recognised should be classified as either tangible or intangible according to their nature [IFRS 6 para 15].

Industry practice varies and some entities take the view that exploration and evaluation assets form part of property, plant and equipment because the underlying asset is a tangible asset (i.e., the mineral deposit). Others have concluded that any assets recognised in respect of exploration and evaluation expenditure must be attributed to the relevant exploration/mining licence(s) and recognised as an intangible asset.

Clear disclosure of the accounting policy chosen and consistent application of the policy chosen are important to allow users to understand the entity's financial statements. In practice, most entities classify E&E assets as intangible unless it is a physical asset e.g. drilling rig.

#### 2.3.3 Evaluation

Evaluation activities are further advanced than exploration and hence are more likely to meet the criteria for recognising an asset. However, each project needs to be considered on its merits. The amount of evaluation work required to conclude that a viable mine exists will vary for each area of interest.

Factors to be considered include:

- the entity's existing level of knowledge about the area of interest and the extent to which the infrastructure assets and processing facilities needed to exploit the mineral deposit already exist. This will depend on whether the evaluation activity relates to a greenfield site, a brownfield site or extension drilling for a mineral deposit that is already being mined or developed;

- the scale of the project's estimated net present value and the sensitivity of the net present value to changes in the key assumptions. This will depend on the nature and quality of the mineral deposit, and also the extent of the up-front capital costs needed to develop the mine;
- the level of risk associated with the project, including political risk and operational risk;
- the existence of any barriers that might prevent the project from proceeding (such as securing water supplies, obtaining environmental approvals or developing the required technology); and
- management's experience and track record.

The studies that are produced during the evaluation phase (such as pre-feasibility studies and final feasibility studies) typically include an estimated net present value (based on the projected future cash flows) and a risk assessment setting out:

- the potential range of any key parameters (including metal price, production grade, production rate, capital costs, operating costs, metal recoveries, currency exchange rates and development schedule);
- the impact of fluctuations in these parameters on the economic viability of the project (as measured by the net present value); and
- other key parameters such as legal, permitting and environmental risks.

Typically each successive study generally costs more to produce and generates more detailed and reliable technical and financial data.

A feasibility study (sometimes known as a 'bankable', 'definitive' or 'final' study as noted in section 1.2.2) may be needed before the entity can demonstrate that future economic benefits are probable. Some mining entities have adopted a policy under which all expenditure on individual exploration and evaluation projects is expensed until a final feasibility study has been completed.

There are also many situations where a final feasibility study is not required to demonstrate economic feasibility; the entity may, in these situations, capitalise all (or some) of the costs incurred in compiling the final study. Many Codes in use around the world do not require the preparation of final feasibility study before resources can be designated as proved and probable reserves.

Management needs to develop a consistent and transparent accounting policy that is applied through the various phases of exploration and evaluation activity, highlighting the cut-off point before capitalisation of costs commences.

Costs incurred after probability of economic feasibility is established are capitalised only if the costs are necessary to bring the resource to commercial production. Subsequent expenditures should not be capitalised after commercial production commences, unless they meet the asset recognition criteria.

### 2.3.4 Subsequent measurement of E&E assets

Exploration and evaluation assets can be measured using either the cost model or the revaluation model as described in IAS 16 and IAS 38 after initial recognition [IFRS 6 para 12]. In practice, most companies use the cost model.

Depreciation and amortisation of E&E assets usually does not commence until the assets are placed in service.

The classification of E&E assets as tangible or intangible has a particular consequence if the revaluation model is used for subsequent measurement (although this is rare) or if the fair value as deemed cost exemption in IFRS 1 "First-time Adoption of International Financial Reporting Standards" is used on first-time adoption of IFRS.

## 2 Exploration and evaluation activities

The revaluation model can only be applied to intangible assets if there is an active market in the relevant intangible assets. This criterion is rarely met and would never be met for E&E assets as they are not homogeneous. The ‘fair value as deemed cost’ exemption in IFRS only applies to tangible fixed assets and thus is not available for intangible assets. Classification as tangible or intangible may therefore be important in certain circumstances.

### 2.3.5 Borrowing costs during the E&E phase

Borrowing costs incurred during the exploration and evaluation (“E&E”) phase may be capitalised under IFRS 6 as a cost of E&E if they were capitalising borrowing costs under their previous GAAP. Borrowing costs may also be capitalised on any E&E assets that meet the asset recognition criteria in their own right and are qualifying assets under IAS 23 “Borrowing Costs” (revised 2007). E&E assets which meet these criteria are expected to be rare, for example during the assembly of exploration facilities.

Entities could develop an accounting policy under IFRS 6 to cease capitalisation of borrowing costs if these were previously capitalised. However the entity would then need to consider whether borrowing costs relate to a qualifying asset and would therefore require capitalisation. The asset would have to meet the IASB framework definition of an asset and be probable of generating future economic benefit. This definition will not be met for many assets. An exploration licence, for example, would not meet the definition of a qualifying asset as it is available for use in the condition it is purchased and does not take a substantial period of time to get ready for use. Additional exploration expenditure, although it can be capitalised under IFRS 6, would not be considered probable of generating future economic benefit until sufficient reserves are located.

### 2.3.6 Reclassification out of E&E under IFRS 6

E&E assets are reclassified from Exploration and Evaluation when evaluation procedures have been completed [IFRS 6 para 17]. E&E assets for which commercially-viable reserves have been identified are reclassified to development assets. E&E assets are tested for impairment immediately prior to reclassification out of E&E [IFRS 6 para 17]. The impairment testing requirements are described below.

Once an E&E asset has been reclassified from E&E, it is subject to the normal IFRS requirements. This includes impairment testing at the CGU level and depreciation on a component basis. The relief provided by IFRS applies only to the point of evaluation (IFRIC Update November 2005).

An E&E asset for which no commercially-viable reserves have been identified should be written down to its fair value less costs to sell. The E&E asset can no longer be grouped with other producing properties.

### 2.3.7 Impairment of E&E assets

IFRS 6 introduces an alternative impairment-testing regime for E&E assets. An entity assesses E&E assets for impairment only when there are indicators that impairment exists. Indicators of impairment include, but are not limited to:

- Rights to explore in an area have expired or will expire in the near future without renewal;
- No further exploration or evaluation is planned or budgeted;
- A decision to discontinue exploration and evaluation in an area because of the absence of commercial reserves; and
- Sufficient data exists to indicate that the book value will not be fully recovered from future development and production.

The affected E&E assets are tested for impairment once indicators have been identified. IFRS introduces a notion of larger cash generating units (CGUs) for E&E assets. Entities are allowed to group E&E assets with producing assets, as long as the policy is applied consistently and is clearly disclosed. Each CGU or group of CGUs cannot be larger than an operating segment (before aggregation). The grouping of E&E assets with producing assets might therefore enable an impairment to be avoided for a period of time.

Although IFRS provides this allowance to group E&E assets with producing assets it is rarely used in practice.



### Identification of level at which to test for impairment

#### Background

A mining entity has operations in Africa and South America. The operations in South America are all at the exploration stage.

Within the Africa operating segment there are two producing mines (A and B), which are separate cash-generating units, and two exploration sites (C and D). Management receives a geological survey showing significant downward revisions to the resource estimates at site C.

#### Question

What policies may be established for the level at which E&E assets are tested for impairment?

#### Solution

Management could have a policy of testing each E&E site separately, (in which case it may be fully impaired). Alternatively, management could have established a policy that groups an exploration site with the producing mines, in which case there may be no impairment at all.

The sites which are grouped must all be within the same operating segment. In this example, were exploration site C to have been in the South America operating segment it could not be grouped with the assets from the Africa operating segment. In the absence of a producing mine within the South America operating segment, no shelter for impairment would be available.

When a policy on grouping has been established it should be followed consistently for all future indications of impairment. Common practice in the mining industry is to test E&E assets for impairment without grouping them with producing mines, except where an E&E site would share infrastructure assets and/or processing facilities with the producing mine.

The lack of certainty over the existence of reserves at the E&E stage means that Fair Value Less Costs to Sell (“FVLCTS” - see section 9.5) is likely to be the appropriate approach to the impairment test. Fair value is usually established through other methods such as on an acreage basis or using similar transactions.

Once the decision on commercial viability has been reached E&E assets are reclassified from the E&E category. They are tested for impairment under the IFRS 6 policy adopted by the entity immediately prior to reclassification. Subsequent to reclassification the normal impairment testing guidelines of IAS 36 “Impairment” apply. Successful E&E will be reclassified to development and unsuccessful E&E is written down to the higher of fair value less costs to sell or value in use.

Assets reclassified from E&E are subject to the normal IFRS requirements of impairment testing at the CGU level and depreciation on a component basis. As explained in section 2.3.6 the shelter provided by IFRS 6 only applies until the point of reclassification. After reclassification impairment testing and depreciation on a pool basis is not acceptable.

### 2.3.8 Post balance sheet events

#### 2.3.8.1 Identification of unsuccessful properties

A exploration project at the reporting date may be found to be unsuccessful subsequent to the balance sheet date. If this is identified before the issuance of the financial statements, a question arises whether this is an adjusting or non-adjusting event. IAS 10 “Events after the Reporting Period” requires an entity to recognise adjusting events after the reporting period in its financial statements for the period.

Adjusting events are those that provide evidence of conditions that existed at the end of the reporting period. If the condition arose after the reporting period, this would result in a non-adjusting event. An exploration project at period end which is determined to be unsuccessful subsequent to the balance sheet date based on substantive evidence obtained during the drilling process in that subsequent period suggests a non-adjusting event. These conditions should be carefully evaluated based on the facts and circumstances.

## 2 Exploration and evaluation activities

### 2.3.8.2 Licence relinquishment

Licences for exploration (and development) usually cover a specified period of time. They may also contain conditions relating to achieving certain milestones on agreed deadlines. Often, the terms of the licence specify that if the entity does not meet these deadlines, the licence can be withdrawn. Sometimes, entities fail to achieve these deadlines, resulting in relinquishment of the licence. A relinquishment that occurs subsequent to the balance sheet date but before the issuance of the financial statements must be assessed as an adjusting or non-adjusting event.

If the entity was continuing to evaluate the results of their exploration activity at the end of the reporting period and had not yet decided if they would meet the terms of the licence, the relinquishment is a non-adjusting event. The event did not confirm a condition that existed at the balance sheet date. The decision after the period end created the relinquishment event.

If the entity had made the decision before the end of the period that they would not meet the terms of the licence or the remaining term of the licence would not allow sufficient time to meet the requirements then the subsequent relinquishment is an adjusting event and the assets are impaired at the period end. Appropriate disclosures should be made in the financial statements under either scenario.

### 2.3.9 Exploration and evaluation disclosures

Typical exploration and evaluation disclosures include:

- the accounting policy applied in respect of exploration and evaluation expenditure, including the policy for allocating exploration and evaluation assets to cash-generating units for impairment purposes;
- the amounts recognised in the financial statements in respect of exploration and evaluation activities (including the amounts of assets, liabilities, income, expense, operating cash flows and investing cash flows); and
- a reconciliation of the amounts carried forward as exploration and evaluation assets at the beginning and end of the period—including expenditure capitalised during the period, transfers to development, amounts written off and impairments.

The policy followed in respect of exploration and evaluation expenditure will require significant judgement for many entities. They will need to determine whether expenditure should be carried forward as an asset or evaluate whether an impairment loss has arisen or both. The financial statements must also disclose the judgements that have been applied.

Cash flows from exploration and evaluation costs that are capitalised as assets are disclosed as investing activities in the cash flow statement. If the exploration and evaluations costs are expensed, then the related cash flows are shown as operating activities in the cash flow statement. Cash flows from exploration and evaluation costs may be separately disclosed in operating activities.

## 2.4 Disclosure of reserves and resources

A key indicator for evaluating the performance of mining entities are their existing reserves and the future production and cash flows expected from them. Disclosures of reserves and resources often accompany financial statements but are presented outside of them and are not covered by the auditor's opinion. Some national securities regulators require supplemental disclosure of reserve information. There are also recommendations on accounting practices issued by industry bodies which are required by some stock exchanges. However, there are no reserve disclosure requirements under IFRS and it is not mandatory to provide disclosures in all jurisdictions although some entities may still do so on a voluntary basis.

IAS 1 "Presentation of Financial Statements" [IAS 1 para 17] requires that an entity's financial statements should provide additional information when compliance with specific requirements in IFRS is insufficient to enable an entity to achieve a fair presentation.

An entity may consider the pronouncements of other standard-setting bodies and accepted industry practices when developing accounting policies in the absence of specific IFRS guidance. Many entities provide supplemental information with the financial statements because of the unique nature of the mining industry and the clear desire of investors and other users of the financial statements to receive information about reserves. The information is usually supplemental to the financial statements and, as noted above, is not covered by the auditor's opinion.

Information about quantities of mineral reserves and changes therein is essential for users to understand and compare mining companies' financial position and performance. Entities should consider presenting reserve quantities and changes on a reasonably aggregated basis. Reserve disclosures accompanying the financial statements should be consistent with those reserves used for financial statement purposes. For example, proved and probable reserves might be used for depreciation and amortisation calculations.

The categories of reserves used and their definitions should be clearly described. Reporting a 'value' for reserves and a common means of measuring that value have long been debated, and there is no consensus among national standard-setters permitting or requiring value disclosure. There is, at present, no globally agreed method to prepare and present 'value' disclosures. However, there are globally accepted engineering definitions of reserves that take into account economic factors. These definitions may be a useful benchmark for investors and other users of financial statements to evaluate. The disclosure of key assumptions and key sources of estimation uncertainty at the balance sheet date is required by IAS 1. Given that the reserves and resources have a pervasive impact, this can result in entities providing disclosure about mineral resource and reserve estimates, for example:

- the methodology used and key assumptions made for mineral resource and reserve estimates;
- the sensitivity of carrying amounts of assets and liabilities to the mineral resource and reserve estimates used;
- the range of reasonably possible outcomes within the next financial year in respect of the carrying amounts of the assets and liabilities affected; and
- an explanation of changes made to past mineral resource and reserve estimates, including changes to underlying key assumptions.

Other information such as the potential future costs to be incurred to acquire, develop and produce reserves may help users of financial statements to assess the entity's performance. Supplementary disclosure of such information with IFRS financial statements is useful, but it should be consistently reported, the underlying basis clearly disclosed and based on common guidelines or practices, such as the CRIRSCO definitions.

Companies already presenting supplementary information regarding reserves under their local GAAP may want to continue providing information in the same format under IFRS.

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## **3** *Development activities*

## 3 Development activities

### 3.1 Development expenditures

Development expenditures are costs incurred to obtain access to proved and probable reserves and to provide facilities for extracting, treating, gathering, transporting and storing the minerals. An entity should develop an accounting policy for development expenditure based on the guidance in IAS 16, IAS 38 and the Framework. Much development expenditure results in assets that meet the recognition criteria in IFRS.

Development expenditures are capitalised to the extent that they are necessary to bring the property to commercial production. They should be directly attributable to an area of interest or capable of being reasonably allocated to an area of interest. Costs which could meet these criteria include:

- the purchase price for development assets, including any duties and any non-refundable taxes;
- costs directly related to bringing the asset to the location and condition for intended use such as drilling costs or removal of overburden to establish access to the ore reserve; and
- the present value of the initial estimate of the future costs of dismantling and removing the item and restoring the site on which it is located, where such obligations arise when the asset is acquired or constructed.

Allocation of expenditure includes direct and indirect costs. Indirect costs are included only if they can be directly attributed with the area of interest. These may include items such as road construction costs and costs to ensure conformity with environmental regulations. Costs associated with re-working engineering design errors or those attributed to inefficiencies in development should not be capitalised.

General or administrative overheads relating to the whole entity, rather than to specific phases of operations, are expensed as incurred. Time charges from head office staff may be capitalised where there is a clear and direct allocation of their time to development specific activities.

Entities should also consider the extent to which “abnormal costs” have been incurred in developing the asset. IAS 16 requires that the cost of abnormal amounts of labour or other resources involved in constructing an asset should not be included in the cost of that asset. Entities will sometimes encounter difficulties in their mining plans and make adjustments to these. There will be a cost associated with this, and entities should develop a policy on how such costs are assessed as being normal or abnormal.

Expenditures incurred after the point at which commercial production has commenced should only be capitalised if the expenditures meet the asset recognition criteria in IAS 16 or 38.

### 3.2 Borrowing costs in the development phase

The cost of an item of property, plant and equipment may include borrowing costs incurred for the purpose of acquiring or constructing it. IAS 23 requires that borrowing costs be capitalised in respect of qualifying assets. Qualifying assets are those assets which take a substantial period of time to get ready for their intended use.

Borrowing costs should be capitalised while acquisition or construction is actively underway. These costs include the costs of specific borrowings for the purpose of financing the construction of the asset, and those general borrowings that would have been avoided if the expenditure on the qualifying asset had not been made. The general borrowing costs attributable to an asset’s construction should be calculated by reference to the entity’s weighted average cost of general borrowings.

### 3.3 Foreign exchange gains and losses

When development is funded by borrowings in a foreign currency, IAS 21 “The Effects of Changes in Foreign Exchange Rates” requires any foreign exchange gain or loss to be recognised in the income statement unless they are regarded as adjustments to interest costs, in which case they can be capitalised as borrowing costs in accordance with IAS 23.

### 3 Development activities

The gains and losses that are an adjustment to interest costs include the interest rate differential between borrowing costs that would be incurred if the entity borrowed funds in its functional currency and borrowing costs actually incurred on foreign currency borrowings.

IAS 23 does not prescribe which method should be used to estimate the amount of foreign exchange differences that may be included in borrowing costs. Two possible methods are:

- The portion of the foreign exchange movement may be estimated based on forward currency rates at the inception of the loan; or
- The portion of the foreign currency movement may be estimated based on interest rates on similar borrowings in the entity's functional currency.

Management must use judgement to assess which foreign exchange differences can be capitalised. The method used is a policy choice which should be applied consistently to foreign exchange differences whether they are gains or losses.

#### Exchange differences on foreign currency borrowings

##### Background

At the beginning of the year a mining entity domiciled in the UK has a US\$1 million foreign currency loan. The interest rate on the loan is 4% and is paid at the end of the period. An equivalent borrowing in sterling would carry an interest rate of 6%. The spot rate at the beginning of the year is £1 = US\$1.55 and at the end of the year it is £1 = US\$1.50

##### Question

What exchange difference could qualify as an adjustment to the interest cost?

##### Solution

The expected interest cost on a sterling borrowing would be £645,161 @ 6% = £38,710

|   |                |
|---|----------------|
| The actual cost of the US\$ loan is:                      | £              |
| Loan at the beginning of the year: US\$1 million @ 1.55   | 645,161        |
| <b>Loan at the end of the year: US\$1 million @ 1.50</b>  | <b>666,667</b> |
| Exchange loss   | 21,506         |
| <b>Interest paid: US\$1 million @ 4% = \$40,000 @ 1.5</b> | <b>26,667</b>  |
| Total   | 48,173         |
| Interest on sterling equivalent                           | 38,710         |
| <b>Difference</b>   | <b>9,463</b>   |

The total actual cost of the loan exceeds the interest cost on a sterling equivalent loan by £9,463. Therefore, only £12,043 (£21,506 - £9,463) of the exchange difference of £21,506 may be treated as interest eligible for capitalisation under IAS 23.

In order to continue capitalisation of the exchange difference, the correlation between the exchange rate and interest rate differential should be demonstrable and remain consistent over the life of the borrowing.

#### 3.4 Hedging costs

The cost of hedging capital projects can only be capitalised as part of the asset cost when the hedge instrument qualifies for hedge accounting in accordance with IAS 39 “Financial Instruments: Recognition and Measurement” or IFRS 9 “Financial Instruments”.

Cash flow hedging relationships may be put in place to hedge interest cash flows on borrowings and/or foreign exchange exposures of costs incurred in a currency other than the company’s functional currency. The release of amounts from the hedging reserve during the development phase would be made to the asset, flowing through earnings as depreciation in future periods.

Section 14.5 discusses hedge accounting in further detail.

#### 3.5 Pre-production sales

There may be a long commissioning period for a mine, sometimes over twelve months, during which production is gradually increased towards design capacity. An entity may have revenue from saleable material produced during this phase. Where the test production is considered necessary to the completion of the asset, the proceeds from sales are usually offset against the asset cost instead of being recognised as revenue. Judgement is required to determine whether all revenues earned during the commissioning period should be deducted from the cost of developing the mine. IAS 16 defines the costs which qualify for recognition as PP&E as being those which “are directly attributable to bringing the asset to the...condition necessary for it to be capable of operating in the manner intended by management.” Judgement is required as to whether this means only commencement of production or achieving a specified level of production.

#### 3.6 Development disclosures

Development expenditure disclosures include:

- accounting policy, including treatment of development expenditure after commercial production has commenced;
- balance of development and construction expenditure capitalised;
- amounts capitalised on projects yet to reach commercial production; and
- reconciliation of costs to prior year, including expenditure incurred during the period, transfers and impairments.

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## **4 *Production activities***



## 4 Production activities

Determining when development ends and production starts can be complex. This is a key determination for mining entities as the change to production activity means that certain costs are no longer capitalised, and depreciation of assets commences. It is also the stage at which the entity will commence production of inventory and recognising revenue.

As explained in section 1.2.3, a conclusion on whether an asset is ‘available for use’ and in the production phase is usually reached after discussions between the engineers, metallurgists, operators and those in financial role).

This section explores the accounting issues which can occur once the decision is made that the mine is at the production stage:

- **Revenue recognition**—how is it determined when of the transfer of ownership has occurred and how are provisional pricing arrangements recognised?
- **Depreciation and amortisation**—what is the appropriate basis of depreciation for assets used in mining activities and how is the requirement to depreciate on a component basis met?
- **Deferred stripping costs**—can deferred stripping costs at the production phase be capitalised and how should these be measured and amortised?
- **Renewal and reconditioning costs**—should these costs be capitalised?
- **Inventory valuation**—what costs should be included in the measurement of inventory and how should long term stock piles be valued?

### 4.1 Revenue recognition

Revenue recognition can present challenges for mining entities. Production often takes place in joint ventures, and entities need to analyse the facts and circumstances to determine when and how much revenue to recognise. Extracted mineral ores may need to be moved long distances and need to be of a specific type to meet smelter or refinery requirements. Entities may exchange product to meet logistical, scheduling or other requirements. This section looks at these common issues.

The IASB has an ongoing project to develop a new accounting standard for revenue recognition. The completion of the project may result in changes to current accounting but a final standard is not expected until 2013 at the earliest.

#### 4.1.1 Cost and Freight vs Free On Board

The transfer of significant risks and rewards of ownership usually occurs when legal title or possession is transferred to the buyer.

The concept of the transfer of risks and rewards of ownership is reflected in the rules regarding the contractual terms of trade established by the International Chamber of Commerce, which have been widely adopted as practice internationally.

Examples of typical contractual terms of trade include:

- **Free On Board (“FOB”) contracts**—stipulate that the purchaser assumes the risk of loss, and therefore the insurance risk, upon delivery of the product to an independent carrier; and
- **Cost Insurance Freight (“CIF”) arrangements**—the producer retains risk of loss until the product has been delivered to a specific location and title passes.

Many variations of contracts arise in practice that combines elements of CIF and FOB. If the selling mining entity is responsible for carriage, insurance and freight until the goods are delivered, these form part of the entity’s performance and result in retention of the risks and rewards of the item sold until delivery to the client site has occurred. As a result, the timing of revenue recognition will be different depending upon the terms of delivery. If an item has been sold on an FOB basis, such that the entity has no further performance obligations, revenue recognition on despatch of the item is likely to be acceptable. It should NOT, however, be assumed that the use of the term ‘FOB’ leads to the treatments detailed above.

Whether the insurance and freight risk is taken on by the customer will depend on the arrangement’s exact terms and these should be examined to ensure that the timing of revenue recognition appropriately reflects the time of transferral of risks and rewards for the transaction.

### Sale of goods on a CIF basis—when should revenue be recognised?

#### Background

Mining entity A sells copper concentrate from its production facility on a CIF basis to refiner B. The contractual terms state that insurance is taken out by entity A for the period the concentrate is in transit. However, the terms go on to say that:

*“The seller must pay the costs and freight necessary to bring the goods to the named port of destination, but the risk of loss or of damage to the goods, as well as any additional costs due to events occurring after the goods cross the ship’s rail, are transferred from the seller to the buyer when the goods pass the ship’s rail.”*

In order to comply with these terms entity A takes out a bearer insurance document, which means that entity A would claim for any loss or damage to the concentrate until the concentrate passes the ship’s rail (that is, the concentrate is officially documented as being loaded as part of the ship’s cargo). From this point on, the insurance policy is transferred to the refiner B (now being the bearer of the insurance document). Refiner B will need to make a claim directly to the insurers (that is not via entity A) for any copper concentrate lost in transit once the copper concentrate crosses the ship’s rail.

#### Question

When should revenue be recognised under the above terms?

#### Solution

Revenue should be recognised by entity A when the copper concentrate crosses the ship’s rail and should not be deferred until delivery, presuming all other conditions for the recognition of revenue are satisfied.

If the terms of the contract state that the risk of loss remains with entity A until the goods are delivered, revenue recognition would be delayed until the concentrate is delivered to refiner B as the risk of loss remains until that point.

### 4.1.2 Transfer of effective control over goods sold

#### 4.1.2.1 Physical transfer

IAS 18 “Revenue” states that the seller must not maintain any ongoing managerial or other effective control over the product for revenue to be recognised. The cessation of effective control is often realised at the point that the physical control is transferred.

Physical control may be relinquished when, for example, the product has been delivered to an independent carrier or loaded onto a ship. This does not always involve a transfer of risks and rewards if the purchaser has not accepted physical risk. Generally, physical risk will have passed once the purchaser has control over the physical goods (for example, once loading is complete when the shipping vessel has been selected by the purchaser). The terms of trade will be the ultimate determinant, particularly when an independent carrier is used.

For example, with the sale of poured gold bars, revenue should not be recognised before the gold is collected by the security firm (who normally take over all risks), even though the gold has been sold under forward contract. Once the security firm takes delivery, revenue can be recognised, as physical risk has been transferred.

#### 4.1.2.2 Advanced payments

Companies may receive payments in advance of product delivery. Such payments do not in themselves provide evidence that revenue has been earned, as there has been no transfer of risks and rewards of the product. Money will have to be refunded if the transporting vessel sinks or the commodity is stolen, and a replacement product supplied or some other form of compensation made.

Revenue would generally not be recognised under typical terms of trade, even if advance payment had been received, in the following circumstances:

- orders are received for product in the form it is usually sold, and product is available for delivery but has not been allocated to a specific customer;
- product is available, and an order has been received specifying quantity and price, but a delivery date has not been determined;
- product is available, but the purchaser has specifically requested a delay in shipment; or
- product is available, but shipment has been delayed due to temporary shipping difficulties (outside the influence of either party—for example a vessel’s movements are restricted by adverse weather) or shipping schedules are infrequent.

However, revenue may be recorded in the last two examples in some circumstances. This would require the product to be fully insured, held in a separate location and clearly identified as being the property of the purchaser (bill and hold sale). To recognise revenue, the risks and rewards must have been transferred to a specific purchaser or otherwise insured on the buyer’s behalf.

### 4.1.2.3 Delayed shipment

A purchaser may pay a significant portion of the final estimated purchase price and request delayed shipment because of limited storage space. A sale may be recognised if it is probable delivery will be made as well as the product is specifically identified for the purchaser, is available for immediate delivery, and is held at the purchaser’s risk. The product is usually physically segregated from other product and is clearly marked as belonging to the purchaser; it is not therefore available for sale to other parties. Acknowledgement of the arrangement by both the producer and purchaser must be evidenced in the form of a formal agreement between the parties and the usual payment terms apply.

Specific arrangements in all circumstances must satisfy the basic principles of IAS 18 in relation to effective control and risk/reward transfer. Revenue is not recognised when there is simply intention to acquire or process the goods in time for delivery.

### 4.1.2.4 Saleable form

Revenue must not be recognised prior to the completion of all processing and treatment activities that are the producer’s responsibility, as set out in the contract of sale. However, contracts of sale may provide for sales at various stages of the treatment process. For example, main product may be sold as refined metal, ore, pellets, concentrate or other intermediate products. By-products may be for the benefit of the producer, the purchaser or, in some cases, the custom smelter.

For example, a copper producer might deliver concentrate to a smelter for processing. The refined smelter output would then be sold in its final form to an end user of the copper product.

If the producer had a contract of sale with the smelter rather than the end user of the copper product, revenue could be recognised on delivery to the smelter, as the producer has no further obligations and the contract is for concentrate.

If the producer had a contract of sale with the end user, revenue is not recognised on delivery of concentrate to the smelter. The saleable form in the contract is refined copper, and revenue could not be recognised until delivery to the end user of that refined copper.

A mining entity generally recognises a sale when the product is in its final form, as required by the contract of sale; any later processing is not the entity’s responsibility or cost. This is consistent with the IAS 18 requirement that there be no retention of continuing managerial involvement to the degree usually associated with ownership or effective control of the goods.

### 4.1.3 Product exchanges

Mining companies may exchange mineral products, such as coal, with other mining companies to achieve operational objectives. A common term used to describe this is a “Buy-sell arrangement”. These arrangements are often entered to save transportation costs by exchanging a quantity of product A in location X for a quantity of product A in location Y. Variations on the quality or type of the product can sometimes arise. Balancing payments are made to reflect differences in the values of the products exchanged where appropriate. The settlement may result in gross or net invoicing and payment.

## 4 Production activities

The nature of the exchange will determine if it is a like-for-like exchange or an exchange of dissimilar goods. A like-for-like exchange does not give rise to revenue recognition or gains. An exchange of dissimilar goods results in revenue recognition and gains or losses. The exchange of mineral ore, even where the qualities of the ore differ, is usually treated as an exchange of similar products and accounted for at book value. Any balancing payment made or received to reflect minor differences in quality or location is adjusted against the carrying value of the inventory. There may, however, be unusual circumstances where the facts of the exchange suggest that there are significant differences between the mineral ore exchanged. Such a transaction should be accounted for as a sale of one product and the purchase of the other at fair values in these circumstances.

A significant cash element in the transaction is an indicator that the transaction may be a sale and purchase of dissimilar products.

### 4.1.4 Forward-selling contracts to finance development

Mineral exploration and development is a capital intensive process and different financing methods have arisen. Some structured transactions involve the owner of mineral interests selling a specific volume of future production from specified properties to a third party “investor” for cash. The owner is then able to use this cash to fund the development of a promising prospect. Such structures come in many different forms (e.g. silver streaming) and each needs to be carefully analysed to determine the appropriate accounting. The buyer (investor) in a structure of this type may assume significant reserve and production risk and all, or substantially all, of the price risk. If future production from the specified properties is inadequate, the seller has no obligation to make up the production volume shortfall. Legally, an arrangement of this type is considered a sale of a mineral interest because ownership of the reserves in the ground passes to the buyer. The only specific guidance for such an arrangement is found in US GAAP. Many IFRS entities would look to the US requirements when developing their practices.

The seller in an arrangement of this type will deem that it has sold a mineral interest. Common practice would be to eliminate the related reserves for disclosure purposes. However, typically a gain is not recognised upon entering the arrangement because the seller remains obligated to extract the mineral reserves for no future consideration. The seller records deferred revenue for all of the proceeds received and does not reduce the carrying amount of PP&E related to the specified properties. The amount received is recorded as “deferred revenue” rather than a loan as the intention is that the amount due will be settled in the commodity rather than cash or a financial asset.

These contracts may (subject to the terms relating to volume flexibility and pricing formula) have embedded derivatives in them which require separation (see sections 14.3 and 14.4 for discussions on volume flexibility and embedded derivatives). Where no gain is recognised the seller will recognise the deferred revenue and deplete the carrying amount of PP&E related to the specified properties as mineral ore is delivered to the buyer. The revenue arising from the sale under the contract is recognised over the production life of the arrangement.

This is a complex area. There will be very specific facts for each arrangement. These must be understood and analysed as different accounting treatments may be applicable in certain circumstances. Arrangements of this type are different from derivative forward contracts that would protect the entity against fluctuations in commodity prices (i.e., to buy or sell mineral ores at a specified future time at a price agreed in the present). Those arrangements are discussed in section 14.5.

### 4.1.5 Provisional pricing arrangements

Sales contracts for certain commodities often incorporate provisional pricing - at the date of delivery of the mineral ore, a provisional price may be charged. The final price is generally an average market price for a particular future period.

Revenue from the sale of provisionally priced commodities is recognised when risks and rewards of ownership are transferred to the customer (which would generally be the date of delivery) and revenue can be measured reliably. At this date, the amount of revenue to be recognised will be estimated based on the forward market price of the commodity being sold.

Common factors affecting contract sales prices are:

- average market prices between certain dates (quotation period);
- market price on a measurement date subsequent to delivery;
- escalation clauses in contracts;
- reference to selling prices obtained by other sellers; and
- amounts realised by a purchasing smelter, net of smelter charges.

Producers may receive provisional payments from purchasers on delivery with a final payment on settlement. This provisional payment can be as high as 90% of the final consideration.

In most cases, the relevant forward market price should provide a reliable basis for measuring the value of the sale at the date of delivery. If so, the sale should be recognised at this time. At each subsequent period end the provisionally priced contracts are marked to market using the most up-to-date market prices with any resulting adjustments usually being recognised within revenue.

Some mining entities use derivatives to protect economically against movement in the market price after the sale has been recognised. In such cases, the provisional pricing contract and the matching derivative have to be fair valued at the period end, and the amounts recognised in the income statement should offset.

Other variations of sale price may include revenue sharing arrangements where a base price is specified but both parties will share the excess in some contractual proportion if the purchaser realises a higher price, and the producer bears any shortfall. Sales might be recognised at the basic price at the time of delivery, and any excess recognised when revenue recognition criteria is met. Any shortfall is recognised as a reduction of revenue if it becomes likely that the producer will have to reimburse the purchaser.

### 4.1.6 Agency arrangements

It is important to identify whether a mining entity is acting as a principal or an agent in transactions as it is only when the entity is acting as a principal that they will be able to recognise revenue based on the gross amount received or receivable in respect of its performance under a sales contract. Entities acting as agents do not recognise revenue for any amounts received from a customer to be paid to the principal.

Whether an entity is acting as a principal or agent is dependent on the facts and circumstances of the relationship. Indicators that an entity should account for a transaction as a principal include:

- An expectation by the customer that the entity is acting as the primary obligor in the arrangement.
- The entity has latitude, within economic constraints, to set the selling price with the customer. Conversely, where the amount that the entity earns is fixed in advance and is either a fixed fee per transaction or a stated percentage of the amount invoiced, this would normally indicate that the entity is acting as an agent.
- The entity has inventory risk—that is exposure to the risks of damage, slow movement and obsolescence and changes in suppliers' prices.
- The entity performs part of the services provided or modifies the goods supplied.
- The entity has or assumes the credit risk associated with the transaction.

Producers may deliver product to an agent who will market and sell the product on behalf of the producer. From the agent's perspective, IAS 18 stipulates that revenue is only recognised in relation to the agent's fee or commission upon sale.

For example, in a tolling arrangement, if the smelter received only the toll charge and the risk of loss remained with the producer until delivery to the final vendor, the smelter would not recognise the gross value of any shipments of refined metal, rather only its charge element. The smelter would be seen to be acting as an agent of the producer (see section 4.1.7 below). However, the key remains to establish which party holds the risks and rewards of the transaction. It is not appropriate to recognise the transactions as agent transactions simply because the cash flows are received net.

### 4.1.7 Tolling arrangements

Many companies involved in the industry provide value-added services to companies that mine ore or unprocessed mineral product. These companies may be involved in smelting, washing, refining or transporting product on behalf of a mining company. The mining company may have agreed the sale with the end user or be selling to the smelting or refining company who will then sell to an end user.

For example, a custom smelter may operate on either a purchase or toll basis. On a purchase basis, the smelter is entitled to a charge based on the final sale price of the metal produced. On a toll basis, the smelter is entitled to a treatment (toll) charge, which is usually fixed by contract or based on a formula relating to the selling price of the metal.

Revenue recognition by the mining company might then be at the point of:

- when they ship the metal to the smelter;
- when the metal arrives at the smelter;
- at the end of the period in which the smelter has to make provisional payment; or
- when the smelter advises the producer of the final metal quantities and, in some instances, sales price.

The appropriate point of revenue recognition from the mining companies' perspective is determined based on the transfer of risks and rewards, taking into account the factors discussed previously. The risk of loss is a key consideration in all intermediary arrangements as the risk of loss may transfer directly from the producer to the final purchaser, with the intermediary not assuming any risk of physical loss.

The smelter will have to consider whether it is acting as an agent or principal in its transaction with the mining companies by taking into account factors in section 4.1.6.

When intermediaries are used, such as in a smelting arrangement, an assessment of whether such an arrangement also constitutes a lease under IFRIC 4 "Determining whether an Arrangement contains a Lease" must also be considered (see section 12.2).

### 4.1.8 Long-term contracts

Long-term sales contracts are common in the mining industry. Producers and buyers may enter into sales contracts that are often a year or longer in duration to secure supply and reasonable pricing arrangements. Such contracts are often fundamental to the development and continuation of a mining entity and will be the basis on which the decision is made to proceed to the production stage and on which financing may depend. Sales under long-term contracts are accounted for under the principles previously discussed, but other considerations may also arise.

Contracts will typically stipulate a set volume of product over the period at an agreed price. There are often clauses within the contract relating to price adjustment or escalation over the course of the contract to protect the producer and/or the seller from significant changes to the underlying assumptions in place at the time the contract was signed. Prices may vary based on world market prices, cost escalation or some other form of price index (Section 4.1.5 above). These features or other contractual terms may give rise to embedded derivatives (see section 14.4).

Contracts may also allow for changes in quantity or timing of deliveries, and may or may not provide for compensatory arrangements for either party if circumstances change. Producers may also agree to variations notwithstanding any legally enforceable rights. Again, such contracts should be reviewed for embedded derivatives.

#### 4.1.8.1 Onerous contracts

Many contracts (for example, some routine purchase orders) can be cancelled without paying compensation to the other party, and therefore there is no obligation. An onerous contract is defined as a contract in which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it. The unavoidable costs under a contract reflect the least net cost of exiting from the contract, which is the lower of the cost of fulfilling it and any compensation or penalties arising from failure to fulfil it.

The factors which give rise to an onerous contract would likely be an impairment trigger and lead to an impairment assessment under IAS 36 (see section 9). After any impairment or write-down of the associated mining assets, the remaining loss is the lower of the cost of fulfilment and penalties payable to exit the contract.

For example, a mining company which has entered into fixed price long term supply contracts with its customers will become onerous if the cost of extraction and/or production increases subsequently and the total cost to fulfil the contract is expected to exceed the contracted price.

### 4.1.8.2 Take-or-pay contracts

Purchasers may commit to purchase a quantity of product at a time when they are unsure as to what their needs will be. This type of arrangement is undertaken by a purchaser who is looking to secure supply and is willing to pay a premium in the event the full quantity is not taken up. These types of arrangement are considered further in Section 14.3.

### 4.1.9 Lump sum contributions

There are typically two types of lump-sum contributions that a mining company may receive:

- contributions by customers (ie, to achieve production capacity upgrade); and
- government assistance.

Lump-sum contributions may take various forms, including interest-free or low-interest loans, contributions of assets, financial guarantees and cash payments.

A producer may receive a contribution from a customer to assist in undertaking capital works, capacity expansions or other improvements. Such a contribution is typically accompanied by an expectation of future product supply or future price concessions over a period of time. A producer will not typically have completed all tasks necessary to be entitled to revenue until the product has been delivered. Recognition of the lump-sum payment as revenue is not appropriate at the time of receipt, and is considered deferred income until the associated product has been delivered.

If a lump-sum contribution is received from the government without any future performance requirement, the contribution is recognised on the date of receipt, in accordance with the requirements outlined in IAS 20 Accounting for Government Grants and Disclosure of Government Assistance.

Lump sum contributions received from customers may be in the scope of IFRIC 18 “Transfers of Assets from Customers”. The requirements of that interpretation should be applied.

### 4.1.10 Presentation of revenue

Revenue is defined as the gross inflow of economic benefits that arise in the ordinary course of an entity’s activities. Cash flows that do not provide benefit to the entity but are collected on behalf of governments or taxing authorities are conceptually not part of revenue. Mining companies are subject to different types of taxes including income taxes, royalties, excise taxes, duty and similar levies. The prevalence of joint ventures and the variety of different taxes and duties levied on the industry may have resulted in different components of these being included or excluded from the reported revenue amount. This can make it difficult to compare revenue across industry participants.

Section 7 *Joint arrangements* discusses accounting for these arrangements in more detail. Section 10 *Royalty and income taxes* discusses the definition and classification of such items in more detail.

## 4.2 Depreciation and amortisation

### 4.2.1 Depreciation of mining assets

The accumulated capitalised costs from E&E and development phases are amortised over the expected total production using a units of production (“UoP”) basis. UoP is the most appropriate amortisation method because it reflects the pattern of consumption of the reserves’ economic benefits. However, straight-line amortisation may be appropriate for assets that are consumed more by the passage of time. Also, there may be circumstances when straight line depreciation does not produce a materially different result and can be used as a proxy for UoP.



### 4.2.2 UoP basis

IFRSs do not prescribe what basis should be used for the UoP calculation. There are several methods commonly used:

- total quantity of material extracted from the mine (including waste): this is appropriate for depreciating equipment such as shovels and draglines where the level of wear and tear is based on the volume extracted from the mine, irrespective of whether it represents ore or waste;
- total quantity of ore extracted from the mine: this is appropriate for depreciating the cost of the mineral property itself. It might also be suitable for depreciating equipment that is used in the early stages of processing, such as crushers and conveyors where wear and tear is linked to the ore throughput;
- total output: this is appropriate for depreciating plant and equipment that is involved in the latter stages of processing (such as smelters and refineries) where the volume of throughput (and hence wear and tear) is closely linked to the quantity of valuable output.

For assets with an economic life that is shorter than the mine life, these calculations need to be performed using the estimated productive capacity of the individual asset (or component), not the estimated capacity of the mine as a whole.

### 4.2.3 Determining the reserve/resource base

The life of the mine for depreciation purposes is based on an estimate of mineable mineral reserves and resources. The reserve/resource base selected needs to be considered in conjunction with the actual mine plan and any necessary costs to be incurred in order to extract part of those reserves/resources in determining the amortisation charge for the period.

The following reserve and resource bases are commonly used by a mining entity:

- Proved and probable reserves; or
- Reserves and a portion of resources expected to be converted into reserves.

Entities should only include those reserves or resources which they plan to mine.

#### 4.2.3.1 Proved and probable reserves

The use of proved and probable reserves for the calculation of depreciation is common as it is often the best estimate of the life of the mine. All inferred

resources are excluded, together with any indicated and measured resources that have not yet been deemed economically recoverable.

This approach may be appropriate in situations where proved and probable reserves provide the best indication of the useful life of the assets and the related costs that have been capitalised. However, in other situations, proved and probable reserves alone may not provide a realistic indication of the useful life of the mine and related assets. Management may be confident that further resources will be converted into reserves and are approaching economic decisions affecting the mine on this basis, but has chosen to delay the work required to designate them formally as reserves.

#### 4.2.3.2 Reserves and a portion of resources expected to be converted into reserves

Some mining entities adopt a different policy. The reserve/resource base is assessed for each mine and will depend on the type of mineral and the characteristics of the deposit. It is difficult to justify including inferred mineral resources in the depreciation base if the tonnage, grade and mineral content can only be estimated with a low level of confidence. For some deposits, however, it may be considered reasonable to take account of indicated and measured mineral resources that have not yet been classified as reserves. This might help to ensure the depreciation charges reflect management's best estimate of the useful life of the assets.

This can be particularly important where a mineral property has been acquired as part of a business combination and a significant amount has been attributed to the fair value of resources not yet designated as reserves. Use of only proved and probable reserves in those circumstances would probably result in a significant acceleration of depreciation expense.

#### 4.2.3.3 Basis of UoP calculation

The basis of the UoP calculation is a choice, and should be applied consistently for similar fact patterns. As noted in section 2.3.2, the type of site which is being operated may be a factor which the entity considers when evaluating the likely activity on a mine and could be a factor in deciding which basis to use for the UoP calculation. A brownfield site may provide more confidence in selecting reserves and a portion of resources which they expect to convert to reserves.



If an entity includes more than just proved and probable reserves in its UoP calculation, an adjustment is generally made to the calculation of the amortisation charge to include the estimated future development costs to access the portion of resources expected to be converted into reserves. There are different approaches to the inclusion of future development costs and these are discussed in 4.2.3.4 below.

The estimated production used for depreciation of assets that are subject to a lease or licence should be restricted to the total production expected to be produced during the licence/lease term. Renewals of the licence/ lease are only assumed if there is evidence to support probable renewal at the choice of the entity without significant cost.

### Unit of production calculation—classes of reserves

What class of reserves should be used for the UoP calculation?

#### Background

Entity D is preparing its first IFRS financial statements. D's management has identified that it should amortise the carrying amount of its producing mines on a unit of production basis over the reserves present for each mine.

However, D's management is debating whether to use proved and probable reserves or reserves and a portion of resources expected to be converted into reserves for the unit of production calculation.

#### Solution

Entity D's management may choose to use either proved and probable reserves or reserves and a portion of resources expected to be converted into reserves for the unit of production amortisation calculation.

The IASB Framework identifies assets on the basis of probable future economic benefits. An appropriate basis for assessing these would be the reserves used by management when assessing their business performance and the use of probable reserves may be consistent with this approach. In some limited circumstances it may be appropriate to include resources which form an integral part of management's mine plan.

Whichever reserves definition D's management chooses it should disclose and apply this consistently to all similar types of production properties.

### Unit of production calculation—future mine plans

Can resources not yet designated as reserves be used as a basis for the UoP calculation?

#### Background

Entity C has been operating a producing mine for the last 30 years. The mine area contains narrow deep veins of precious metals.

At the year end there are proved reserves remaining equivalent to two years of production remaining. However, the entity expects to convert further resources not yet designated as reserves and believes that these will be sufficient for activity to continue for an additional 20 years.

#### Solution

Where the entity has a track record of proving up additional reserves every year, has evidence to indicate that there are additional resources which may be proved up in future and has demonstrated an intention to continue activity at the site, it may be appropriate to include resources expected to be converted into reserves.

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### 4.2.3.4 Future development costs

Substantial costs are incurred up-front when a new mine is established but before production commences. However, it may be apparent that further future development costs will be necessary to extract all of the reserve/resource base from the mine. For example, it may be necessary to expand the tailings facilities or remove more overburden or, in the case of an underground mine, it may be necessary to construct new levels and cross-cuts.

Where substantial future development costs are required to extract the entire reserve/resource base, one approach is to split the costs attributed to the mineral property between those that can:

- be attributed to the entire ore body (such as the property acquisition costs and transfers from exploration and evaluation), which should be depreciated over the full reserve/resource base; and
- only be attributed to part of the ore body (such as the overburden removal costs or the cost of constructing the first tailings facility), which should be depreciated over the relevant portion of the reserve/resource base.

This might result in the use of several different reserve/resource bases for different components of the mine development costs. These costs are then depreciated as and when additional development costs are incurred over the part of the ore body to which they relate.

Any amounts capitalised in respect of the future dismantlement, removal and restoration of the mine site are depreciated on a basis consistent with the mine development activity to which they relate. This approach is consistent with the requirement that each part of an asset with a cost that is significant to the total cost of the item should be depreciated separately.

Where costs are attributed to the entire ore body and depreciation is calculated over reserves and resources, future development costs may need to be taken into account when determining the pattern of depreciation charges on the existing asset.

### 4.2.4 Change in the basis of reserves

An entity should use the reserve base which is in line with their mine plan and the level of reserves they expect to extract. As expectations can change the entity may subsequently determine that an alternative base may be more appropriate. A change in the basis of reserves from proved and probable reserves to reserves and a portion of resources expected to be converted into reserves is considered acceptable under IFRS.

A change in the basis of reserves constitutes a change in accounting estimate under IAS 8. The entity's policy of depreciating their assets on a UoP basis is unchanged; they have only changed their estimation technique. The effect of the change is recognised prospectively from the period in which the change has been made. Entities which change their UoP basis should ensure that any related changes (such as future capital expenditure to complete any assets or access resources) are also incorporated into their depreciation calculation. Appropriate disclosure of the change should be made.

### 4.2.5 Depreciation of other assets

Non-mining assets are depreciated using a method that reflects the pattern in which the asset's future economic benefits are expected to be consumed. The depreciation is allocated on a systematic basis over an asset's useful life. The residual value and the useful lives of the assets are reviewed at least at each financial year-end and, if expectations differ from previous estimates the changes are accounted for as a change in an accounting estimate in accordance with IAS 8. Depreciation on a straight line basis over the expected useful lives of the assets is a common approach.

### 4.2.6 Components

IFRS has a specific requirement for 'component' depreciation, as described in IAS 16. Each significant part of an item of property, plant and equipment is depreciated separately [IAS 16 para 43-44].

Significant parts of an asset that have similar useful lives and patterns of consumption can be grouped together. This requirement can create complications for mining entities, as there may be assets that include components with a shorter useful life than the asset as a whole.

Productive assets are often large and complex installations. Assets are expensive to construct, tend to be exposed to harsh environmental or operating conditions and require periodic replacement or repair. The significant components of these types of assets must be separately identified. Consideration should also be given to those components that are prone to technological obsolescence, corrosion or wear and tear more severe than that of the other portions of the larger asset.

The components that have a shorter useful life than the remainder of the asset, such as mill liners, are depreciated to their recoverable amount over that shorter useful life. The remaining carrying amount of the component is derecognised on replacement and the cost of the replacement part is capitalised [IAS 16 para 13-14].

### 4.3 Deferred stripping costs

Stripping costs incurred during the development phase of a mine, often referred to as overburden removal costs, are usually capitalised as part of the depreciable cost of building, developing and constructing the mine. Once production begins, those capitalised costs are depreciated over the life of the mine using the UoP method.

A mining entity may continue to incur overburden removal costs as the perimeter of the pit grows during the production phase. However, in addition, large amounts of waste will also need to be removed from the pit as part of regular mining activities. Such production stripping costs incurred may benefit both future and current period production. There is diversity in practice in accounting for such costs. Some entities recognise the production stripping costs as an expense (a cost of production). Other entities capitalise some or all of the costs in recognition of the future economic benefit created from this activity as ore becomes more accessible in future periods.

IFRIC 20 “Stripping Costs in the Production Phase of a Surface Mine” was issued in September 2011 and is applicable for annual periods beginning on or after 1 January 2013.

#### 4.3.1 Approaches prior to adoption of IFRIC 20

While application in practice varies considerably, typically one of the following three approaches has been used to account for production stripping costs:

- The simplest approach is to treat all waste removal costs as a current year production cost (the *inventory* method). Although simple to apply, the inventory method ignores any future economic benefits created during periods of high stripping activity.
- Under the *life of mine ratio*, entities capitalise stripping costs to the extent that the current stripping ratio exceeds the expected average stripping ratio for the life of mine. The deferred stripping costs are then subsequently amortised to the income statement when the actual stripping ratio falls below the expected average stripping ratio.
- Under the *betterment* approach, the costs of stripping associated with stripping campaigns are separately identified. Where the future value of the pit has been bettered the amounts are capitalised and then subsequently depreciated over the remaining life of mine on a UoP basis.

Under each method management will consider the significance of the associated costs in their decisions to capitalise and any capitalisation is dependent on the availability of accurate estimates of current activity levels and the life of mine plan.

#### 4.3.2 Approach following adoption of IFRIC 20

On adoption of IFRIC 20, many mining companies may have to change their accounting policies in respect of stripping costs. IFRIC 20 applies to stripping costs incurred during the production phase of a mine and does not cover the overburden removal costs incurred during the development phase. It only applies to surface mining activities and does not cover the underground mining activities.

The IFRIC will apply to all types of natural resources extracted using surface mining. Where reference is made to ‘extraction of mineral ore’ in the IFRIC it also applies to extraction of other natural resources that are not embedded in an ore deposit (for example coal) provided they are extracted using surface mining activity. However, IFRIC 20 does not apply to oil and natural gas extraction.

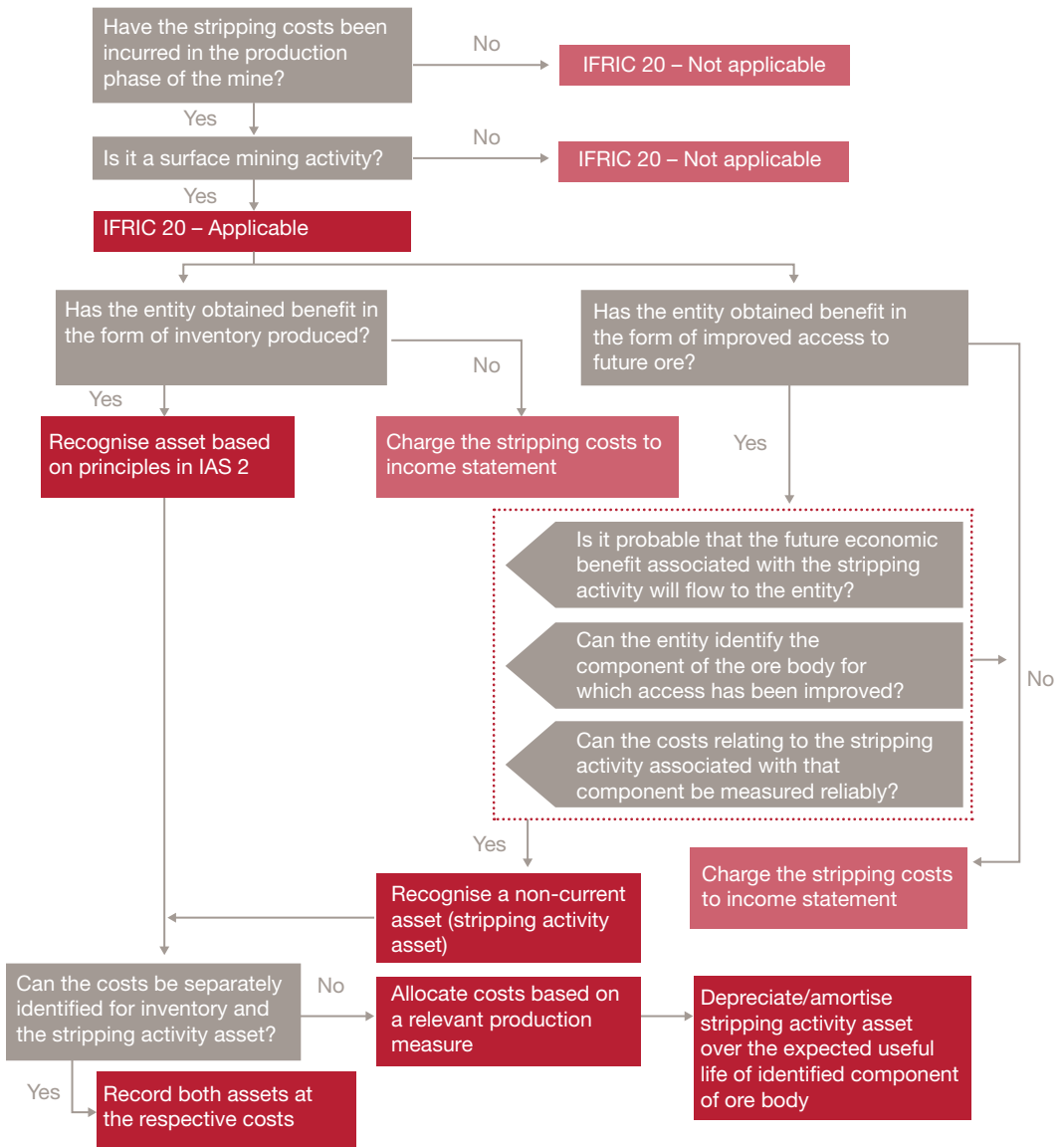
#### 4 Production activities

The question of whether oil sands extraction is a surface mining activity has not been addressed by the Committee. Entities carrying out oil sands extraction using processes similar to surface mining should exercise caution in using the principles of this interpretation.

The interpretation does not give guidance on differentiating the development phase from the production phase of a mine. As explained in section

1.2.3, this can be very complex requiring significant management judgement especially in cases where the mines are large and portions of the mine are accessed in discrete phases.

The following flow chart summarises the decision process for capitalisation of production stripping costs under IFRIC 20.



4.3.2.1 Recognition

An entity usually obtains two kinds of benefits from its stripping activity. These are extraction of ore in the current period in the form of inventory and improved access to the ore body for a future period. As a result, two different kinds of assets are created. If the stripping activity in the current period does not provide an identifiable benefit, the associated costs are expensed in the current period.

To the extent that the benefits from the stripping activity are realised in the form of inventory produced, the associated costs are recorded in accordance with the principles of IAS 2 *Inventories*.

To the extent that the benefits are realised in the form of improved access to the ore body in the future, the associated costs are recognised as a ‘stripping activity asset’ if all of the following conditions are met:

- (a) it is probable that the future economic benefit associated with the stripping activity will flow to the entity;

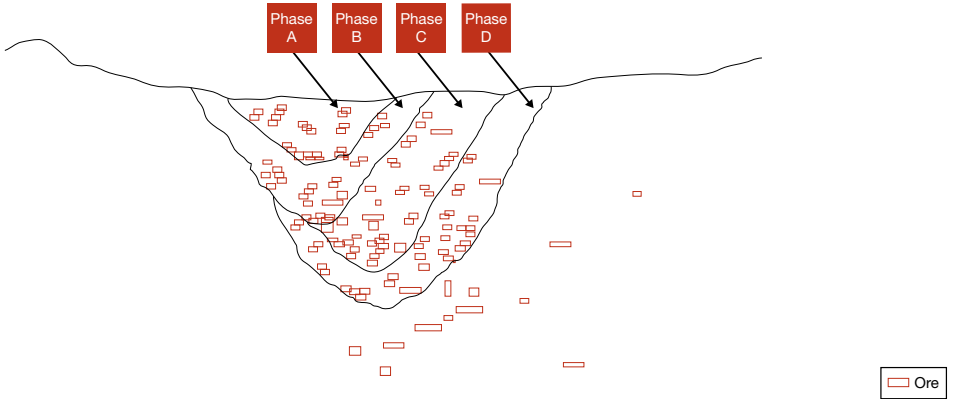
- (b) the entity can identify the component of the ore body for which access has been improved; and
- (c) the costs relating to the stripping activity associated with that component can be measured reliably.

The benefit in the form of improved access to ore in the future may relate to ore expected to be accessed in more than just one year in the future within the identified component or components of the ore body.

‘Component of the ore body’ in para (b) above refers to a specific volume of the ore body that is made more accessible as a result of the stripping activity. This would typically be a subset of the total ore body of the mine. An entity usually identifies the components of mines during the mine planning stage.

Identifying components of the ore body requires management judgement. Mine plans may provide the information required to allow these judgements to be made with reasonable consistency.

Component of the ore body



- Assume that this diagram is the shape of a mine.
- The mine plan of the entity identifies four components of the ore body (A,B,C & D) which will be accessed separately on a phased basis over a period of 10 years.
- The recognition criteria of IFRIC 20 requires that the entity should identify the specific component of the ore body i.e. A, B, C or D towards which the stripping costs have been incurred.
- If the entity is unable to do so, a stripping activity asset cannot be recognised.

## 4 Production activities

In practice the ore bodies vary in shapes and sizes are much more haphazard than shown in the diagram. Hence, identification of components of an ore body becomes a complex process requiring significant management judgement. In practice management could identify the components in a number of ways such as identifying discrete phases in the mine plan, annual production plans or plans for push back campaigns. Whatever approach is adopted, it is important that the components are recognisable to those responsible for mine planning within the company given the need to continue to track progress as ore is removed and update the assessment of components should the mine plan change.

Accordingly, for ongoing production stripping activities management will need to establish systems, controls and processes to ensure that the components are identified consistently and stripping costs that benefit future periods are allocated to such components.

The stripping activity asset is accounted for as an addition to or enhancement of the existing asset. It is more like a part of an existing asset rather than an asset in its own right. The classification of the stripping activity asset as a tangible or intangible asset would depend on the classification of the existing asset to which it relates.

### Componentisation—Pit by pit or mining complex basis

Entity A has a producing iron ore mining complex. In its mine plan it has identified 12 pits from which the ore is planned to be extracted, some in the current period and others in later phases. For the purpose of accounting the stripping costs, Entity A has identified components of ore body for the mine as a whole rather than on a pit by pit basis.

Can Entity A do this?

#### Solution

Entity A should identify the components within each pit to which the access has been improved by the stripping activity. In other words each pit should be treated as a unit of account.

IFRIC 20 states that a component refers to the specific volume of the ore body that is made more accessible by the stripping activity. Hence, for each pit, Entity A will identify the component of ore bodies that are accessed and allocate stripping costs to those components within the pit. If Entity A cannot identify the component of ore body within a pit for which the stripping costs have been incurred, the stripping costs should not be capitalised as a stripping activity asset.

### Capitalisation of stripping costs (1)

Entity B operates a producing coal mine. It has incurred costs during the year which have resulted in both access to a certain amount of ore in the current period and also improved access to other parts of the mine for future extraction. In the past Entity B has been expensing stripping costs in the period in which they were incurred.

Can Entity B adopt a policy to continue to expense its stripping costs in the period in which they are incurred?

#### Solution

Entity B can no longer adopt this approach under IFRIC 20. Since the stripping costs incurred have provided access to inventory and have provided improved access to future ore, Entity B will have to allocate the costs incurred to the inventory (to the extent remaining unsold) and stripping activity asset (if the recognition criteria are met) and recognise these assets in the balance sheet subject to the normal materiality thresholds.

### Capitalisation of stripping costs (2)

Entity C has incurred C30 million towards stripping activities which they believe has benefitted the company by providing access to inventory as well as improving access to various portions of the ore. The company has not precisely allocated the costs to identified components of the mine. However, the company intends to capitalise these stripping costs by allocating them to the whole mine rather than any component.

Can Entity C do this?

#### Solution

Entity C cannot adopt this approach under IFRIC 20. A stripping activity asset can only be recognised if it can be identified with a component of the ore body for which access has been improved [para 9(b)]. In this case, Entity C will have to allocate the costs towards obtaining access to inventory and record that portion in accordance with IAS 2. The remaining costs which cannot be identified with a specific component of the mine will be treated as a period production cost. In practice there would be limited circumstances where a mine would be a single component and management should attempt to identify those parts of the ore body that became more accessible in the future from the stripping activity.

#### 4.3.2.2 Initial measurement

A stripping activity asset is initially measured at cost. Cost includes those that are directly attributable to performing the stripping activity that improves access to the identified component of the ore and an allocation of directly attributable overhead costs.

Costs associated with incidental operations that are not necessary for the production stripping activity to continue as planned should not be included in the stripping activity asset. Incidental operations may often take place at the same time as the production stripping activity—for example building an access road in the area in which the stripping activity is taking place.

Management should be guided by the principles laid out in IAS 16 and IAS 38 while determining the costs that are eligible for capitalisation.

The cost of an item of property, plant and equipment includes any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Examples of the types of costs that would be expected to be included as directly attributable overhead costs would include an allocation of salary costs of the mine supervisor overseeing that component of the mine, and an allocation of contractor costs for mining extraction and haulage services specifically related to performing the stripping activity.

#### 4.3.2.3 Allocation of costs

It may be difficult in practice to measure the cost of each benefit separately when production and development type stripping activity take place at the same time. Costs are allocated between the inventory produced and the stripping activity asset by using an allocation basis that is based on a relevant production measure.

A production measure is considered to be a good indicator of the nature of benefits that are generated for the activity taking place in the mine. The production measure basis requires an entity to identify when a level of activity has taken place beyond what would otherwise be expected for the inventory production in the period, and that may have given rise to a future access benefit. The production measure is calculated for the identified component of the ore body and is used as a benchmark to identify the extent to which the additional activity of creating a future benefit has taken place.

Examples of production measures are:

- Cost of inventory produced compared to expected cost;
- Volume of waste extracted compared with expected volume, for a given volume of ore production; and
- Mineral content of the ore extracted compared with expected mineral content to be extracted, for a given quantity of ore produced.

Allocation of costs cannot be based on sales values. This is because sales values are not closely linked to the stripping activity. Companies which currently allocate costs on the basis of sales value or sales prices will see a change in the allocation of costs.

### Allocation of costs between inventory and stripping activity asset

Entity E's stripping activity for a single identified component of the mine (the "current mining phase") for the current period had the following cost and extraction information:

- Direct costs incurred for the mining activity—C10,550,000
- Directly attributable overhead costs—C3,450,000
- **Total = C14,000,000**
  
- Ore extracted—765 tonnes
- Waste extracted—5,980 tonnes

How should the company allocate the costs incurred between the inventory produced and the stripping activity asset?

*Note: This simplified example does not consider the relationship between this component and other components of the mine. In practice, management should consider this relationship.*

### Solution

#### Step 1—Can the company identify the costs separately for each of the benefits?

The Company has determined that it is not practically possible to separately determine the costs incurred for each benefit because the inventory and the stripping activity asset are produced simultaneously as there are multiple shovels in operation on multiple faces and a single haulage fleet.

#### Step 2—Determine a production measure that can be used to allocate costs

The Company has determined that they will allocate costs based on the volume of waste and ore extracted (the current strip ratio) in the period compared with expected volume over that phase of operations (life of phase ratio).

*A different production-measure based allocation of costs can be performed. In situations where the mineral content fluctuates significantly and the cost of production is a more reliable measure, that basis can be chosen to allocate costs if that gives the most relevant and reliable information*

#### Step 3—Determine the expected volume of waste extracted for a given volume of ore production

The Company has forecast the following mining and stripping activity during the current mining phase which will span a number of periods:

- Expected volume of ore to be extracted—4,590
- Expected volume of waste to be extracted for the above volume of ore—28,750

*IFRIC 20 requires that stripping activity assets can be recognised if the stripping costs can be attached to a specific component of the ore body. Hence, to arrive at the right value of asset to be capitalised, the above information needs to be computed for the specific component of the ore body and not for the mine as a whole.*

#### Step 4—Determine the additional waste extracted compared to expected volume of waste for the actual volume of ore extracted

Average expected waste per unit of ore produced =  $\frac{\text{Expected volume of waste to be extracted}}{\text{Expected volume of ore to be extracted}}$   
=  $28,750 / 4,590 = 6.26$  (Current mining phase stripping ratio)



Average expected volume of waste for the actual volume of ore produced in period =  $765 \times 6.26 = 4,792$  tonnes  
 Actual volume of waste extracted in period = 5,980 tonnes  
 Additional waste extracted in period =  $5,980 - 4,792 = 1,188$  tonnes

**Step 5—Determine the ratio for allocating costs to the stripping activity asset**

Ratio = Additional volume of waste extracted / (Actual volume of waste + ore extracted)  
 =  $1,188 / (5,980 + 765)$   
 = 17.62%

*As mentioned above, in this simplified example the ratios at Step 4 and 5 have to be computed for a specific component of the ore body, in this case the current mining phase, and not the mine as a whole.*

**Step 6—Determine the amount to be allocated to the stripping activity asset and inventory**

Amount allocated to stripping activity asset =  $14,000,000 \times 17.62\% = \text{C}2,466,800$   
 Amount allocated to inventory =  $14,000,000 - 2,466,800 = \text{C}11,533,200$

Where the pit wall is being pushed back during a sustained stripping campaign (i.e. a lay back), it is possible that most of the stripping activities are directed towards obtaining access to ore in future periods and negligible quantities of ore may actually be extracted during the push back period. In such cases it is possible that substantial amounts of the stripping activity costs in those periods should be capitalised as a part of the stripping activity asset relating to the components of ore body that have become more accessible. Management should identify whether the costs associated with the push back can be separately identified from other production costs. Where those costs can be separately identified, management should ring fence the push back activity and consider the allocation of costs separately from the wider mining and stripping operations. If the costs cannot be separately identified, then a relevant production measure should be used to allocate the total costs to the inventory produced and the stripping asset.

**4.3.2.4 Subsequent measurement**

Subsequent to initial recognition, the stripping activity asset is carried at its cost less depreciation, amortisation and impairment losses, in the same way as the existing asset of which it is a part.

While rare in practice, the stripping activity asset may also be carried at re-valued amounts if the existing asset of which it is a part is carried at revalued amounts.

The stripping activity asset is depreciated or amortised on a systematic basis, over the expected useful life of the identified component of the ore body. This best reflects the consumption of the economic benefits from the stripping activity. The UoP method is applied unless another method is more appropriate.

The expected useful life of the identified component of the ore body will differ from the expected useful life used to depreciate or amortise the mine itself and related life-of-mine assets. The exception to this are those limited circumstances when the stripping activity provides improved access to the whole of the remaining ore body. For example, if the identified component represents the final part of the ore body at the end of the mine's useful life.

The basis of subsequent measurement of the stripping activity asset should follow that of the existing asset of which it is a part.

Impairment of stripping activity assets is determined based on the principles in IAS 36. The stripping activity asset is tested as part of the relevant cash generating unit and not on a standalone basis.

### Impairment of stripping activity asset

Entity F has a producing gold mine. It has identified 7 pits in the mine to extract gold. Presently it is working on Pit 1 for which it has capitalised a stripping activity asset of C12,500,000. During the current year, there was a cyclone which caused a pit wall slide which covered the previously exposed ore. The entity has carried out an impairment test for the CGU to which Pit 1 relates and identified that there is no impairment. Hence, it decides not to write down any part of the stripping activity asset.

Can Entity F do this?

#### Solution

No—Entity F should write down the value of the stripping activity asset to the extent the future economic benefits relating to the stripping will no longer be realised. This is because when an asset has become obsolete or has been physically damaged, affecting the use of the asset, it needs to be written down even if the CGU to which it relates may not be impaired. In this case, the stripping activity asset should be written down to its recoverable value because of the pit wall slide and the entity will have to carry out further stripping activity to regain access to the ore.

#### 4.3.2.5 Transition

The IFRIC is applied to production stripping costs incurred on or after the beginning of the earliest period presented.

Any previously recognised production-phase stripping activity asset balances (predecessor stripping activity asset) that can be associated with an identified component of the ore body are reclassified as a part of an existing asset to which the stripping activity asset relates. This adjustment is done at the beginning of the earliest period presented.

If the predecessor stripping activity asset cannot be associated with any specific component of the ore body, they are adjusted against the opening balance of retained earnings at the beginning of the earliest period presented.

Identification of the components of the ore body to which the predecessor stripping activity asset relates may require significant judgement by management. It will also require information gathering from the earlier years.

### Application of transition rules

If an entity adopts IFRIC 20 on 1st January 2013 and has a December year end, it will have to do the following:

- Apply this interpretation to production stripping costs incurred on or after 1st January 2012.
- Carry out the following transition adjustments as at 1st January 2012:
  - If the predecessor stripping cost asset can be identified to a specific component of the ore body, reclassify the asset along with the existing asset to which it relates; and
  - If the predecessor stripping activity asset cannot be associated to any specific component of the ore body, adjust the balance as at 1st January 2012 against the opening retained earnings.

## 4.4 Inventory valuation

Inventories of mine product include:

- run-of-mine ore;
- work in progress (crushed ore, ore in-circuit); and
- finished goods (concentrate, metal).

Inventory is usually measured at cost, where cost does not exceed net realisable value as determined under IAS 2. Various cost methods are available and can be used under IFRS; specific identification, weighted average or first-in first-out (FIFO).

Issues commonly faced by companies in the mining industry include:

- Point of recognition for inventory.
- Cost absorption in the measurement of inventory.
- Method of allocation of costs to inventories, such as FIFO or weighted average cost.
- Determination of joint and by-products and the measurement consequences.
- Accounting for long term low grade stock piles.

### 4.4.1 Recognition and measurement

Inventory is recognised when it is probable that the future economic benefits will flow to the entity and the asset has a cost or value that can be measured reliably. Ore is recognised as inventory as soon as it is extracted, the reliable assessment of mineral content is possible and the cost of production can be reliably determined.

Inventory may be recognised in an underground mine, for example, when it is broken underground or when it is hoisted to the surface, depending on the specific circumstances.

This section addresses specific measurement challenges which can arise in the mining industry.

#### 4.4.1.1 Measurement challenges— Work in progress

Measurement issues can arise in the work in progress stage in concentrators, smelters and refineries—where materials may be enclosed in pipes or vessels, with no uniformity of grade. Work in progress inventories may also be in stockpiles, particularly underground, where it is more difficult to measure quantities.

Processing varies in extent, duration and complexity from mineral to mineral, and different production and processing techniques may be used in the production of

a specific mineral. The point at which work-in-progress inventory is first recognised and measured—rather than continuing to be treated as part of the mineral reserves—is when a reliable assessment of mineral content is possible and the cost of production can reliably be determined. Practice varies in this area, reflecting the genuine differences in the ability to assess mineral content and predict production costs.

#### 4.4.1.2 Measurement challenges—Stockpiles

Quantities are normally based on physical measurements from weightometers or truck loads. For example, when large amounts of material are held in stockpiles, aerial surveys are sometimes used to determine the contours of the material.

In other cases, a multiple stockpile technique is often used when storage facilities permit its application. Individual stockpile volumes are separately recorded, and physical volumes of each stockpile are regularly cleared to zero.

Quantities are usually determined on a net dry-weight basis. Bulk density and other conversion factors are used and are subject to regular review. Grade is generally determined through assay testing, and block reconciliations are done. Surveys are used as a test of the reasonableness of these measures, but the densities and grades make them variable.

Stockpile measurement is an inherently inaccurate science. It is common industry practice to use at least two measurement methods so that the results of the two can be compared and contrasted.

Inventory is generally a current asset as it is consumed within the normal business cycle. However, where some long term stock piles have been recognised in inventory, it is essential to split out these stock piles from the current inventory and classify them as non-current on the face of the balance sheet.

#### 4.4.1.3 Measurement challenges— Long-term stock piles

High grade ore extracted from a mine is usually prioritised for further processing. Low grade ore may be stockpiled to maximise the volume of saleable production by prioritising the processing of high grade ore. Low grade ore stockpiles may only be processed many years later when mining operations are winding down or have ceased altogether.

## 4 Production activities

Low grade ore material—the mineral content of which is below what is currently economically viable—is not recognised as an asset when extracted because it is unlikely that future cash flows will flow to the entity. The cost of extracting the low grade material (measured using the principles described in section 4.4.2) is normally classified as a waste removal cost and treated as a production cost.

The inventory of low grade ore material may be recognised as an asset only when future cash flows are expected from the sale of the product processed from low grade ore stock piles. The inventory should be assessed to ensure that the carrying value is recoverable, including the timing of cash flows and application of an appropriate discount rate.

### 4.4.1.4 Measurement challenges - Heap leaching

Heap leaching is a process which may be used in the recovery of metals from low grade or certain types of ore. Heap leaching brings its own measurement challenges around the assessment of product quantities and estimation of realisable values. The metal recovery factor is difficult to determine because of the varying physical attributes of material in the heap leach pads. The ultimate recovery is therefore unknown until leaching is completed.

However, ore loaded on heap leach pads is usually recognised as inventory despite these estimation and measurement problems. One of the key decisions is whether pads are measured separately, in groups or in total. The preferred approach is to consider each pad separately (as far as possible) because this reduces the expected variability in ore type to more manageable levels.

### 4.4.1.5 Measurement challenges - Ore in circuit

Ore in circuit at period end can be very difficult to measure as it is generally not easily accessible. The value of materials being processed should therefore be estimated based on inputs, throughput time and ore grade.

The significance of the value of ore in circuit will depend on the commodity being processed - precious metal producers may have a material value in process.

### 4.4.2 Cost and net realisable value

IAS 2 requires inventories to be measured at the lower of cost or net realisable value. This section addresses the components of cost, how costs are allocated to inventory and the assessment of net realisable value.

#### 4.4.2.1 Determination of costs

The absorption method is used to determine the cost of inventories. This means that the cost of inventory consists of:

- all costs of purchase;
- costs of conversion; and
- other costs incurred in bringing the inventories to their present location and condition.

Costs of conversion include costs that directly relate to production and an allocation of fixed and variable production overheads. Variable production overheads are allocated to the cost of inventory on the basis of the actual level of production; fixed overheads are allocated by reference to the 'normal capacity' of a facility. Normal capacity does not refer to the facility's maximum capacity; it relates to the capacity that is expected to be achieved on average over several periods and not in periods of abnormally high production. The range of normal capacity will vary based on process and business-specific factors. Judgement is required to determine when a production level is abnormally low (outside range of normal capacity). Examples of factors that may result in an abnormally low production level include significantly reduced demand, labour and materials shortages, and unplanned facility or equipment downtime.

Administrative overheads that do not contribute to bringing inventories to their present location and condition are excluded from the cost of inventories. There are some functions which only partially contribute to the production process. Judgement is required in establishing whether overheads should be attributed to production. For example, the finance department in a production plant will normally support the following functions:

- **production**—by paying direct and indirect production wages and salaries, controlling purchases and related payments, and preparing periodic financial statements for the production units;
- **marketing and distribution**—by analysing sales and controlling the sales ledger; and
- **general administration**—by preparing management accounts and annual financial statements and budgets, controlling cash resources and planning investments.

Overheads are allocated to inventory on a systematic basis such as head count or cost centre costs.

#### 4 Production activities

Storage costs that are not a necessary stage of the production process are also excluded from the cost of inventories. However, storage costs are included when these are necessary for production, such as the costs of storing mineral solutions/suspensions for drying and settling.

Overhead costs incurred during periods of idle capacity, due to breakdowns or scheduled maintenance, are excluded from the cost of inventories and expensed as incurred.

The following table highlights some of the key costs incurred in the production of inventory:

| Description of costs  | Include in inventory | Do not include in inventory |
|---|----------------------|-----------------------------|
| Production materials and services (such as explosives, fuel, power, consumables, catalysts and production drilling costs)   | ■                    |                             |
| Direct labour costs, including related payroll additives (such as pensions)   | ■                    |                             |
| Mining contractors  | ■                    |                             |
| Normal amounts of materials wastage   | ■                    |                             |
| Costs of transporting materials to different locations  | ■                    |                             |
| Supervisor salaries and related payroll additives   | ■                    |                             |
| Other indirect labour at the mine site and related processing facilities, including related payroll additives   | ■                    |                             |
| Indirect materials  | ■                    |                             |
| Maintenance costs associated with running the mine and related processing facilities  | ■                    |                             |
| Depreciation of mine property acquisition costs and capitalised development costs (including any amounts transferred from exploration and evaluation expenditure) | ■                    |                             |
| Depreciation of mining and production equipment and related facilities  | ■                    |                             |
| Directly attributable waste removal costs (except to the extent that they are capitalised to deferred stripping)  | ■                    |                             |
| Amounts transferred from deferred stripping as the stripping asset is depreciated   | ■                    |                             |
| Storage and handling costs for raw materials, components, other supplies and work in progress that are not a necessary stage of the production process            |                      | ■                           |
| Product research to develop new uses for copper   |                      | ■                           |
| Around mine exploration (except to the extent that exploration costs are capitalised)   |                      | ■                           |
| Royalties (if based on sales not production)  |                      | ■                           |
| Abnormal amounts of wasted materials or labour or other abnormal inefficiencies (such as strike action)   |                      | ■                           |
| Selling costs   |                      | ■                           |
| Distribution costs  |                      | ■                           |
| Storage costs of finished product, including insurance  |                      | ■                           |
| General management and administration costs   |                      | ■                           |

## 4 Production activities

### 4.4.2.2 Assigning costs to inventories

Costs are normally allocated to mining inventories on weighted average cost or using first-in, first-out (FIFO) formulae.

The same method should be used for all inventories of a similar nature. A difference in geographical location of inventories or in the respective tax rules is not sufficient to justify the use of a different cost methodology.

### 4.4.2.3 Net realisable value

Inventory is carried at the lower of cost and net realisable value. Net realisable value is estimated by calculating the net selling price less all costs still to be incurred in converting the relevant inventory to saleable product, and delivering it to the customer. The selling price of mine products is generally determined by reference to mineral content; management must determine the grade of the material as well as the physical quantities.

Net realisable value is determined on the basis of conditions that existed at balance sheet date; subsequent price movements are also considered to determine whether they provide more information about the conditions that were present at balance sheet date. The net realisable value should be determined using the most reliable estimate of the amounts the inventories are expected to realise. Both the year-end spot price and the market forward commodity price may provide unbiased and reliable estimates of the amount the inventories are expected to realise. The spot price at period end will often provide the best evidence of the value which the inventories could realise, however, where the inventory is to be sold at a future date and the entity has an executory contract for this the use of the forward price curve would be appropriate. Movements in the ore price after the balance sheet date typically reflect

changes in the market conditions after that date and therefore should not be reflected in the calculation of the net realisable value. A consistent approach to different commodities will need to be applied and this approach should be consistent from one year to another.

The forward sales contract price may be used to estimate the net realisable value of a quantity of inventory held unless the contract is recognised as a separate asset or liability on the balance sheet in accordance with IAS 39 or an onerous non-derivative contract recognised as a provision in accordance with IAS 37 "Provisions, Contingent Liabilities and Contingent Assets".

A further complexity may arise where the forward contract prices are denominated in a foreign currency. The use of the spot exchange rate at the balance sheet date or forward exchange rates for the translation of the selling price into the functional currency are both seen in practice. The appropriate rate to use depends on the overall approach adopted in determining the net realisable value.

If circumstances which caused a previous write-down of inventories from cost to net realisable value have reversed or changed (for example, a metal price decline has been reversed) the write-down is reversed and the effect on the current period profit is disclosed.

### 4.4.2.4 Net realisable value for long-term stock piles

Management must consider carefully the determination of net realisable value in situations where low grade stockpiles are recognised as a separate asset.

## Net realisable value for long-term stockpiles

### Background

Entity A is a coal mining company and sells its coal on the spot market. It has low grade stockpiles included in inventories at the balance sheet date. The company does not plan nor have the capacity to process the stockpiles until the end of the mine life which is currently estimated to occur in five years. The cost of the low grade stockpiles is \$90 per tonne. Valuing these stock piles using the current market prices for coal the current processing costs, the value is \$87 per tonne. Based on market information, management has determined the 5-year forecast price of coal to be 20% lower than the current market price. If valued using the 5-year forecast price of coal and the forecast production costs, adjusted for the time value of money, the value of these long term stock piles is \$70 per tonne.

### Question

*Should entity A calculate the net realisable value for these stock piles using the market value at the balance sheet date (\$87 per tonne) or using the 5-year forecast price (\$70 per tonne)?*

### Solution

Entity A should calculate the net realisable value of these low grade and long term stockpiles using the forecast market price for when the inventory is expected to be processed and realised. As the market price of coal changes daily in response to the status of the global economy, future changes in the forecast price or the planned scheduling of processing and sales may result in additional or reversal of net realisable value adjustments. These will be changes in estimates; as such, the gains and losses will be recognised in the income statement in the period in which they arise.

The assumptions about the long term commodity prices used in the estimate of the sales proceeds and the expected timing of realisation should generally be consistent with those used in the Life of Mine Plan and other models that would be used for valuation and impairment purposes.

The estimate of the costs necessary to convert the low grade ore into saleable product must take into account any expected difference between future inflation factors applicable to revenue and costs. The sales proceeds may not be sufficient to recover the costs of the inventory if costs are expected to grow at rates in excess of revenue.

Application of a discount factor to the future cash flows associated with the sales proceeds and conversion costs may be appropriate to reflect the time value of money. The net realisable value of the stock which is not expected to be sold for a very long period of time, determined based on the discounted future cash flows, will typically be very low.

### 4.4.3 Joint products and by-products

More than one metal is commonly produced by the same mining and refining processes. For example, base metals such as lead and zinc are often found together; silver is often found with gold. The decision as to whether these are joint products or one is only a by-product is important as it may affect the allocation of costs.

Joint products are two or more products produced simultaneously from a common raw material source, with each product having a significant relative sales value. One joint product cannot be produced without the other and the products cannot be identified separately until a certain production stage, often called the 'split-off point', is reached.

By-products are secondary products obtained during the course of production or processing, having relatively small importance when compared with the principal product or products.

#### 4.4.3.1 Joint products or by-products?

Products produced at the same time are classified as joint products or by-products; usually driven by the importance of the different products to the viability of the mine. The same metal may be treated differently based on differing grades and quantities of products.

A systematic and rational basis of cost allocation should be applied when the conversion costs of a product are not separately identifiable. There are different practices in use but all look to allocate costs to joint and by-products.

## 4 Production activities

### 4.4.3.2 Valuing joint products

The most common method used is to allocate joint production costs to joint products at the split-off point, based upon either:

- net realisable value at the split off point or relative sales value at the end of production; or
- the volume of production, where the realisable value of each unit of production is similar.

Cost allocation based on the volume of production may be inappropriate if there is a significant difference between the relative sales values of the joint products, such as in a mine producing lead and silver. The costs allocated to the lower value product may exceed its net realisable value whilst the higher value product would result in 'super' profits.

The allocation method should be applied consistently, using reliable production and revenue data.

Costs of production after separation are charged directly to the product to which they relate.

### 4.4.3.3 Valuing by-products

By-products are often valued at estimated net realisable value, with a corresponding credit to the cost of production of the main product. When inventories are measured at net realisable value, any subsequent changes in that value are recognised in the income statement.

Some mining entities attribute only the costs of processing after the split-off point to by-products.

Both methods are acceptable and the method chosen is applied consistently.

### 4.4.3.4 Sale of joint products and by-products

The decision as to whether a metal is a joint product or a by-product will also affect the classification of sales of the metal. Sales of joint products are recognised as revenue in the income statement. Sales of by-products are recognised as a negative cost.

## 4.4.4 Insurance and capital spares

Spare parts and servicing equipment are usually carried as inventory and recognised as an expense when consumed. Entities often keep additional spare parts for key pieces of equipment to ensure that downtime

is minimised in the event of equipment failure, due to the specialised nature of the equipment used by mining operations and the remote locations in which they are typically located.

There are two main categories of spare parts:

- insurance spares, which the entity only expects to use if there is an unexpected breakdown or equipment failure; and
- capital spares, which the entity anticipates will eventually be used as replacement parts.

### 4.4.4.1 Insurance spares

Insurance spares are major items and parts kept on hand to ensure the uninterrupted operation of production equipment if there is an unexpected breakdown or equipment failure. They do not include items that are generally consumed or replaced during the regular maintenance cycle. Insurance spares are normally used only because of a breakdown, and are not generally expected to be used.

Insurance spares are capitalised within property, plant and equipment and depreciated over the same period as the component they are associated with. This reflects the fact that they are 'available for use' immediately. The residual value used to calculate the depreciation charges reflects the expected resale value of 'unused' equipment; this should be changed if the spares have to be used and as a consequence have no future resale value.

### 4.4.4.2 Capital spares

Capital spares (or 'circulating spares') are spare parts that are regularly replaced, usually as part of a general replacement programme. The parts removed are often repaired or overhauled and used in the next replacement cycle.

IAS 16 states that spare parts and servicing equipment that are capital spares are usually carried as inventory and recognised as an expense when consumed. However, it also states that:

- major spare parts and stand-by equipment qualify as property, plant and equipment when an entity expects to use them during more than one period; and
- if spare parts and servicing equipment can be used only in connection with an item of property, plant and equipment, they are accounted for as property, plant and equipment.



Depreciation of spares that are capitalised commences when the asset has been installed and is capable of being used. The depreciation charge is based on the expected useful life of the spare while it is being used, which may be shorter than the useful life of the asset to which it relates. When the spare is itself replaced, the asset is derecognised.

#### 4.4.5 Consumable stores and other spare parts

Mining entities often hold significant consumable stores and spare parts for the continuity of their operations that are in remote locations. Inventories of consumable stores and spare parts are carried at the lower of cost and net realisable value.

Consumable stores and spare parts are carried at cost, if the entity expects that they will be used in operations and their cost will be recoverable through the sale of the final product at above its final cost.

Damaged and obsolete consumable stores and spare parts are written down to net realisable value as soon as they are identified.

Surplus consumable stores and spare parts need to be identified on a timely basis. Any losses to be incurred as a result of their subsequent return to suppliers, sale or other means of disposal are provided for as soon as management considers that such losses are likely. The issue of net realisable value of consumables becomes more important towards the end of the life of the mine, in anticipation of any potential loss on disposal of consumable stores that may be unused.

#### 4.5 Renewal and reconditioning costs

The costs of performing a major renewal or reconditioning are capitalised if it gives access to future economic benefits. Such costs will include the labour and materials costs of performing the renewal or reconditioning. However, costs that do not relate to the replacement of components or the installation of new assets should be expensed as incurred [IAS16 para 12]. Renewal and reconditioning costs should not be accrued over the period between the renewal and reconditioning because there is no legal or constructive obligation to perform the renewal/reconditioning—the entity could choose to cease operations at the plant and hence avoid the renewal/reconditioning costs.

#### Reconditioning of equipment

How should reconditioning of equipment be accounted for?

##### Background

Entity Y operates a major mine. Management estimates that reconditioning of the equipment is required every 30 months. The costs of reconditioning are approximately C500,000; C300,000 for parts and equipment and C200,000 for labour to be supplied by employees of Entity Y.

Management proposed to accrue the cost of the reconditioning over the 30 months of operations between reconditioning and create a provision for the expenditure.

Is management's proposal acceptable?

##### Solution

No. It is not acceptable to accrue the costs of reconditioning equipment. Management has no constructive obligation to undertake the reconditioning. The cost of the reconditioning should be identified as a separate component of the mine asset at initial recognition and depreciated over a period of thirty months. This will result in the same amount of expense being recognised in the income statement over the same period as the proposal to create a provision.

### 4.6 Care and maintenance

Mining operations are sometimes suspended because a change in circumstances—such as a contraction of global demand for the commodity, higher costs or changes in exchange rates—has made production or further development uneconomical. Instead of shutting down and abandoning the property, operations and development are curtailed and the mine is placed on a ‘care-and-maintenance’ basis. This can happen in the development phase or after production has started.

Putting a mine on ‘care and maintenance’ (also known as ‘mothballing’ the mine) is an impairment indicator (see section 9 *Impairment*). An impairment test should be carried out and an impairment loss recognised if the carrying amount of the cash-generating unit exceeds the recoverable amount.

During the period of care and maintenance, expenditures are still incurred but usually at a lower rate than when the mine is operating. A lower rate of depreciation for tangible non-current assets is also usually appropriate due to reduced wear and tear. Movable plant and machinery would generally be depreciated over its useful life. Management should consider depreciation to allow for deterioration. Where depreciation for movable plant and machinery is determined on a UoP basis, this would no longer normally be appropriate.

Management should also ensure that any assets which have become redundant are written off.

The length of the closure and the associated care and maintenance expenditure may be estimated for depreciation and impairment purposes. However, it is not appropriate to establish a provision for the entire estimated expenditure of the care and maintenance period; all care and maintenance expenditure is expensed as incurred.

Development costs amortised or depreciated on the units of production method would no longer be depreciated. Holding costs should be expensed to the income statement in the period they are incurred—these may be costs such as security costs and site property maintenance costs.

Costs associated with restarting a mine which has previously been ‘mothballed’ should only be capitalised if they improve the mine beyond its original operating capabilities. Entities should exercise caution when performing this assessment.

### 4.7 Carbon taxes and trading schemes

There is a growing focus on carbon and emissions. A variety of schemes are being introduced around the world. Some schemes are introducing taxes or royalties. Other schemes involve the granting of an asset by the government or regulator in the form of an allowance, with a liability incurred where emissions are in excess of that allowance but an option to purchase additional allowances to offset this.

Although some of these schemes may be categorised as income taxes and fall within the scope of IAS 12 ‘Income taxes’ (see section 10), the schemes can be complex and the decision on whether it is in scope can be difficult. Entities should ensure they fully understand the nuances of the scheme.

For schemes not in the scope of a specific standard, further analysis will be necessary to determine the accounting. Schemes introduced by specific jurisdictions are beyond the scope of this publication but one common type of scheme which has been introduced is an Emissions Trading Scheme (‘ETS’).

#### 4.7.1 Accounting for ETS

Emission rights held will permit an entity to emit pollutants up to a specified level. The emission rights are either given or sold by the government to the emitter for a defined compliance period.

Schemes in which the emission rights are tradable allow an entity to:

- emit fewer pollutants than it has allowances for and sell the excess allowances;
- emit pollutants to the level that it holds allowances for; or
- emit pollutants above the level that it holds allowances for and either purchase additional allowances or pay a fine.

IFRIC 3 “Emission Rights” was published in December 2004 to provide guidance on how to account for cap and trade emission schemes. The interpretation proved controversial and was withdrawn in June 2005 due to concerns over the consequences of the required accounting because it introduced significant income statement volatility.

The guidance in IFRIC 3 remains valid, but several alternative approaches have emerged in practice. A cap and trade scheme can result in the recognition of assets (allowances), expense of emissions, a liability (obligation to submit allowances) and potentially income from government grants.

The allowances are intangible assets and are recognised at cost if separately acquired. Allowances that are received free of charge from the government are recognised either at fair value with a corresponding deferred income (liability), or at cost (nil) as allowed by IAS 20 “Accounting for Government Grants and Disclosure of Government Assistance” [IAS 20 para 23].

The allowances recognised are not amortised if the residual value is at least equal to carrying value [IAS 38 para 100]. The cost of allowances is recognised in the income statement in line with the profile of the emissions produced.

The government grant (if initial recognition at fair value under IAS 20 is chosen) is amortised to the income statement on a straight-line basis over the compliance period. An alternative to the straight-line basis, such as a units of production approach, can be used if it is a better reflection of the consumption of the economic benefits of the government grant.

The entity may choose to apply the revaluation model in IAS 38 for the subsequent measurement of the emissions allowances. The revaluation model requires that the carrying amount of the allowances is restated to fair value at each balance sheet date, with changes to fair value recognised directly in equity except for impairment, which is recognised in the income statement [IAS 38 para 75 & 85-86]. This is the accounting that is required by IFRIC 3 and is seldom used in practice.

A provision is recognised for the obligation to deliver allowances or pay a fine to the extent that pollutants have been emitted [IAS 37 para 14]. The allowances reduce the provision when they are used to satisfy the entity’s obligations through delivery to the government at the end of the scheme year. However, the carrying amount of the allowances cannot reduce the liability balance until the allowances are delivered to the government.

The provision recognised is measured at the amount that it is expected to cost the entity to settle the obligation. This will be the market price at the balance sheet date of the allowances required to cover the emissions made to date (the full market value approach) [IAS 37 (revised) para 37]. An alternative is to measure the obligation in two parts as follows [IAS 37 (revised) para 36]:

- i. the obligation for which allowances are already held by the entity—this may be measured at the carrying amount of the allowances held; and
- ii. the obligation for which allowances are not held and must be purchased in the market—this is measured at the current market price of allowances.

Entities using the alternative two-part approach should measure the obligation for which allowances are held by allocating the value of allowances to the obligation on either a FIFO or weighted average basis. Entities using this approach should only recognise an obligation at the current market price of allowances to the extent that emissions made to date exceed the volume of allowances held. There is no obligation to purchase additional allowances if emissions do not exceed allowances.

### 4.8 Production disclosures

Management should disclose the following items for activities in the production phase:

Revenue disclosures:

- the accounting policy adopted for the recognition of revenue including all aspects—for example, shipment terms and provisional pricing;
- the amount of each significant category of revenue recognised during the period including revenue arising from:
  - the sale of goods;
  - the rendering of services;
  - interest;
  - royalties; and
  - dividends.
- the amount of revenue arising from exchanges of goods or services included in each significant category of revenue;

## 4 Production activities

- critical accounting judgements where specific judgements are made in relation to the application of the revenue accounting policy—for example, prices used in the assessment of provisional pricing arrangements; and
- revenue information about products and services, geographical areas and major customers if required (see section 13 *Operating segments*).

### Production costs disclosures:

- how the entity determines whether assets are ‘available for use’;
- cost of product sold and operating expenses;
- selling, general, administrative and other expenses;
- depreciation and amortisation;
- finance costs; and
- royalty expenditure.

### Stripping costs disclosures:

- accounting policy; and
- movements in any ‘deferred stripping’ asset.

### Disclosures relating to property, plant and equipment temporarily idle or under care and maintenance:

- accounting policy; and
- carrying amounts of assets temporarily idle / under care and maintenance.

### Depreciation and amortisation disclosures (for each class of property, plant and equipment and each class of intangible asset):

- the depreciation/amortisation methods adopted;
- the useful lives or depreciation/amortisation rates used. These should include an explanation of:
  - the reserve/resource base used to determine depreciation/amortisation charges and, where non-reserve material is included, the basis for determining how and when such material is included; and

- the treatment of future development costs, where they are expected to be significant;
- the total depreciation/amortisation charge for the period (and, for amortisation, the line item(s) in the income statement where it is included);
- the accumulated depreciation/amortisation (aggregated with accumulated impairment losses) at the beginning and end of the period;
- the nature and effect of any change in accounting estimate that has an effect in the current period or is expected to have an effect in future periods This would include changes to:
  - useful lives, including changes to the reserve/resource base (even if they will only impact future depreciation/amortisation charges);
  - residual values; and
  - depreciation/amortisation methods; and
- where relevant, an explanation as to why the straight-line method is being used to depreciate/amortise assets for which the consumption of future economic benefits is linked to the volume of production.

### Inventory disclosures:

- the basis of valuation of production inventories;
- the composition of inventories under their relevant headings in a separate note on inventories, including the split of production inventory and stores; and
- amounts of inventories in final form and awaiting shipment, materials in the course of processing (for example, concentrate in the mill circuit or concentrates awaiting smelting or refining), raw materials, consumable stores and other inventories.

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## **5 Consolidation**

# 5 Consolidation

## 5.1 Overview

Cooperative working arrangements are common in the mining industry and the determination of the type of control that exists is important. The rights of investors to make decisions over relevant activities (now defined as those which significantly affect the investee's returns) are critical in this determination.

The IASB has largely finished its project on the reporting entity with the publication of three new standards in May 2011: IFRS 10 "Consolidated Financial Statements", IFRS 11 "Joint Arrangements" and IFRS 12 "Disclosure of Interests in Other Entities". The standards replace IAS 27 "Consolidated and Separate Financial Statements" (which is amended to become IAS 27 "Separate Financial Statements") and IAS 31 "Interests in Joint Ventures". There have also been consequential amendments to IAS 28 "Investments in Associates" (which is now IAS 28 "Investments in Associates and Joint Ventures"). The standards are effective for 2013, except for countries in the EU, where they have been endorsed with an effective date of 2014. Early adoption is permitted where all five standards are adopted at the same time.

This section focuses on the changes introduced by IFRS 10. The mechanics of consolidation are unchanged by the new standard and, as those mechanics are generic, are not detailed further here. Instead this section focuses on the new definition and guidance with regard to "control". Changes introduced by IFRS 11 on joint control and joint arrangements are separately examined in Section 7.

## 5.2 Control

IFRS 10 confirms consolidation is required where control exists. The standard redefines control: where an investor has the power and exposure to variable returns and the ability to use that power it controls the investee.

Factors to be assessed by mining entities to determine control under the new standard include:

- The purpose and design of an investee;
- Whether rights are substantive or protective in nature;
- Existing and potential voting rights;
- Whether the investor is a principal or agent; and
- Relationships between investors and how they affect control.

Only substantive rights are considered in the assessment of power—protective rights, designed only to protect an investor's interest without giving power over the entity and which may only be exercised under certain conditions, are not relevant in the determination of control.

Potential voting rights are defined as 'rights to obtain voting rights of an investee, such as those within an option or convertible instrument.' Potential voting rights with substance should be considered when determining control. This is a change from the previous standard where all and only presently exercisable rights were considered in the determination of control.

The "principal vs. agent" determination is also important. Parties in mining arrangements will often be appointed to operate the project on behalf of the investors. A principal may delegate some of its decision authority to the agent, but the agent would not be viewed as having control when it exercises such powers on behalf of the principal.

Economic dependence in an arrangement, such as a smelter which relies on copper concentrate to be provided by a specific supplier, is not uncommon, but is not a priority indicator. If the supplier has no influence over management or decision-making processes, dependence would be insufficient to constitute power.

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## **6 *Business combinations***

# 6 Business combinations

## 6.1 Overview

Acquisition of assets and businesses are common in mining. Over the past few years market conditions have been challenging but commodity prices have been resilient. Acquisitive entities that seek to secure access to new reserves face a variety of accounting issues due to significant changes in the accounting for merger and acquisition transactions. This adds more complexity to the already challenging economic conditions. IFRS 3 “Business Combinations” (“IFRS 3”) drives some of these challenges.

IFRS 3 introduced some changes to the previous standard in accounting for business combinations:

- Recognition at fair value of all forms of consideration at the date of the business combination;
- Remeasurement to fair value of previously held interests in the acquiree with resulting gains through the income statement as part of the accounting for the business combination;
- Separation of other transactions from the business combination, including share-based payments and settlement of pre-existing relationships;
- Expensing transaction costs; and
- Two options for the measurement of any noncontrolling interest (NCI) on a combination by combination basis—fair value or proportion of net asset value.

## 6.2 Definition of a business

Significant judgement is required in the determination of what is a business. IFRS 3 has expanded the scope of what is considered to be a business and guidance continues to evolve. However, more transactions are business combinations under IFRS 3 than were considered such under the previous standard.

IFRS 3 amended the definition of a business and provided further implementation guidance. A business is a group of assets that includes: inputs, outputs and processes that are capable of being managed together for providing a return to investors or other economic benefits. Not all of the elements need to be present for the group of assets to be considered a business.

Mining activities in the production phase will typically represent a business, whereas those at the exploration will typically represent a collection of assets. A licence to explore, on its own, is normally just an asset. Where a number of assets are owned and there are additional processes which exist to manage that portfolio, it may represent a business. Projects that lie in the development stage are more difficult to judge and will require consideration of the stage of development and other relevant factors. A development project with significant infrastructure costs remaining and no potential customers is more likely to be an asset. As these matters are resolved and the projects get closer to the production stage, the evaluation as to whether an asset or business exists becomes more complicated. Each acquisition needs to be evaluated based on the specific facts and circumstances.

The accounting for a business combination and a group of assets can be substantially different. A business combination will usually result in the recognition of goodwill and deferred tax.

If the assets purchased do not constitute a business, the acquisition is accounted for as the purchase of individual assets. The distinction is important because in an asset purchase:

- no goodwill is recognised;
- deferred tax is generally not recognised for asset purchases (because of the initial recognition exemption (“IRE”) in IAS 12 “Income Taxes”, which does not apply to business combinations);
- transaction costs are generally capitalised; and
- asset purchases settled by the issue of shares are within the scope of IFRS 2 “Share-Based Payments”.



## *Distinguishing between business combinations and purchase of assets—practical examples*

IFRS 3 defines a business as ‘consisting of inputs and processes applied to those inputs that have the ability to create output’. All three elements—input, process and output—should be considered in determining whether a business exists. We demonstrate the practical application of these principles below:

| Acquisition   | Inputs  | Processes   | Outputs  | Conclusion  |
|---|---|---|--|---|
| Incorporated entity which has one asset in the early exploration phase but the group does not have a production licence yet. No proved reserves.                            | No inputs as the entity is at the exploration stage. Employees insignificant in number. | Exploration program but no processes in place to convert inputs. No production plans.                       | There is no development plan yet and no planned production. The only potential output might be results of early exploration work.  | Likely to be an asset, as there is a lack of the business elements (e.g., inputs, processes and outputs). |
| Listed company with a portfolio of properties. Active exploration program in place and there are prospective resources. Company normally develops properties to production. | Portfolio of properties and employees.  | Exploration program, engineers and expertise, development program, management and administrative processes. | Production has not begun, however, since there is an active portfolio it may be that exploration results could be viewed as output. Consideration required as to whether market participant could produce outputs with the established inputs and processes. | Judgement required.   |
| Listed company with a portfolio of properties. All exploration activities have been suspended and no properties have moved forward into development.                        | No employees.   | No processes as there is not active exploration program in place.   | There is no plan to further exploration and no development plans.  | Judgement required.   |

| Acquisition   | Inputs  | Processes  | Outputs   | Conclusion  |
|---|---|--|---|---|
| Listed company with a portfolio of properties. Active exploration program and prospective resources. Company's policy is to hold portfolio of properties and farm in and exit after undertaking exploration. The company does not hold the properties to development. | Portfolio of Properties with successful exploration activities and employees. | Exploration program.                                   | Exploration asset with associated resource information. | Judgement required.   |
| Listed company. Property in construction phase. Some reserves and resources.  | Gold reserves and employees.  | Operational processes associated with gold production. | Near-term revenues from gold production.                | Judgement required, but likely to be a business— all three elements exist.  |
| Producing asset owned by a listed company. Only the asset is purchased.   | Coal reserves and employees.  | Operational processes associated with coal production. | Revenues from coal production.                          | Judgement required, but likely to be a business- all three elements exist. Although the "asset" does not constitute an incorporated entity, it is a business. |
| Alliance with another company to develop a property.  | None  | None   | None  | Formation of a joint arrangement, not a business combination.   |

### 6.3 Identification of a business combination

Transactions may be structured in a variety of ways, including purchase of shares, purchase of net assets, and establishment of a new company that takes over existing businesses and restructuring of existing entities. Where there are a number of transactions linked together or transactions which are contingent on completion of each other, the overall result is considered as a whole. IFRS focuses on the substance of transactions and not the legal form to determine if a business combination has taken place.

The only exemptions to applying business combination accounting under IFRS are:

- when the assets acquired do not constitute a business (as discussed above);
- when businesses are brought together to form a joint arrangement (see Section 7); and
- businesses that are under common control (where no change in ownership takes place).

A business combination occurs when control is obtained. Both existing voting rights and potential voting rights (held by the investor and by other parties) are considered in determining when control or capacity to control exists. The potential voting rights are considered only if the rights are substantive.

### 6.4 Acquisition method

IFRS 3 requires the acquisition method of accounting to be applied to all business combinations. The acquisition method comprises the following steps:

- identifying the acquirer and determining the acquisition date;
- recognising and measuring the consideration transferred for the acquiree;
- recognising and measuring the identifiable assets acquired and liabilities assumed, including any NCI; and
- recognising and measuring goodwill or a gain from a bargain purchase.

#### 6.4.1 Identifying the acquirer and determining the acquisition date

An acquirer is identified as the first step of any business combination. The acquirer in the combination is the entity that obtains control of one or more businesses. The distinction is significant, as it is only the acquiree's identifiable net assets that are fair valued. The acquirer's net assets remain at existing carrying values.

IFRS 3 provides a set of principles to determine who the acquirer might be, if it is not clearly evident which entity has gained control based on the control indicators given in IFRS 10 "Consolidated Financial Statements". These principles include:

- in a business combination effected principally by transferring cash or other assets or by incurring liabilities, the acquirer is usually the entity transferring the cash or other assets or incurring the liabilities;
- in a business combination effected principally by exchanging equity interests, the acquirer is usually the entity that issues its equity interests;
- the acquirer is usually the combining entity whose owners as a group retain or receive the largest portion of the voting rights in the combined entity;
- the acquirer is usually the combining entity whose owners have the ability to elect or appoint a majority of the members of a governing body;
- the acquirer is usually the combining entity whose management dominates the management of the combined entity; and
- the acquirer is usually the combining entity whose relative size (measured in, for example, assets, revenues or profit) is significantly greater than that of the other combining entity or entities.

This may lead to a reverse acquisition, particularly if the legal form involves creation of a new company or the acquisition of a large company by a smaller company. In such instances, the legal acquirer may not be the accounting acquirer under IFRS 3.

Acquisition date is 'the date on which the acquirer obtains control of the acquiree'. Although the acquisition date is generally the date that the transaction closes (i.e., the date on which the acquirer transfers consideration and acquires the assets and liabilities of the acquiree), in some cases the acquirer may actually obtain control on a different date. Careful consideration of all facts and circumstances is required as to when the acquirer obtained control.

### 6.4.2 Consideration transferred

The consideration transferred may consist of:

- cash or cash equivalents paid;
- the fair value of assets given, liabilities incurred or assumed and equity instruments issued by the acquirer in exchange for control;
- the fair value of any contingent consideration arrangement as of the acquisition date; and
- a business or a subsidiary of the acquirer.

Transaction costs are expensed and not included as part of the consideration transferred. These transaction costs include investment banking fees and professional fees, such as legal and accounting fees. The direct costs of issuing shares or arranging finance are accounted for as part of the equity proceeds or financial liability rather than as a cost of the acquisition.

Some business combinations result in gains in the income statement. In a step acquisition, any previously owned equity interest is seen as being 'given up' to acquire the business and a gain or loss is recorded on its disposal. The existing stake is remeasured to fair value at the date of acquisition, taking any gains to the income statement. A loss on acquisition is theoretically possible but this usually indicates an unrecognised impairment and is seldom seen.

The acquirer must identify any transactions that are not part of what the acquirer and the acquiree exchange in the business combination and separate this from the consideration transferred for the business. Examples include: the amount paid or received for the settlement of pre-existing relationships; and remuneration paid to employees or former owners for future services.

### 6.4.3 Contingent consideration

The purchase consideration may vary depending on future events. The acquirer may want to make further payments only if the business is successful. The vendor, on the other hand, wants to receive the full value of the business. Contingent consideration in the mining industry often takes the form of:

- royalties payable to the vendor as a percentage of future revenue;
- payments based on the achievement of specific production levels;
- payments based on specific market prices of the commodity; and
- payments on achievement of milestones (e.g. completion of a feasibility study, start of commercial production).

An arrangement containing a royalty payable to the vendor is different from a royalty payable to the tax authorities of a country. A royalty payable to the vendor in a business combination is often contingent consideration; essentially a type of earn-out. It may also be a retained working interest; this is an area of significant judgement.

The acquirer should record at fair value all of the consideration at the date of acquisition including the contingent consideration (earn-out). Since fair value takes account of the probabilities of different outcomes, there is no requirement for payments to be probable. Therefore, contingent consideration is recognised whether it is probable that a payment will be made or not.

This may well be a change for many mining companies that under the previous version of IFRS 3 treated vendor type royalties as period costs. Any subsequent payment or transfer of shares to the vendor should be scrutinised to determine if these are contingent consideration.

Contingent consideration can take the form of a liability or equity. If the earn-out is a liability (cash or shares to the value of a specific amount), any subsequent re-measurement of the liability is recognised in income statement. If the earn-out is classified as equity it is not remeasured and any subsequent settlement is accounted for within equity.

#### 6.4.4 Allocation of the cost of the combination to assets and liabilities acquired

IFRS 3 requires all identifiable assets and liabilities (including contingent liabilities) acquired or assumed to be recorded at their fair value. These include assets and liabilities that may not have been previously recorded by the entity acquired (e.g., acquired reserves and resources).

IFRS 3 also requires recognition separately of intangible assets if they arise from contractual or legal rights, or are separable from the business. The standard includes a list of items that are presumed to satisfy the recognition criteria. The items that should satisfy the recognition criteria include trademarks, trade names, service and certification marks, customer lists, customer and supplier contracts, use rights (such as drilling, water, etc.), patented/unpatented technology, etc.

Some of the common identifiable assets and liabilities specific to the mining industry that might be recognised in a business combination, in addition to inventory or property, plant and equipment, include the following:

- Exploration, development and production licences;
- Mineral properties;
- Purchase and sales contracts; and
- Closure and rehabilitation provisions.

#### 6.4.5 Undeveloped properties

Undeveloped properties or exploration potential can present challenges when ascribing fair value to individual assets, particularly those properties still in the exploration phase for which proved or probable reserves have not yet been determined. A significant portion of the consideration transferred may relate to the value of these undeveloped properties.

Management should consider similar recent transactions in the market and use market participant assumptions to develop fair values. The specific characteristics of the properties also need to be taken into account, including the type and volume of exploration and evaluation work on resource estimates previously carried out, the location of the deposits and expected future commodity prices. The challenges associated within this are discussed further in 6.7.

#### 6.4.6 Tax amortisation benefit

In many business combinations, especially related to mining acquisitions, the fair value of assets acquired uses an after-tax discounted cash flow approach. Inherent in this approach is an amount for the present value of the income tax benefits of deducting the purchase price through higher future depreciation charges. This is often referred to as the tax amortisation benefit (“TAB”).

An asset’s fair value in a business combination should reflect the price which would be paid for the individual asset if it were to be acquired separately. Accordingly, any TAB that would be available if the asset were acquired separately should be reflected in the fair value of the asset.

The TAB will increase the value of intangible and tangible assets and reduce goodwill. Assets that are valued via a market observable price rather than the use of discounted cash flows (“DCF”) should already reflect the general tax benefit associated with the asset. Where the fair value has been determined using a DCF model the TAB should normally be incorporated into the model.

#### 6.4.7 Key questions

There are key questions for management to consider in a business combination as they can affect the values assigned to assets and liabilities, with a resulting effect on goodwill. These questions include:

- *Have all intangible assets, such as geological & geotechnical information, mineral property, exploration potential, been separately identified?* There may be tax implications in allocating value to certain assets and each will need to be assessed in terms of their useful lives and impact on post acquisition earnings.
- *Have closure and rehabilitation liabilities been fully captured?* The value the acquirer would need to pay a third party to assume the obligation may be significantly different to the value calculated by the target.
- *Does the acquiree have contracts that are at a price favourable or unfavourable to the market?* Such contracts would have to be fair valued as at the date of acquisition.
- *Do the terms of purchase provide for an ongoing royalty, other payments or transfer of equity instruments?* These arrangements could be contingent consideration that needs to be fair valued as at the date of acquisition.

- *Does the acquiree use derivative instruments to hedge exposures?* Post combination hedge accounting for pre-combination hedging instruments can be complex. The acquirer will need to designate these and prepare new contemporaneous documentation for each hedging relationship.
- *Have all embedded derivatives been identified?* New ownership of the acquired entity may mean that there are changes in the original conclusions reached when contracts were first entered into.

The above questions provide a flavour of the issues that management should consider in accounting for business combinations, and highlight the complexity of this area.

### 6.5 Goodwill in mining acquisitions

Goodwill remains a residual in business combination accounting; the difference between consideration transferred, non-controlling interest, previously held equity interest and the fair value of identifiable assets acquired and liabilities assumed. IFRS 3 has broadened the definition of a business and thus more mining transactions may be business combinations. It is expected that any residual value after the initial fair value exercise will be recognised as goodwill instead of being re-allocated to mineral properties (i.e. proved, probable and possible reserves).

Management of the acquirer should carry out a thorough analysis and fair value exercise for all the identifiable tangible and intangible assets of the acquired business. Once this has been completed, any residual forms goodwill. Goodwill may also arise mechanically from requirement to record deferred tax in a business combination, this is further discussed below.

Goodwill can arise from several different sources. For example, goodwill may arise if a specific buyer can realise synergies from shared infrastructure assets or mineral extraction techniques that are not available to other entities. Goodwill may also represent access to new markets, community/ government relationships, portfolio management, technology, expertise, the existence of an assembled workforce. A mining entity may be willing to pay a premium to protect the value of other mining operations that it already owns, and this would also represent goodwill.

Goodwill may also arise from the requirements to recognise deferred tax on the difference between the fair value and the tax value of the assets acquired in a business combination. The fair value uplift to mining properties and exploration assets is often not tax deductible and therefore results in a deferred tax liability. This liability is recorded on a non-discounted basis and results in the balance recorded for goodwill not being indicative of the fair value of goodwill.

The fair value attributed to some intangible assets could increase if their associated amortisation is deemed to be deductible for tax purposes. TAB is discussed above in 6.4.6. The impact would be an increase in the value of the asset and a decrease in the value of goodwill.

#### 6.5.1 Goodwill and non-controlling interests

IFRS 3 gives entities a choice on the measurement NCI that arises in a less than 100% business combination. The choice is available on a transaction by transaction basis. An acquirer may either recognise the NCI at fair value, which leads to 100% of goodwill being recognised (full goodwill), or at the NCI's proportionate share of the acquiree's identifiable net assets (partial goodwill). This leads to goodwill being recognised only for the parent's interest in the entity acquired.

#### 6.5.2 Bargain Purchase

There may be situations where there is a forced sale and the consideration paid by the acquirer is less than the fair value of the net assets acquired. This is called a 'bargain purchase'. If a bargain purchase is identified, the acquirer should reassess the fair values of the identifiable assets, liabilities and contingent liabilities to ensure none has been omitted or understated. If a 'bargain purchase' gain remains, it should be immediately recognised in the income statement.

### 6.6 Deferred tax

An entity recognises deferred tax on the fair value adjustments to the net assets of an acquired mining company, including any increase in the value of mineral properties and/or exploration assets. No deferred tax liability is recognised on goodwill itself unless the goodwill is tax deductible. Tax deductible goodwill is unusual and presents specific accounting issues.

The tax base should reflect the manner in which the value of the asset will be realised. Few tax jurisdictions allow companies to claim tax deductions on acquired mineral properties if the asset will be realised through production of mineral ore. In such cases it is likely that a large deferred tax liability will need to be recognised.

This deferred tax liability can result in the recognition of goodwill because it reduces the net assets of the acquired entity. The extent of such goodwill will depend on the fair value of the mining properties and the exploration assets and could be significant.

### 6.6.1 Tax losses

An acquired mining entity may have tax losses. This can arise even if the entity is trading profitably, as a result of the carry forward of exploration costs and allowances for capital projects. Such tax losses are recognised as an asset at the date of the business combination if it is probable they will be utilised by the combined entity.

## 6.7 Provisional assessments of fair values

Acquirers have until the earlier of the date they receive information they were seeking about facts and circumstances or twelve months from the date of an acquisition to finalise the fair value exercise, commonly referred to as the ‘purchase price allocation’. This is known as the “measurement period”. Acquirers will frequently use this time to evaluate the acquired mineral properties and exploration assets based on information known at the date of acquisition. Any adjustments recognised during this period are recorded as part of the accounting for the initial business combination. Further adjustments beyond the 12-month window are recognised in the income statement as a change in estimate. Where the 12-month window crosses a period end there may be adjustments to fair values required in the following period. The comparative information for prior periods presented in the current financial statements should be revised as needed, including recognising any change in depreciation, amortisation or other income effects recognised based on the original accounting.

Adjustments to deferred tax assets will only affect goodwill if they are made within the 12-month period for finalising the business combination accounting and if they result from new information about facts and circumstances that existed at the acquisition date. After the 12-month period, adjustments are recorded as normal under IAS 12, through the income statement or the statement of changes in equity, as appropriate.

The process of determining a reliable value for assets still in the early phase of exploration can be challenging. The level of uncertainty in ascribing a value to such assets increases the likelihood of subsequent changes having an effect on reported profit.

## 6.8 Business combinations achieved in stages

A business combination achieved in stages is accounted for using the acquisition method at the acquisition date. Previously held interests are remeasured to fair value at the acquisition date and a gain or loss is recognised in the income statement. The gain or loss would require disclosure in the financial statements. The fair value of the previously held interest then forms one of the components that are used to calculate goodwill, along with the consideration and non-controlling interest less the fair value of identifiable net assets.

## 6.9 Acquisitions of participating interests in joint operations which are not legal entities

Joint operations that are not incorporated entities are a common method of undertaking development and production within the industry. Acquisition of interests in these assets where there are proved resources (and so in the development or production phase) is common. Section 6.3 noted the requirement that control be obtained for a business combination to occur.

A company may well own an interest in a mine that is greater than 50% but still be in a joint control situation. Many joint operating agreements require unanimous consent to be provided by the participants in the arrangement. The acquisition of an interest in a mine with proved resources (whether producing or not) would often not result in a business combination as control is not obtained. As explained in section 6.2, an important consequence is that the acquisition would be treated as the purchase of an asset, with no goodwill or deferred tax arising.

### Accounting for purchase of an interest in a producing mine

Should the acquisition of an interest in a producing mine be accounted for as a business combination?

#### Background

There are three participants in jointly controlled asset Omega, The ownership interest of the participants is as follows:

- Entity A 40%
- Entity B 40%
- Entity C 20%

The terms of the joint operating agreement (“JOA”) require decisions relating to the development to be approved by parties representing 75% of the interest in the arrangement.

Entity A purchases entity C’s interest of 20% and now holds 60% of the participating interest. Should entity A account for this as a business combination?

#### Solution

The producing mine represents a business and Entity A now owns a majority of the interest in the business. However, this is not a business combination as A has still not obtained control. Prior to the transaction, the approval of decisions required agreement by 75% of the participating interests. A joint control situation existed between entity A and B as they controlled a total of 80% of the participating interests. Following the transaction, there is still a joint control situation as entity A does not hold sufficient interest to meet the 75% threshold. The transaction is treated as an asset acquisition. The consideration paid for the interest is capitalised and allocated to the assets on a relative fair value basis. No deferred tax or goodwill will arise.

In March 2012 the IFRS Interpretations Committee made a recommendation to the IASB on an amendment to IFRS 11 in relation to the acquisition of interests in joint operations whose activities constitute a business that the principles of IFRS 3 should be followed and therefore deferred tax and goodwill would arise. This would affect the accounting described above. Readers should check the progress of this recommendation before finalising their accounting.

There is currently no guidance in IFRS on the accounting treatment for combinations among entities under common control as IFRS 3 excludes such combinations from the standard. Management, therefore, selects an appropriate accounting policy and applies that policy consistently. The policy selected could be in line with the acquisition method in IFRS 3, or the predecessor accounting method used in some other GAAPs.

### 6.10 Business combinations for entities under common control

A combination between entities or businesses under common control is defined as ‘a business combination in which all of the combining entities or businesses are ultimately controlled by the same party or parties both before and after the business combination and that control is not transitory’. Typically, business combinations for entities under common control arise as a product of the restructuring of companies within a group for commercial or tax purposes.

### 6.11 Restructuring costs

Major restructuring programs often follow business combinations. These costs may only be recognised as part of the business combination if they were previously recognised by the acquiree. Any other costs (such as terminations subsequent to the business combination) must be recorded as an expense in the post combination income statement of the acquired business. Similarly, any restructuring or other costs incurred by the acquirer itself cannot be included in the business combination.



## 6.12 Presentation and disclosure

The disclosure requirements for a business combination are extensive, particularly in the year of the combination. Information that must be disclosed in the year of the combination for material business combinations and in aggregate for immaterial business combinations (including any post-reporting date acquisitions) includes:

- details of the combining entities or businesses;
- the consideration transferred and details of the components of the consideration;
- the amounts recognised at the acquisition date for each class of the acquiree's assets, liabilities and contingent liabilities;
- the amount of and reason for any gain recognised in a bargain purchase;
- a description of the factors that contributed to the recognition of goodwill (for example, unrecognised intangibles or buyer synergies);
- the amount of acquisition-related costs expensed and the line item in which the expense is reported;
- the measurement basis selected and the recognised amount of NCI in the acquiree, including the valuation techniques and key model inputs where fair value is used;
- the amount of the acquiree's revenue and profit or loss since the acquisition date included in the acquirer's reported profit or loss for the period (period of ownership);
- the revenue and profit or loss of the combined entity for the period as if the acquisition had taken place at the start of the period; and
- details of any adjustments arising from changes to provisional accounting, or other adjustments arising from business combination accounting.

If the initial accounting for the business combination is incomplete when the financial statements are being prepared, a description should be provided of which disclosures could not be made and the reasons for this.

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## **7** *Joint arrangements*

# 7 Joint arrangements

## 7.1 Overview

Joint ventures and other similar arrangements (“joint arrangements”) are frequently used by mining companies as a way to share the higher risks and costs associated with the industry or as a way of bringing in specialist skills to a particular project. The legal basis for a joint arrangement may take various forms: establishing a joint venture might be achieved through a formal joint venture contract, or the governance arrangements set out in a company’s formation documents might provide the framework for a joint arrangement. The feature that distinguishes a joint arrangement from other forms of cooperation between parties is the presence of joint control. An arrangement without joint control is not a joint arrangement.

The IASB published IFRS 11 “Joint Arrangements” in May 2011. The standard introduces a number of significant changes in the accounting for joint arrangements, which include:

- “Joint arrangement” replaces “joint venture” as the new umbrella term to describe all arrangements where two or more parties have joint control;
- There are two types of joint arrangement, being “Joint operations” and “Joint ventures”;
- Contractual rights and obligations drive the categorisation of a joint arrangement as a joint operation or a joint venture;
- The policy choice of proportionate consolidation for joint ventures is eliminated; and
- Guidance is provided on the appropriate accounting for parties who participate in the joint arrangement but do not have joint control.

Unanimous consent must be present over the financial and operating decisions in order for joint control to exist.

IFRS 11 becomes effective in non-EU territories in 2013 and 2014 in the EU. Earlier application is allowed. Most companies are expected to adopt the standard only when it becomes mandatory.

This section mainly focuses on the requirements of IFRS 11. A brief discussion on the requirements of IAS 31 “Interests in Joint Ventures” is provided in section 7.11.

## 7.2 Joint control

Joint control is the contractually-agreed sharing of control over an economic activity. An identified group of venturers must unanimously agree on all decisions over “relevant activities”, which IFRS 10 defines as the

activities which significantly affect an investee’s returns. Each of the parties that share joint control has a veto right: they can block key decisions if they do not agree.

Not all parties to the joint venture need to share joint control. Some participants may share joint control and other investors participate in the activity but not in the joint control. Section 7.7 discusses the accounting for those participants.

Similarly, joint control may not be present even if an arrangement is described as a ‘joint venture’. Decisions over financial and operating decisions that are made by “simple majority” rather than by unanimous consent could mean that joint control is not present even in situations where there are only two shareholders but each has appointed a number of directors to the Board or relevant decision-making body.

Joint control will only exist if decisions require the unanimous consent of the parties sharing control. If decisions are made by simple majority, the following factors may undermine the joint control assertion:

- the directors are not agents or employees of the shareholders
- the shareholders have not retained veto rights
- there are no side agreements requiring directors vote together
- a quorum of Board members can be achieved without all members being in attendance

If it is possible that a number of combinations of the directors would be able to reach a decision, it may be that joint control does not exist. This is a complex area which will require careful analysis of the facts and circumstances. If joint control does not exist, the arrangement would not be a joint venture. Investments with less than joint control are considered further in section 7.7.

A key test when identifying if joint control exists is to identify how disputes between ventures are resolved. If joint control exists, resolution of disputes will usually require eventual agreement between the venturers, independent arbitration or, dissolution of the joint venture.

One of the venturers acting as operator of the joint venture does not prevent joint control. The operator’s powers are usually limited to day-to-day operational decisions; key strategic financial and operating decisions (i.e. decisions about the relevant activities) remain with the joint venture partners collectively.

### 7.3 Classification of joint arrangements

“Joint arrangement” is the term for all cooperative working arrangements where two or more parties have joint control.

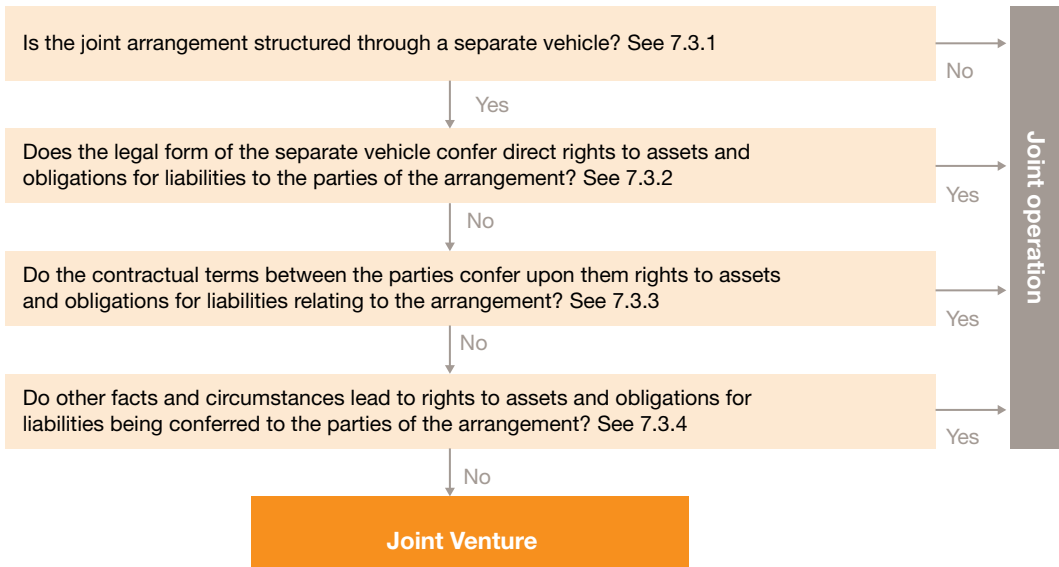
| Under IAS 31                 | Under new IFRS 11 | IFRS 11 definition  |
|------------------------------|-------------------|---|
| Jointly controlled asset     | Joint operation   | Parties have rights to the assets and obligations for the liabilities relating to the arrangement |
| Jointly controlled operation | Joint operation   | Parties have rights to the assets and obligations for the liabilities relating to the arrangement |
| Jointly controlled entity    | Joint venture     | Parties have rights to the net assets of the arrangement  |

Jointly controlled entities could meet the definition of a joint operation or a joint venture. The classification of the joint arrangement is now based on the rights and obligations of the parties to the arrangements. This represents a significant change from IAS 31, where the classification was instead based on the legal form of the arrangement.

Determination of the type of joint arrangement can be a complex decision under IFRS 11. Legal form remains relevant for determining the type of joint arrangement but is less important than under the previous standard.

A joint arrangement that is not structured through a separate vehicle is a joint operation. However, not all joint arrangements in separate vehicles are joint ventures. A joint arrangement in a separate vehicle can still be a joint operation; classification depends on the rights and obligations of the venturers and is further influenced by the economic purpose of the joint arrangement.

Determining the classification of joint arrangements is a four step process as shown below.



### 7.3.1 Separate vehicles

The first step in determining the classification is to assess whether the arrangement is structured through a separate vehicle. A separate vehicle is a separately identifiable financial structure, including separate legal entities or entities recognised by statute, regardless of whether those entities have a legal personality.

There are many different types of vehicles used for joint arrangements including partnerships, unincorporated entities, limited companies and unlimited liability companies. Each of these are generally separately identifiable financial structures having separately identifiable assets, liabilities, revenues, expenses, financial arrangements, financial records, etc. These would generally be separate vehicles.

The definition of a 'separate vehicle' is, however, quite broad. It does not necessarily need to have a legal personality as in the above mentioned examples. This means that a contractual arrangement between two parties may also be a separate vehicle even if not established through an entity having a legal personality provided it has the features of a separate vehicle.

Local laws and regulations also need consideration before determining whether a particular structure meets the definition of a 'separate vehicle'.

#### 7.3.1.1 Joint arrangements not structured through a separate vehicle

When an arrangement is not structured through a separate vehicle, it is a joint operation. This is because in such cases the parties determine in the contractual arrangements their rights to the assets, and their obligations for the liabilities, relating to the arrangement. These are classified as joint operations. Mining joint working arrangements often do not operate through separate vehicles and so are classified as joint operations.

#### 7.3.1.2 Joint arrangements structured through a separate vehicle

A joint arrangement that is structured through a separate vehicle can be either a joint venture or a joint operation depending on the parties' rights and obligations relating to the arrangement.

The parties need to assess whether the legal form of the separate vehicle, the terms of the contractual arrangement and, when relevant, any other facts and circumstances give them:

- rights to the assets and obligations for the liabilities relating to the arrangement (i.e. joint operation); or
- rights to net assets of the arrangement (i.e. joint venture)

#### 7.3.2 Rights to assets and obligations for liabilities given by legal form

The second step in determining the classification of a joint arrangement is to assess the rights and obligations arising from the legal form of the separate vehicle.

Joint arrangements are established through many different legal structures, including limited liability companies, unlimited liability companies, limited liability partnerships, general partnerships and unincorporated entities. Each of these legal structures exposes the parties to a different set of rights and obligations.

If the legal structure of the arrangement is such that the parties have rights to assets and are obligated for the liabilities of the arrangement, then it is a joint operation. In order to ascertain this, the local laws and regulations need to be carefully assessed.

The key question is whether the separate vehicle can be considered in its own right i.e. are the assets and liabilities held in the separate vehicle those of the separate vehicle or are they the assets and liabilities of the parties?

### Types of separate vehicle

**Partnerships**—in most cases general partnerships cannot be considered in their own right i.e. the partners have obligations for the liabilities and have rights to the assets of the partnership in the normal course of business. On the other hand a limited liability partnership (LLP) may be considered in its own right since the partners are not obligated for the liabilities of the LLP and the assets of the LLP are its own assets.

**Limited liability companies**—in most jurisdictions these can be considered in their own right i.e. the assets and liabilities of the company are its own assets and liabilities. The creditors and lenders of the company do not have a right to claim payments from the shareholders. However, unlimited liability companies may sometimes provide direct rights to assets and obligations for liabilities to the parties depending on the relevant facts and circumstances.

**Unincorporated entities**—When an arrangement is operated through this type of vehicle, in most cases the parties will have the right to assets and have obligations for the liabilities of the arrangement.

Local laws and regulations play a key role in the assessment of the rights and obligations conferred by the separate vehicle. It is possible that the same legal form (such as a partnership) in different territories could give different rights and obligations depending on the local laws and regulations.

Associations, trusts and corporations are some other forms of vehicles used to establish joint arrangements. The rights and obligations arising from these structures vary significantly depending on jurisdictional laws and regulations. Hence, these have to be assessed based on the specific facts and circumstances.

When the legal form of the separate vehicle does not give the parties rights to assets and obligations for liabilities relating to the arrangement, it means that the legal form indicates that the arrangement is a joint venture. However, the contractual terms between the parties and when relevant, other facts and circumstances can override the assessment of the rights and obligations conferred by the legal form.

### 7.3.3 Rights to assets and obligations for liabilities given by contractual terms

In most cases, the rights and obligations agreed to by the parties in their contractual terms are consistent with the rights and obligations conferred on the parties by the legal form of the separate vehicle. This is because the selection of a particular legal form is in many cases driven by the intended economic substance that the particular legal form delivers.

However, sometimes parties choose a particular legal form to respond to tax, regulatory requirements or other reasons. This can alter the intended economic substance initially sought by the parties to the arrangement. In such cases, the parties might enter into contractual arrangements that modify the effects that the legal form of the arrangement would otherwise have on their rights and obligations.

The local law of a territory may require an arrangement in a particular industry to be set up only in a limited liability company. This means that the legal structure of the separate vehicle will create a separation between the parties and the arrangement. However, the parties may have the intention of setting up a joint operation.

In such cases, the parties may enter into contractual terms which modify or reverse the rights and obligations conferred by the legal form of the separate vehicle. The contractual terms of the arrangement may be such that each party has an interest in the assets of the company and each party has an obligation for the liabilities of the company in a specified proportion.

However, in such cases the contractual terms have to be carefully assessed to ensure that they are in fact robust enough to modify/reverse the rights and obligations conferred by the legal structure.

### Indicators of a joint operation in contractual arrangements

#### Rights to assets

The parties share all interests (e.g. rights, title or ownership) in the assets in a specified proportion (e.g. in proportion to the parties' ownership interest in the arrangement or in proportion to the activity carried out through the arrangement that is directly attributed to them).

#### Obligations for liabilities

The parties share all liabilities, obligations, costs and expenses in a specified proportion as in the case of rights to assets.

#### Revenues and expenses

The contractual arrangement usually establishes the allocation of revenues and expenses on the basis of the relative performance of each party to the joint arrangement. For example, the contractual arrangement might establish that revenues and expenses are allocated on the basis of the capacity that each party uses in a refinery or smelter operated jointly, which could differ from their ownership interest in the joint arrangement.

In other instances, the parties may agree to share the profit or loss relating to the arrangement on the basis of a specified proportion such as the parties' ownership interest in the arrangement. This would not prevent the arrangement from being a joint operation if the parties have rights to the assets, and obligations for the liabilities, relating to the arrangement.

### Indicators of a joint venture in contractual arrangements

#### Rights to assets

Generally the contractual terms establish that the assets bought by the arrangement are those of the arrangement and the parties do not have any direct interests in the title or ownership of these assets.

#### Obligations for liabilities

The contractual terms establish that the arrangement is liable for the debts and obligations of the arrangement and that the parties are only liable to the extent of unpaid capital. Further the creditors of the joint arrangement do not have a right of recourse against the investing parties.

#### Revenues and expenses

The contractual arrangement establishes each party's share in the net profit or loss relating to the activities of the arrangement.

## 7 Joint arrangements

The assessment of rights and obligations should be carried out as they exist in the 'normal course of business' (para B14 of IFRS 11) i.e. the rights and obligations as they exist during the day to day operation of the company. Legal rights and obligations arising in circumstances which are other than in the 'normal course of business' such as liquidation and bankruptcy are much less relevant.

For example, in a liquidation or bankruptcy of a limited liability company, secured and unsecured creditors generally have the first right to the assets of the company and the shareholders only have rights in the net assets remaining after settlement of the third party liabilities. If this is considered while assessing the classification, it would suggest that a limited liability company can never be a joint operation since the shareholders have rights only to the residual assets. However, this is not the intention of IFRS 11 since it requires rights and obligations to be assessed in the normal course of business.

If the contractual terms give the parties rights to assets and obligations for liabilities, then the arrangement is a joint operation. If the contractual terms give the parties rights to net assets, then the legal form of the separate vehicle and the contractual terms indicate that the arrangement is likely to be a joint venture.

However, before finally concluding on the classification of the arrangement, 'other facts and circumstances' should be assessed as these can sometimes affect the rights and obligations conferred upon by the legal form and the contractual terms. 'Other facts and circumstances' are discussed in more detail in 7.3.4 below.

### 7.3.3.1 Effect of guarantees on classification of a joint arrangement

Parties to joint arrangements often provide guarantees to third parties on behalf of the arrangement when the arrangement is purchasing goods, receiving services or obtaining financing.

The question that commonly arises is whether provision of such guarantees (or commitment by the parties to pay in case the arrangement fails to pay or meet its obligations) indicates that the parties have obligations for liabilities of the arrangement and therefore the arrangement is a joint operation.

The provision of guarantees or commitments does not by itself determine that the arrangement is a joint operation. The feature that determines whether the joint arrangement is a joint operation or a joint venture is whether the parties have obligations for the liabilities relating to the arrangement (for some of which the parties might or might not have provided a guarantee).

All relevant facts and circumstances should be considered in determining the classification. Rights and obligations are assessed as they exist in the normal course of business. It is not appropriate to make a presumption that the arrangement will not settle its obligations and that the parties will be obligated to settle those liabilities because of the guarantee issued. This would not be seen as a normal course of business. Therefore issuing a guarantee does not on its own mean that the arrangement is a joint operation.

### 7.3.4 'Other facts and circumstances'

This is the final step in determining the classification of a joint arrangement. Assessing 'other facts and circumstances' essentially means assessing the purpose and design of setting up the arrangement i.e. what was the objective or intent of the parties in setting up the arrangement?

If the arrangement was primarily designed for provision of output to the parties it may indicate that the objective of the parties was to have rights to substantially all the economic benefits of the assets of the arrangement.

The effect of an arrangement with such a design is that the liabilities incurred by the arrangement are in substance satisfied by the cash flows received from the parties through their purchases of the output. It also means that the parties are substantially the only source of cash flows for the continuity of the arrangement's operations. This indicates that the parties have an obligation for the liabilities relating to the arrangement.



Assessment of ‘other facts and circumstances’ grows more challenging as the arrangements between parties become increasingly complex. When arrangements are incorporated in limited liability companies, classifying them as joint operations on the basis of ‘other facts and circumstances’ is not easy and is a high hurdle to cross. This is because classifying them as joint operations means that the corporate veil has to be pierced. The parties will then record assets and liabilities relating to the arrangement although legally they neither have rights to the assets nor the obligation for the liabilities. Therefore consideration should be given to all facts and circumstances before reaching a conclusion.

Listed below are some of the general characteristics of an arrangement with the purpose and design of a joint operation:

- Parties generally restrict the arrangement from selling the output to third parties to ensure that they have uninterrupted access to the output.
- There is generally a binding obligation on the parties to purchase substantially all of the output—if the parties did not have an obligation to take the output, the arrangement may sell the output to third parties, indicating that the purpose and design of the arrangement was not to provide all of its output to the parties.
- The demand, inventory and credit risks relating to the activities of the arrangement are passed on to the parties and do not rest with the arrangement.
- Generally, the parties ensure that the output is purchased from the arrangement at a price that covers all the costs of the arrangement and it operates at a break-even level. It may not be necessary for the arrangement to operate at a break-even level - the key is to assess the purpose and design of the arrangement. If the arrangement is designed to provide all the output to the parties, the price at which the output is purchased by the parties may become a less relevant factor in determining the classification.
- The arrangement does not generally have any borrowings and the parties are substantially the only source of cash flows. Sometimes arrangements may have borrowings for financing their working capital requirements or for capital expansion. However, as long as the arrangement is designed to provide all the output to the parties, it means that the arrangement will not be able to make the interest payments and the principal repayments without receiving funds from the parties. This may indicate that the arrangement continues to be a joint operation.

### “Other facts and circumstances” scenarios

Each of the scenario’s considered below have the following assumptions:

- a) Joint control exists in each of the arrangements; and
- b) the legal structure of the separate vehicle and the contractual terms do not give the parties rights to assets and obligations for liabilities.

The initial indicators are that the arrangements are joint ventures, however, the ‘other facts and circumstances’ are analysed as to how they may affect the classification of the arrangement.

## 7 Joint arrangements

| Scenarios   | Classification                 | Analysis  |
|---|--------------------------------|---|
| <p>The arrangement produces a product and the parties are obligated to take all of the output in the ratio of their shareholding.</p> <p>The price of output is set by the parties at a level such that the arrangement operates at break-even level.</p> <p>The arrangement is prohibited from selling the output to third parties.</p>  | Joint operation                | The design of the arrangement is to provide all its output to the parties. It is dependent on the parties for its cash flows to ensure continuity of operations. The parties get substantially all the economic benefits from the assets of the arrangement. As discussed above, it is a joint operation.   |
| Same facts as above except that the product is a commodity like gold which is readily saleable in the market i.e. if the parties do not buy it can be easily sold to a third party.   | Joint operation                | For the reasons stated above, it is a joint operation. The fact that the product is readily saleable becomes less relevant because there is an obligation on the arrangement to sell all of its output to the parties.  |
| <p>The arrangement produces two products—gold doré and copper concentrate.</p> <p>100% of gold doré is taken by one party and 100% of copper concentrate is taken by the other party at market value.</p> <p>Since these are purchased by the parties at market value there is a residual profit or loss left in the arrangement which is distributed by way of dividends to the parties in the proportion of their shareholding.</p> | Likely to be a joint operation | <p>The parties don't necessarily have to set up a joint arrangement for interest in the same product. They may have interest in different products but may set up a joint arrangement for reasons like costs saving, similar manufacturing processes, etc.</p> <p>In this case it appears that the arrangement is dependent on the parties for cash flows and the parties take all output. This is a strong indicator that the arrangement may be a joint operation.</p> <p>However, before determining the classification, consideration should be given to all facts and circumstances. Certain other factors may impact classification, including:</p> <ul style="list-style-type: none"> <li>• whether the parties have a contractual obligation to take all of the output—if so, then it is a joint operation.</li> <li>• the relative values of the products purchased compared to the proportion of investments made by the parties.</li> <li>• the value of one of the products may be relatively lower and the investor who purchases that product may get compensated in some other way such as share of profits made from sales to the other party.</li> </ul> |

| Scenarios   | Classification                | Analysis  |
|---|-------------------------------|---|
| <p>Parties have the right of first refusal to buy the output but they are not obligated to take the output.</p> <p>The arrangement was set up three years ago. In the first year the parties take all of the output in the ratio of their shareholding.</p> <p>In the second year, the product is sold to third parties.</p> <p>In the third year, the parties take all of the output but in a ratio different from their shareholding.</p>                                     | Likely to be a joint venture. | <p>The following factors indicate that the arrangement is most likely a joint venture.</p> <ul style="list-style-type: none"> <li>• There is no obligation on the arrangement to sell its output to the parties. This indicates that the purpose and design of the arrangement was not to provide all of the output to the parties;</li> <li>• In the past output has been sold to third parties. This proves that the arrangement is not substantially dependent on the parties for its cash flows.</li> </ul> <p>However, all facts and circumstances should be considered before determining the classification. In some circumstances the design of the arrangement may be to provide all of the output to the parties. However in a particular year, due to certain practical considerations, the arrangement sells output to third parties or the parties take varying level of outputs. From the next year they may revert to taking their share of outputs. In such cases, emphasis should be given to the purpose and design of the arrangement.</p> |
| <p>Two parties set up an arrangement to mine for zinc. The mined ore is sold to third parties.</p> <p>As per the contractual terms:</p> <ol style="list-style-type: none"> <li>all the gross cash proceeds from revenue of the arrangement are transferred to the parties on a monthly basis in proportion of their shareholding;</li> <li>The parties agree to reimburse the arrangement for all its costs in proportion of their shareholding based on cash calls.</li> </ol> | Likely to be a joint venture  | <p>In this case, it is clear that the purpose and design of the arrangement is not to provide all of its output to the parties.</p> <p>The arrangement is selling the product to third parties and generating its own cash flows.</p> <p>Transferring gross proceeds of revenues to the parties and making cash calls for incurring its costs does not indicate that the parties have rights to assets and obligations for liabilities of the arrangement. It is merely a funding mechanism. It is no different from the parties having an interest in the net results of the arrangement.</p>  |

| Scenarios  | Classification    | Analysis  |
|--|-------------------|---|
| Two parties set up a joint arrangement. One of the parties takes 100% of the silver produced at market prices and the other party only takes its share of the profits/loss made by the entity. | Judgment required | <p>All facts and circumstances have to be considered before determining the classification. Assessment of the economic rationale behind such an arrangement might give an indication of the purpose and design of the arrangement.</p> <p>An assessment should be made of whether one of the parties actually controls the arrangement or if there is an IFRIC 4 arrangement involved.</p> <p>If it is concluded that there is joint control, it seems that the arrangement has some indicators of a joint operation. This is because the arrangement does not sell to third parties and is dependent on one of the parties for its continuous cash flows. However, one of the parties does not consume any output.</p> |

### 7.3.5 Re-assessment of classification

The rights and obligations of parties to joint arrangements might change over time. This might happen, for example, as a result of a change in the purpose of the arrangement that might trigger a reconsideration of the terms of the contractual arrangements. Consequently, the assessment of the type of joint arrangement needs to be a continuous process, to the extent that facts and circumstances change.

## 7.4 Accounting for joint operations (“JOs”)

Investors in joint operations are required to recognise the following:

- its assets, including its share of any assets held jointly;
- its liabilities, including its share of liabilities incurred jointly;
- its revenue from the sale of its share of the output arising from the joint operation;
- its share of the revenue from the sale of the output by the joint operation; and
- its expenses, including its share of any expenses incurred jointly

It should be noted that the share of assets and liabilities is not the same as proportionate consolidation. “Share of assets and liabilities” means that the investor should consider their interest or obligation in each underlying asset and liability under the terms of the arrangement—it will not necessarily be the case that they have a single, standard percentage interest in all assets and liabilities.

## 7.5 Accounting for joint ventures (“JVs”)

IFRS 11 requires equity-accounting for all joint arrangements classified as joint ventures. Investors who previously had a choice between equity accounting and proportionate consolidation for a jointly controlled entity will no longer have that choice.

The key principles of the equity method of accounting are described in IAS 28 “Investments in Associates and Joint Ventures”:

- Investment in the JV is initially recognised at cost;
- Changes in the carrying amount of investment are recognised based on the venturer’s share of the profit or loss of the JV after the date of acquisition;
- The venturer only reflects their share of the profit or loss of the JV; and
- Distributions received from a JV reduce the carrying amount of the investment.

The results of the joint venture are incorporated by the venturer on the same basis as the venturer’s own results—i.e., using the same GAAP (IFRS) and the same accounting policy choices. The growing use of IFRS and convergence with US GAAP has helped in this regard but the basis of accounting should be set out in the formation documents of the joint venture.

**Joint venture uses a different GAAP**

An entity uses IFRS. Are accounting adjustments required before it can incorporate the results of a joint venture that reports under US GAAP?

**Background**

Entity J is a joint venture that prepares its accounts under US GAAP as prescribed in the joint venture agreement. One of the venturers, entity C, prepares its consolidated financial statements under IFRS. C's management believes that for the purpose of applying the equity method, the US GAAP financial statements of J can be used.

Must C's management adjust entity J's US GAAP results to comply with IFRS before applying the equity method?

**Solution**

Yes the results must be adjusted for all material differences. IAS 28 paragraph 35 requires that all information contained in IFRS financial statements should be prepared according to IFRS. C's management must therefore make appropriate adjustments to J's US GAAP results to make them compliant with IFRS requirements. There is no exemption in IFRS for impracticability.

The same requirement would exist if entity J was a joint operation. Adjustments to conform accounting policies are also required where both entities use IFRS.

**7.6 Contributions to joint arrangements**

It is common for participants to contribute assets such as cash, non-monetary assets or a business to a joint arrangement on formation. Contributions of assets are a partial disposal by the contributing party. The arrangement receives in return a share of the assets contributed by the other participants. Accordingly, the contributor should recognise a gain or loss on the partial disposal. The gain is measured as the proportionate share of the fair value of the assets contributed by the other participants less the portion of the book value of contributor's disposed asset now attributed to the other participants.

The participant recognises its share of an asset contributed by other participants at its share of the fair value of the asset contributed. For a joint operation this is classified in the balance sheet according to the nature of the asset. For a joint venture, the equivalent measurement basis is achieved when equity accounting is applied; however, the interest in the asset forms part of the equity accounted investment balance.

The same principles apply when one of the other participants contributes a business to a joint arrangement; however, one of the assets recognised will normally be goodwill, calculated in the same way as in a business combination.

### Contributions to a joint venture

If a joint venture uses the fair values of all contributed assets in its own financial statements, can this be reflected in the venturer's own financial statements through equity accounting?

#### Background

Entities A and B have combined their mineral ore processing facilities in a certain region in order to reduce costs. They established entity J. Entity A contributed a smelter and entity B a refinery to J. The smelter and refinery both met the definition of a business. A receives 60% of the shares in J, and entity B receives 40%.

Entity J has recognised the contribution of the processing facilities from entities A and B at fair value. Entity J is compelled to do this by local company law as shares issued must be backed by the fair value of assets recognised. Effectively, J follows the "fresh start" method of accounting for its formation.

Entity A's accounts for jointly controlled entities using the equity method. A's management wants to include its share of J's net assets and profits and losses on the same basis on which they are accounted for in entity J, without adjustment. They point out that Entity J has used an acceptable method under IFRS of accounting for its formation.

Can A's management do this?

#### Solution

Yes, there is a policy choice available to A in certain circumstances because of the conflict in the accounting standards described below. A can choose partial recognition of the gain or loss being the difference between 40% of the carrying amount of the asset contributed by A and 60% of the fair value of the refinery contributed by B. This is the approach set out in IAS 28. A may also recognise 100% of the gain arising on its disposal of its smelter following IFRS 10—see narrative below.

The example above is based on guidance provided within IAS 28. There is an inconsistency between IAS 28 and IFRS 10 when the contribution to the jointly controlled entity is considered to represent a business.

IFRS 10 has different guidance on the loss of control of a business. Any investment a parent has in the former subsidiary after control is lost is measured at fair value at the date that control is lost and any resulting gain or loss is recognised in profit or loss in full.

The IFRS Interpretations Committee have undertaken a project to clarify whether a business meets the definition of a 'non-monetary' asset and eliminate the inconsistency between IAS 28 and IFRS 10. Initial indications are that an IFRS 10 approach would be adopted for all contributions of assets which constitute a business and the IAS 28 approach would be used for all

other contributions. Readers should check the progress of this recommendation before finalising their accounting.

### 7.7 Investments with less than joint control

Some co-operative arrangements may appear to be joint arrangements but fail on the basis that unanimous agreement between venturers is not required for key strategic decisions. This may arise when a super majority, for example an 80% majority is required but where the threshold can be achieved with a variety of combinations of shareholders and no venturers are able to individually veto the decisions of others. Accounting for these arrangements will depend on the way they are structured and the rights of each venturer.

**Identifying a joint venture**

Is an entity automatically a joint venture if more than two parties hold equal shares in an entity?

**Background**

Entity A, B, C and D (venturers) each hold 25% in entity J, which owns a mineral property. Decisions in J need to be approved by a 75% vote of the venturers.

Entity A's management wants to account for its interest in J using share of revenue and assets in its IFRS consolidated financial statements because J is a joint venture. Can A's management account for J in this way?

**Solution**

No. A cannot account for J using share of revenue and assets because J is not jointly controlled. The voting arrangements would require unanimous agreement between those sharing the joint control of J to qualify as a joint venture. The voting arrangements of J allow agreement of any combination of three of the four partners to make decisions.

Each investor must therefore account for its interest in J as an associate since they each have significant influence but they do not have joint control. Equity accounting must therefore be applied.

If an entity doesn't qualify as a joint venture, each investor will account for its investment either using equity accounting in accordance with IAS 28 (if it has significant influence) or at fair value as a financial asset in accordance with IAS 39.

An investor may also participate in a joint operation but not have joint control. The investor should account for their rights to assets and obligations for liabilities. If they do not have rights to assets or obligations for liabilities they should account for their interest in accordance with the IFRS applicable to that interest.

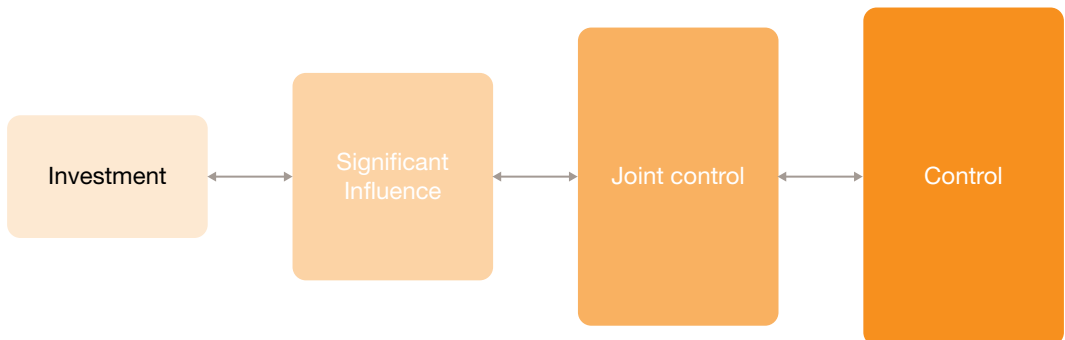
Investors may also have an undivided interest in a tangible or intangible asset where there is no joint control and the investors have a right to use a share of the operative capacity of that asset. An example is when a number of investors have invested in shared road network and an investor with a 20% interest has the right to use the network. Industry practice is for an

investor to recognise its undivided interest at cost less accumulated depreciation and any impairment charges.

An undivided interest in an asset is normally accompanied by a requirement to incur a proportionate share of the asset's operating and maintenance costs. These costs should be recognised as expenses in the income statement when incurred and classified in the same way as equivalent costs for wholly-owned assets.

**7.8 Changes in ownership in a joint arrangement**

A participant in a joint arrangement may increase or decrease its interest in the arrangement. The appropriate accounting for an increase or decrease in the level of interest in the joint arrangement will depend on the type of joint arrangement and on the nature of the new interest following the change in ownership.



### 7.8.1 Changes in ownership - Joint operations

The accounting for a change in the ownership will depend on whether the assets under the arrangement represent a business and the level of control which exists after the change in ownership. If the arrangement meets the definition of a business and control is obtained, this represents a business combination. The accounting for business combinations is discussed in section 6.4. If control is not obtained and the asset remains jointly controlled, the consideration paid for any additional interest is capitalised as the cost of that interest. As noted in section 7.6, the IFRS Interpretations Committee has made a recommendation to the IASB on an amendment to IFRS 11 in relation to the acquisition of interests in joint operations which may change the accounting.

Reductions in the interest in jointly controlled assets will result in derecognising an amount of carrying value equivalent to the proportionate share disposed, regardless of whether joint control remains or not.

### 7.8.2 Changes in ownership - Joint ventures

Accounting for increases in interest in a joint venture will depend on the level of control post acquisition. Where control is obtained, a business combination has taken place. The carrying amount previously recognised under equity accounting or share of assets and liabilities would be derecognised, acquisition accounting applies and the entity would be fully consolidated. This would require a fair value exercise, remeasurement of the previously held interest and measurement of non-controlling interest and goodwill. There may also be a gain or loss to recognise in the income statement.

A partial disposal of an equity accounted interest that results in no change in joint control or a change to significant influence results in the entity derecognising a proportion of the carrying amount of the investment. It will recognise any gain or loss arising on the disposal in the income statement. The entity does not remeasure the retained interest.

## 7.9 Accounting by the joint arrangement

The preceding paragraphs describe the accounting by the investor in a joint arrangement. A joint venture itself will normally prepare its own financial statements for

reporting to the joint venture partners and for statutory and regulatory purposes. It is increasingly common for these financial statements to be prepared in accordance with IFRS. Joint ventures are typically created by the venturers contributing assets or businesses to the joint venture in exchange for their equity interest in the JV. An asset contributed to a joint venture in exchange for issuing shares to a venturer is a transaction within the scope of IFRS 2. These assets are recognised at fair value in the financial statements of the joint arrangement. However, the accounting for the receipt of a business contributed by a venturer is not specifically addressed in IFRS as it is outside the scope of IFRS 2 and IFRS 3.

Two approaches have developed in practice. One is to recognise the assets and liabilities of the business, including goodwill, at fair value, similar to the accounting for an asset contribution and the accounting for a business combination. The second is to recognise the assets and liabilities of the business at the same book values as used in the contributing party's IFRS financial statements.

## 7.10 Farm outs

A “farm out” occurs when a venturer (the “farmor”) assigns an interest in the reserves and future production of a mine to another party (the “farmee”). This is often in exchange for an agreement by the farmee to pay for both its own share of the future mine development costs and those of the farmor. There may also be a cash payment made by the farmee to the farmor. This is a “farm in” when considered from the farmee's perspective. This typically occurs during the exploration or development stage and is a common method entities use to share the cost and risk of developing properties. The farmee hopes that their share of future production will generate sufficient revenue to compensate them for performing the exploration or development activity.

### 7.10.1 Accounting by the farmor

Farm out agreements are largely non-monetary transactions at the point of signature for which there is no specific guidance in IFRS. Different accounting treatments have evolved as a response. The accounting depends on the specific facts and circumstances of the arrangement, particularly the stage of development of the underlying asset.



### Assets with reserves

If there are reserves associated with the property, the farm-in should be accounted for in accordance with the principles of IAS 16. The farm out will be viewed as an economic event, as the farmor has relinquished its interest in part of the asset in return for the farmee delivering a developed asset in the future. There is sufficient information for there to be a reliable estimate of fair value of both the asset surrendered and the commitment given to pay cash in the future.

The rights and obligations of the parties need to be understood while determining the accounting treatment.

The consideration received by the farmor in exchange for the disposal of their interest is the value of the work performed by the farmee plus any cash received. This is presumed to represent the fair value of the interest disposed of in an arm's length transaction.

The farmor should de-recognise the carrying value of the asset attributable to the proportion given up, and then recognise the "new" asset to be received at the expected value of the work to be performed by the farmee. After also recording any cash received as part of the transaction, a gain or loss is recognised in the income statement. The asset to be received is normally recognised as an intangible asset or "other receivable". When the asset is constructed, it is transferred to property, plant and equipment.

Assessing the value of the asset to be received may be difficult, given the unique nature of each development. Most farm out agreements will specify the expected level of expenditure to be incurred on the project (based on the overall budget approved by all participants in the mine development). The agreement may contain a cap on the level of expenditure the farmee will actually incur. The value recognised for the asset will often be based on this budget. A consequence is that the value of the asset will be subject to change as the actual expenditure is incurred, with the resulting adjustments affecting the gain or loss previously recognised. The stage of development of the asset and the reliability of budgeting will impact the volatility of subsequent accounting.

### Assets with no proved reserves

The accounting is not as clear where the mineral asset is still in the exploration or evaluation stage. The asset would still be subject to IFRS 6 'Exploration for and

Evaluation of Mineral Resources' rather than IAS 16. The reliable measurement test in IAS 16 for non-cash exchanges may not be met. Neither IFRS 6 nor IFRS 11 gives specific guidance on the appropriate accounting for farm outs.

Several approaches have developed in practice by farmors:

- recognise only any cash payments received and do not recognise any consideration in respect of the value of the work to be performed by the farmee and instead carry the remaining interest at the previous cost of the full interest reduced by the amount of any cash consideration received for entering the agreement. The effect will be that there is no gain recognised on the disposal unless the cash consideration received exceeds the carrying value of the entire asset held;
- follow an approach similar to that for assets with proved reserves, recognising both cash payments received and value of future asset to be received, but only recognise the future asset when it is completed and put into operation, deferring gain recognition until that point; or
- follow an approach similar to that for assets with proved resources, recognising both cash payments received and value of future asset to be received, and recognise future asset receivable when the agreement is signed with an accompanying gain in the income statement for the portion of reserves disposed of.

All three approaches are used today under current IFRS. There can be volatility associated with determining the value of the asset to be received as consideration for a disposal in a farm out of assets with proved resources. This volatility is exacerbated for assets which are still in the exploration phase. Prevalent industry practice follows the first approach outlined above.

### 7.10.2 Accounting by the farmee

The farmee will only recognise costs as incurred, regardless of the stage of development of the asset. The farmee is required to disclose their contractual obligations to construct the asset and meet the farmor's share of costs. The farmee should follow its normal accounting policies for capitalisation, and also apply them to those costs incurred to build the farmor's share.

## Accounting for a farm out

### Background

Company N and company P participate jointly in the exploration and development of a copper deposit located in Peru. Company N has an 18% share in the arrangement, and Company B has an 82% share. Companies N and P have signed a joint arrangement agreement that establishes the manner in which the area should operate. N and P have a joint operation under IFRS 11. The joint operation comprises the mine area, machinery and equipment. There are no proved reserves.

The companies have entered into purchase and sale agreements to each sell 45% of their participation to a new investor—Company R. Company N receives cash of C4 million and company P receives cash of C20 million. The three companies entered into a revised ‘joint development agreement’ to establish the rights and obligations of all three parties in connection with the funding, development and operations of the asset. The composition of the interests of the three companies is presented in the table below:

|                    | Company N  | Company P   | Company R | Total       |
|--------------------|------------|-------------|-----------|-------------|
| Before transaction | 18%        | 82%         | -         | 100%        |
| After transaction  | 10%        | 45%         | 45%       | 100%        |
| Cash received      | C4 million | C20 million | -         | C24 million |

Each party to the joint development agreement is liable in proportion to their interest for costs subsequent to the date of the agreement. However, 75% of the exploration and development costs attributable to companies N and P must be paid by company R on their behalf. The total capital budget for the exploration and development of the asset is C200 million. Company N’s share of this based on their participant interest would be C20 million, however, Company R will be required to pay C15 million of this on behalf of Company N.

The carrying value of the asset in Company N’s financial statements prior to the transaction was C3 million.

Question: How should company N account for such transaction?

### Solution

This transaction has all the characteristics of a farm out agreement. The cash payments and the subsequent obligation of company R to pay for development costs on behalf of companies N and P appear to be part of the same transaction. Companies N and P act as farmers and company R acts as the farmee. The structure described also meets the definition of a joint operation per IFRS 11. Therefore company N should account for its share of the assets and liabilities and share of the revenue and expenses.

The gain on disposal could be accounted for by company N using one of three approaches, as follows:

#### 1. *Recognise only cash payments received.*

Company N will reduce the carrying value of the mining asset by the C4 million cash received. The C1 million excess over the carrying amount is credited to the income statement as a gain. The C15 million of future expenditure to be paid by Company R on behalf of Company N is not recognised as an asset. As noted above, this approach would be consistent with common industry practice.

**2. Recognise cash payments plus the value of the future assets at the agreement date.**

Company N will recognise the C4 million as above. In addition, they will recognise a “receivable” or intangible asset for the future expenditure to be incurred by company R on company N’s behalf, with a further gain of this amount recognised in the income statement. Company N would have to assess the expected value of the future expenditure. Although one method to estimate this would be the budgeted expenditure of C15 million, Company N would need to assess whether this would be the actual expenditure incurred. Any difference in the final amount would require revision to the asset recognised and also the gain, creating volatility in the income statement.

**3. Recognise cash payment plus the value of future assets received when construction is completed.**

Company N will recognise the C4 million cash received as in ‘1.’ above. When the future assets are completed, these are recognised in the balance sheet, and a gain of the same amount recognised in the income statement. This approach would avoid the volatility issue associated with approach 2.

**7.11 Accounting for joint ventures under IAS 31**

As noted in section 7.1, IFRS 11 becomes effective in non-EU territories in 2013 and 2014 in the EU. Entities may continue to apply IAS 31 until the relevant period of mandatory adoption of IFRS 11.

**7.11.1 Classification of joint ventures**

Under IAS 31, joint ventures are analysed into three classes; jointly controlled operations, jointly controlled assets and jointly controlled entities.

Jointly controlled assets are common in the mining industry and jointly controlled entities in the processing and refining sector. Jointly controlled assets exist when the venturers jointly own and control the assets used in the joint venture. Jointly controlled assets are likely to meet the definition of joint operations when companies adopt IFRS 11.

Jointly controlled operations are arrangements where each venture uses their own property, plant and equipment, raise their own finance and incur their own expenses and liabilities. An example would be an arrangement where one party owns a smelter and another party owns transportation facilities. The second party will market and deliver the mineral ore produced. Each party will bear its own costs and take a share of the revenue generated by the sale of the mineral ore to third party customers.

Jointly controlled entities exist when the venturers jointly control an entity which, in turn owns the assets and liabilities of the joint venture. A jointly controlled entity is usually, but not necessarily, a legal entity, such as a company. The key to identifying an entity is to determine whether the joint venture can perform the functions associated with an entity, such as entering into contracts in its own name, incurring and settling its own liabilities and holding a bank account in its own right.

**7.11.2 Accounting for jointly controlled assets (“JCA”)**

A venturer in a jointly controlled asset arrangement recognises:

- its share of the jointly controlled asset, classified according to the nature of the asset;
- any liabilities the venturer has incurred;
- its proportionate share of any liabilities that arise from the jointly controlled assets;
- its share of expenses from the operation of the assets; and
- its share of any income arising from the operation of the assets (for example, ancillary fees from use by third parties).

Jointly controlled assets tend to reflect the sharing of costs and risk rather than the sharing of profits. An example is an undivided interest in a copper mine where each venturer receives its share of the copper produced, is jointly liable for production costs and is part of the joint control decision making.

### 7.11.3 Accounting for jointly controlled operations (“JCO”)

The parties to the joint operation will share the revenue and expenses of the jointly produced end product. Each will retain title and control of its own assets. The venturer should recognise 100% of the assets it controls and the liabilities it incurs as well as its own expenses, its share of income from the sale of goods or services of the joint operation and its share of expenses jointly incurred.

### 7.11.4 Accounting for jointly controlled entities (“JCE”)

Jointly controlled entities can be accounted for either by proportionate consolidation or using equity accounting using the policy choice available under IAS 31. The policy must be applied consistently to all jointly controlled entities. Proportionate consolidation is eliminated as a policy choice when IFRS 11 is adopted.

The key principles of the equity method of accounting are the same as described in section 7.5.

## 7.12 Transition to IFRS 11

As explained in 7.1, entities may be transitioning to IFRS 11 from 2012 to 2013. For the transition they must re-evaluate the terms of their existing contractual arrangement to ensure that their involvement in joint arrangements are correctly accounted for under the new standard. Joint arrangements that were previously accounted for as joint operations may need to be treated as joint ventures or vice versa on transition to the new standard.

When transitioning from the proportionate consolidation method to the equity method, entities should recognise their initial investment in the joint venture as the aggregate of the carrying amounts that were previously proportionately consolidated.

To transition from the equity method to share of assets and liabilities, entities will derecognise their investment in the jointly controlled entity and recognise their rights and obligations to the assets and liabilities of the joint operation. Their interest in those assets and liabilities may be different from their interest in the jointly controlled entity.

Moving from the equity method to a share of assets and liabilities will not always be a simple process. For example, parties may have contributed specific assets to a joint arrangement. When evaluating interest based on share of assets and liabilities, parties will account for their interest in the arrangement based on the share of assets contributed by them. The interest calculated based on assets contributed will not necessarily result in the same interest that the party may have in the equity of that entity. Where there is a difference between the value recorded under equity accounting and the net value of the gross assets and liabilities, this is written off against opening retained earnings.

Similarly, moving from proportionate consolidation to the equity method could pose challenges. For example, the liabilities of a joint arrangement assessed to be a joint venture may exceed the assets. Netting these may result in the venturer's investment becoming negative. The venturers will then have to assess whether they need to record a liability in respect of that negative balance. This will depend on whether the venture has an obligation to fund the liabilities of the joint arrangement. If there is no obligation, then the balance is written off against opening retained earnings. If there is an obligation, further consideration should be given as to whether the assessment of the arrangement as a joint venture was correct.

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## **8** *Closure and rehabilitation liabilities*

## 8 Closure and rehabilitation liabilities

The mining industry can have a significant impact on the environment. Closure or environmental rehabilitation work at the end of the useful life of a mine or installation may be required by law, the terms of operating licences or an entity's stated policy and past practice.

An entity that promises to remediate damage or has done so in the past, even when there is no legal requirement, may have created a constructive obligation and thus a liability under IFRS. There may also be environmental clean-up obligations for contamination of land that arises during the operating life of the mine or installation. The associated costs of remediation/restoration can be significant. The accounting treatment for closure and rehabilitation costs is therefore critical.

### 8.1 Closure and rehabilitation provisions

A provision is recognised when an obligation exists to perform the rehabilitation. The local legal regulations should be taken into account when determining the existence and extent of the obligation. An obligation might arise if an entity has a policy and past practice of performing rehabilitation activity. A provision is recorded if others have a reasonable expectation that the entity will undertake the restoration.

Obligations to decommission or remove an asset are created at the time the asset is put in place. Mining infrastructure, for example, must be removed at the end of its useful life, typically on closure of the mine. The obligation to remove plant arises from its placement. However, there is some diversity in practice as to whether the entire expected liability is recognised when activity begins, or whether it is recognised in increments as the disturbance occurs. For example, in open cast mining some obligating events might arise over time as the reserves are extracted. The environmental disturbance occurs as the top soil is removed and mineral ore extracted. It may be more appropriate to recognise a provision for the rectification work progressively as the disturbance occurs.

There is also diversity in whether closure liabilities are recognised during the exploration phase of a project. If an obligation to restore the site arises as and when the disturbance occurs, a liability should be recognised at the time of such disturbance even though the entity may be in the exploration phase of the project. The asset and liability recognised at any particular point in time needs to reflect the specific facts and circumstances of the project and the entity's obligations.

Closure provisions are measured at the present value of the expected future cash flows that will be required to perform the decommissioning. The 'best estimate' may be determined by taking into account all possible outcomes and using probabilities to weight these outcomes. There are various tools that can be used to determine the best estimate including the Monte Carlo method.

The cost of the provision is recognised as part of the cost of the asset when it is put in place and depreciated over the asset's useful life. The total cost of the fixed asset, including the cost of closure, is depreciated on the basis that best reflects the consumption of the economic benefits of the asset (typically UoP). Provisions for closure and restoration are recognised even if the closure is not expected to be performed for a long time, for example more than 50 years.

The effect of the time to expected closure will be reflected in the discounting of the provision. The discount rate used is the pre-tax rate that reflects current market assessments of the time value of money. Miners with multi-national operations should select an appropriate discount rate for locations with materially different risks.

Different closure obligations will, naturally, have different inherent risks, for example different uncertainties associated with the methods, the costs and the timing of closure. This is a complex area and careful consideration needs to be given to how to appropriately reflect risks in the cash flow and discount rate.

### 8.2 Capitalise vs expense

The costs of a closure and environmental obligation that arises from mine development activities are capitalised as a cost of the associated asset. The costs are allocated to the related asset and then depreciated over the useful life of that asset. The cost associated with the initial obligation and any adjustments should be correctly allocated and subsequently depreciated.

The costs of closure and environmental obligations that arise from mine production activities are a current cost of production and are included in inventory costs.

It can be challenging to distinguish between obligations that arise from production and those attributable to mine development.

Restoration obligations, for example, that arise from moving material to waste dumps before the mine enters production are generally capitalised as mine development costs. When those same activities occur during the production phase, they may be related to both current period production and mine development. The treatment of the restoration obligations should be consistent with the treatment of the associated waste removal costs.

### 8.3 Revisions to closure and rehabilitation provisions

Closure provisions are updated at each balance sheet date for changes in the estimates of the amount or timing of future cash flows and changes in the discount rate. This includes changes in the exchange rate when some or all of the expected future cash flows are denominated in a foreign currency. Changes to provisions that relate to the removal of an asset are added to or deducted from the carrying amount of the related asset in the current period [IFRIC 1 “Changes in Decommissioning, Restoration and Similar Liabilities” para 5]. However, the adjustments to the asset are restricted. The asset cannot decrease below zero and cannot increase above its recoverable amount [IFRIC 1 para 5]:

- if the decrease in provision exceeds the carrying amount of the asset, the excess is recognised immediately in profit or loss;
- adjustments that result in an addition to the cost of the asset are assessed to determine if the new carrying amount is fully recoverable or not. An impairment test is required if there is an indication that the asset may not be fully recoverable.

The accretion of the discount on a closure liability is recognised as part of finance expense in the income statement.

### 8.4 Deferred tax on closure and rehabilitation provisions

There are two principal acceptable approaches for determining the tax bases of closure assets and liabilities:

- One approach is to allocate the future tax deductions to the asset. On initial recognition, the asset’s tax base is the future tax consequence of recovering the asset at its carrying amount and no temporary difference arises. There is no deduction associated with the liability; leading to its tax base equal to its carrying amount. As there is no temporary difference on the asset and liability at initial recognition, the

initial recognition exemption under IAS 12 (para 15 and 24) is not relevant.

- The alternative approach is to allocate the future tax deductions to the liability. The asset’s tax base is nil as there are no associated tax deductions, so there is a temporary difference equal to the asset’s carrying amount at initial recognition. The liability’s tax base is also nil, so there is a temporary difference equal to the liability’s carrying amount at initial recognition. For closure obligations arising outside of a business combination and which do not affect accounting profit or taxable profit on initial recognition, these temporary differences will be covered by the initial recognition exemption; therefore, no deferred taxes arises on initial recognition.

For subsequent changes to the closure assets and liabilities, it will be necessary to determine how these are accounted for under the relevant approach. Given that different approaches are acceptable, an entity should make clear its accounting policy for deferred tax in closure obligations if this is material and apply it on a consistent basis.

### 8.5 Closure and rehabilitation funds

Many mining entities contribute to a separate fund established to help fund closure and environmental obligations. These funds may be required by regulation or law or may be voluntary.

Typically, a fund is separately administered by independent trustees who invest the contributions received by the fund in a range of assets, usually debt and equity securities. The trustees determine how contributions are invested, within the constraints set by the fund’s governing documents, and any applicable legislation or other regulations. The mining entity then obtains reimbursement of actual decommissioning costs from the fund as they are incurred. However, the mining entity may only have restricted access or no access to any surplus of assets of the fund over those used to meet eligible decommissioning costs.

IFRIC 5 “Rights to Interests arising from Decommissioning, Restoration and Environmental Rehabilitation Funds” provides guidance on the accounting treatment for these funds in the financial statements of the mining entity. Management must recognise its interest in the fund separately from the liability to pay closure and environmental costs. Offsetting is not appropriate.

## 8 Closure and rehabilitation liabilities

Management must determine whether it has control, joint control or significant influence over the fund and account for the fund accordingly. In the absence of these, the fund is accounted for as a reimbursement of the entity's closure and environmental obligation, at the lower of the amount of the decommissioning obligation recognised and the entity's share of the fair value of the net assets of the fund.

Any movements in a fund accounted for as a reimbursement are recognised in the income statement as finance income/expense. The movements in the fund (based on the IFRIC 5 measurement) are assessed separately from the measurement of the provision (under IAS 37).

### Accounting for guarantees

#### Background

In Australia, mining entity A has created a closure and rehabilitation provision in respect of the abandonment liability for the mine.

A has also been required by law to place a performance guarantee equivalent to the estimated total amount required to fulfil the abandonment liabilities at the end of the life of the mine it operates.

How should entity A account for this performance guarantee?

#### Solution

The performance guarantee should be disclosed in the financial statements as a contingent liability as the related liability has already been accounted for under IAS 37.

## 8.6 Termination benefits

Payments made to employees in connection with the closure of a mine must be accounted for under IAS 19 "Employee Benefits".

It is certain that a mine's ore reserves will be exhausted at the end of the life of mine, and it often follows from this that redundancy costs will arise. In this respect, redundancy obligations are very similar to decommissioning obligations.

However, IAS 19 restricts when termination benefits can be recognised, with a liability only recognised when the entity is demonstrably committed to the redundancies by having:

- a detailed formal plan for the terminations; and
- no realistic possibility of withdrawal.

Termination benefits can therefore only be recognised when the closure date has been announced and other recognition criteria are met.

## 8.7 Disclosure

For each class of provision IAS 37 requires disclosure of:

- the nature of the obligation;

- the factors relevant in determining the timing of the expenditure where there is significant uncertainty;
- the amount provided and methods used to determine the amount;
- a statement of whether the amount is discounted, where applicable; and
- any actual or potential offsets to the liability.

Although not required by the standard it is also good practice to disclose the discount rates used to determine the net present value of the liability.

For recognised provisions management must also disclose the movements in each material class of provisions, showing separately:

- additional provisions;
- adjustments to existing provisions;
- amounts used during the year;
- amounts released unused; and
- the interest accrued during the year, if provisions were discounted.

For funds, management must disclose:

- a description of the nature of any interest in a fund; and
- any restrictions on access to the assets of the fund.



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## **9** *Impairment of mining assets*

# 9 Impairment of mining assets

## 9.1 Overview

The mining industry is distinguished by the significant capital investment required and volatile commodity prices. The heavy investment in fixed assets leaves the industry exposed to adverse economic conditions and therefore impairment charges.

Mining assets should be tested for impairment whenever indicators of impairment exist [IAS 36 para 9]. The normal measurement rules for impairment apply to assets with the exception of the grouping of E&E assets with existing producing cash generating units (“CGUs”) as described in section 2.3.7

Impairments are recognised if a CGU’s carrying amount exceeds its recoverable amount [IAS 36 para 6]. Recoverable amount is the higher of fair value less costs to sell (“FVLCTS”) and value in use (“VIU”).

## 9.2 Impairment indicators

Entities must use judgement in order to assess whether an impairment indicator has occurred. If an impairment indicator is concluded to exist, IAS 36 requires that the entity perform an impairment test.

### Impairment indicators (1)

What are some common potential indicators of impairment in the mining industry?

#### Solution

- a significant decline in the market capitalisation of the entity or other entities producing the same commodity;
- a significant deterioration in expected future commodity prices;
- a significant adverse movement in foreign exchange rates;
- a significant increase in production costs;
- a large cost overrun on a capital project such as an overrun during the development and construction of a new mine;
- a significant increase in the expected cost of dismantling assets and restoring the site, particularly towards the end of a mine’s life;
- a significant revision of the life of mine plan;
- higher cut-off grades leading to lower reserves;
- production cut backs;
- serious mine accidents, such as a pit wall failure or underground collapse; and
- adverse changes in government regulations and environmental law, including a significant increase in the tax or royalty burden payable by the mine.

### Impairment indicators (2)

Would a decline in the spot market price of copper be an indicator of impairment for a copper mine?

#### Background

An entity has a producing copper mine. There has been a significant decline in the spot price of copper during the last six months.

Is such decline in the spot price of mineral ore an indicator of impairment of the mine?

#### Solution

Not automatically. The nature of mining assets is that they often have a long useful life. Commodity price movements can be volatile and move between troughs and spikes.

Downward price movements can assume more significance if these are expected to persist for longer periods. This might be evidenced by a decline in forward prices throughout the liquid period. If a decline in prices is expected to be prolonged and for a significant proportion of the remaining expected life of the mine, this is more likely to be an impairment indicator.

Short term market fluctuations may not be impairment indicators if spot prices are expected to return to higher levels within the near future. Such assessments can be difficult to make, with price forecasts becoming difficult where a longer view is taken.

Entities should approach this area with care. The process of defining the level of spot price movement as an indicator of impairment should, in particular, consider the relevant cost base. Downward price movements would be more significant for mines which are high cost producers.

### Impairment indicators (3)

Might a change in government be an indicator of impairment?

#### Background

A mining company has a mining licence in a developing country. The company's investment in the mining assets is substantial. There is a coup in the country and the democratically elected government is replaced by a military regime who have indicated they will introduce a new mineral tax and review the terms of all existing mining licenses.

Does the change in government constitute an indicator of impairment?

#### Solution

Yes. The change in government is a change in the legal and economic environment that may have a substantial negative impact on expected cash flows. The mining assets should be tested for impairment.

Impairment indicators can also be internal in nature. Evidence that an asset or CGU has been damaged or become obsolete is likely to be an impairment indicator; for example a refinery destroyed by fire is, in accounting terms, an impaired asset. Changes in development costs, such as budget overruns may also be potential impairment indicators. Other common indicators are a decision to sell or restructure a CGU or evidence that business performance is less than expected.

Management should be alert to indicators that individual components within a CGU may be impaired; for example learning of a fire at an individual smelter facility would be an indicator of impairment for that smelter as a separate CGU.

### 9.3 Cash generating units

Few assets can be tested in isolation, as nearly all assets are used in integrated groups to generate cash flows for the entity. A 'cash generating unit' or CGU is 'the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows generated from other assets or groups of assets'.

Most mining assets are grouped into CGUs. Each CGU should represent the smallest group of assets that could generate largely independent cash flows.

The determination of CGUs will often be straightforward for the mining industry because an individual mine with its supporting infrastructure will often be a single CGU.

The determination of CGUs can be more complex when a mining entity is involved in processing the output from its mines, including activities such as refining or smelting of metals. If an 'active market' exists for any of the intermediate products in an integrated value chain then each activity would form a separate CGU. This is required even if all of the intermediate products are used internally.

An active market is a market in which all of the following conditions exist:

- the items traded within the market are homogeneous;
- willing buyers and sellers can normally be found at any time; and
- prices are available to the public.

#### Grouping of assets into CGUs

##### Background

The owner of a copper mine also owns a smelter and refinery associated with the mine.

The copper concentrate produced by the smelter and refinery is of a consistent quality and there is an active local market.

For impairment testing would the smelter and refinery represent a separate CGU from the mine?

##### Solution

Yes. The presence of an active market for copper concentrate means that the smelter and refinery can generate cash flows independent of the mine and therefore represents a CGU.

### 9.4 Shared assets

Several mines located in the same region may share assets (for example, port and rail facilities or processing plant). This is common in the coal industry where, for example, an entity might own several mines in the same region and share a common washing plant.

Judgement is involved in determining how such shared assets should be treated for impairment purposes.

Factors to consider include:

- whether the shared assets generate substantial cash flows from third parties as well as the entity's own mines—if so, they may represent a separate CGU
- how the operations are managed

Any shared assets that do not belong to a single CGU but relate to more than one CGU still need to be considered for impairment purposes. There are two ways to do this and management should use the method most appropriate for the entity. Shared assets can be allocated to individual CGUs or the CGUs can be grouped together to test the shared assets.

Under the first approach, the assets should be allocated to each individual CGU or group of CGUs on a reasonable and consistent basis. The cash flows associated with the shared assets, such as fees from other users and expenditure, forms part of the cash flows of the individual CGU.

The second approach has the group of CGUs that benefit from the shared assets grouped together to test the shared assets. The allocation of any impairment identified to individual CGUs should be possible for shared assets used in the processing or transportation of the output from several mines and, for example, could be allocated between the mines according to their current production and mine plans.

### 9.5 Fair value less costs to sell (“FVLCTS”)

Fair value less costs to sell is the amount that a market participant would pay for the asset or CGU, less the costs of sale. The use of discounted cash flows (“DCF”) for FVLCTS is permitted where there is no readily available market price for the asset or where there are no recent market transactions for the fair value to be determined through a comparison between the asset being tested for impairment and a recent market transaction.

FVLCTS is less restrictive in its application than VIU and can be easier to work with. It is more commonly used in practice, particularly for recently-acquired assets. The underlying assumptions in a FVLCTS model are usually, but not always, closer to those that management have employed in their own forecasting process. The output of a FVLCTS calculation may feel intuitively more correct to management.

The assumptions and other inputs used in a DCF model for FVLCTS should incorporate observable market inputs as much as possible. The assumptions should be both realistic and consistent with what a typical market participant would assume. Assumptions relating to forecast capital expenditures that enhance the productive capacity of a CGU can therefore be included in the DCF model, but only to the extent that a typical market participant would take a consistent view.

The amount calculated for FVLCTS is a post-tax recoverable amount. The discount rate applied in FVLCTS should be a post-tax market rate based on a market participant's weighted average cost of capital. As discussed in the Business Combinations section 6.4.6, an asset's fair value reflects the price which would be paid for the individual asset if it were to be acquired separately. Accordingly, any Tax Amortisation Benefit (TAB) that would be available if the asset were acquired separately should be reflected in the fair value of the asset.

The FVLCTS is compared against the carrying amount of the CGU on an after-tax basis; that is, after deducting deferred tax liabilities relating to the CGU/group of CGUs. This is particularly relevant when testing goodwill for impairment. A major driver of goodwill in mining acquisitions is the calculation of deferred tax on the reserves and resources acquired. With relatively high marginal tax rates, the amount of goodwill can be substantial. The use of FVLCTS can alleviate the tension of substantial goodwill associated with depleting assets.

### 9.6 Value in use (“VIU”)

VIU is the present value of the future cash flows expected to be derived from an asset or CGU in its current condition [IAS 36 para 6]. Determination of VIU is subject to the explicit requirements of IAS 36. The cash flows are based on the asset that the entity has now and must exclude any plans to enhance the asset or its

output in the future but include expenditure necessary to maintain the current performance of the asset [IAS 36 para 44]. The VIU cash flows for assets that are under construction and not yet complete (e.g., mine that is part-developed) should include the cash flows necessary for their completion.

The cash flows used in the VIU calculation are based on management's most recent approved financial budgets/forecasts. The assumptions used to prepare the cash flows should be based on reasonable and supportable assumptions. Assessing whether the assumptions are reasonable and supportable is best achieved by benchmarking against market data or performance against previous budgets.

The discount rate used for VIU is pre-tax and applied to pre-tax cash flows [IAS 36 par 55]. This is often the most difficult element of the impairment test, as pre-tax rates are not available in the market place. Arriving at the correct pre-tax rate is a complex mathematical exercise. Computational short cuts are available if there is a significant amount of headroom in the VIU calculation. However, grossing up the post tax rate seldom gives an accurate estimate of the pre-tax rate.

### 9.6.1 Period of projections

The cash flow projections used to determine VIU can include specific projections for a maximum period of five years, unless a longer period can be justified. A longer period may be appropriate for mining assets based on the proved and probable reserves and expected annual production levels. Assumptions on the level of reserves expected to be produced should be consistent with the latest estimates by reserve engineers, annual production rates should be consistent with those for the preceding five years, and price and cost assumptions should be consistent with the final period of specific assumptions. Some assets, such as smelters, may not have a finite life.

### 9.6.2 Commodity prices in VIU

Estimates of future commodity prices will need to be included in the cash flows prepared for the VIU calculation. Management usually takes a longer term approach to the commodity price; this is not always consistent with the VIU rules. Spot prices are used unless there is a forecast price available as at the impairment test date. In the mining industry, for actively traded commodities there are typically forward price curves available and in such circumstances these provide a reference point for forecast price assumptions. Those forecast prices should be used for the future periods covered by the VIU calculation. Where the forward price curve does not extend far enough into the future, the price at the end of the forward curve is generally held steady, unless there is a compelling reason to adjust it.

The future cash flows relating to the purchase or sale of commodities might be known from forward purchase or sales contracts. Use of these contracted prices in place of the spot price or forward curve price for the contracted quantities will generally be appropriate. However, some forward purchase and sales contracts will be accounted for as derivative contracts at fair value in accordance with IAS 39 and are recognised as current assets or liabilities. They are therefore excluded from the IAS 36 impairment test. The cash flow projections used for the VIU calculation should exclude the pricing terms of the sales and purchase contracts accounted for in accordance with IAS 39.

### 9.6.3 Foreign currencies in VIU

Foreign currencies may be relevant to impairment testing for two reasons:

- a) When all the cash flows of a CGU are denominated a single currency that is not the reporting entity's functional currency; and
- b) When the cash flows of the CGU are denominated in more than one currency.

### **(a) CGU cash flows differ from entity's functional currency**

All future cash flows of a CGU may be denominated in a single currency, but one that is different from the reporting entity's functional currency. The cash flows used to determine the recoverable amount are forecast in the foreign currency and discounted using a discount rate appropriate for that currency. The resulting recoverable amount is translated into the entity's functional currency at the spot exchange rate at the date of the impairment test [IAS 36.54].

### **(b) CGU cash flows are denominated in more than one currency**

Some of the forecast cash flows may arise in different currencies. For example, cash inflows may be denominated in a different currency from cash outflows. Impairment testing involving multiple currency cash flows can be complex and may require consultation with specialists.

The currency cash flows for each year for which the forecasts are prepared should be translated into a single currency using an appropriate exchange rate for the time period. The spot rate may not be appropriate when there is a significant expected inflation differential between the currencies. The forecast net cash flows for each year are discounted using an appropriate discount rate for the currency to determine the net present value. If the net present value has been calculated in a currency different from the reporting entity's functional currency, it is translated into the entity's functional currency at the spot rate at the date of the impairment test [IAS 36.54].

The use of the spot rate, however, can generate an inconsistency, to the extent that future commodity prices denominated in a foreign currency reflect long-term price assumptions but these are translated into the functional currency using a spot rate. This is likely to have the greatest impact for operations in countries for which the strength of the local currency is significantly

affected by commodity prices. Where this inconsistency has a pronounced effect, the use of FVLCTS may be necessary. FVLCTS does not impose the same specific restrictions.

### **9.6.4 Assets under construction in VIU**

The VIU cash flows for assets that are under construction and not yet complete should include the cash flows necessary for their completion and the associated additional cash inflows or reduced cash outflows. A mine in development is an example of a part-constructed asset. The VIU cash flows should therefore include the cash flows to complete the development to the extent that they are included in the original development plan and the associated cash inflows from the expected sale of the mineral ore.

## **9.7 Interaction of closure and rehabilitation provisions and impairment testing**

Closure and rehabilitation provisions and the associated cash flows can be either included or excluded from the impairment test, provided the carrying amount of the asset and the cash flows are treated consistently. IAS 36 requires the carrying amount of a liability to be excluded from the carrying amount of a CGU unless the recoverable amount of the CGU cannot be determined without consideration of that liability [IAS 36.76, 78].

This typically applies when the asset/CGU cannot be separated from the associated liability. Closure and rehabilitation obligations are closely linked to the asset that needs to be closed, although the cash flows associated with the asset may be independent of the cash flows of the closure liability. If the carrying value of the closure provision is included in the carrying amount of the CGU, the estimated future cash outflows are included in the DCF model used to determine recoverable amount. However, if the carrying amount is excluded, the cash flows should also be excluded.

### Interaction of closure provision and impairment testing

How is a closure provision included in an impairment test?

#### Background

Entity A incurs expenditure of C100 constructing a mine. The present value of the closure obligation at the date on which the platform is put into service is C25. The present value of the future cash inflows from expected production is C180. The present value of the future cash outflows from operating the mine is C50, and the present value of the future cash outflows from performing the closure of the plant is C25.

#### Solution

The following example illustrates the results of both the inclusion and exclusion of the closure liability in the carrying amount of the CGU and the cash flow projections.

The net present value of future cash flows associated with operating the mine is as follows:

| <b>VIU calculation</b>                                      | <b>Including</b> | <b>Excluding</b> |
|---|------------------|------------------|
| Cash inflows from sale of commodities produced              | 180              | 180              |
| Operating cash outflows                                     | (50)             | (50)             |
| Cash outflows from closure at end of mine life              | (25)             | (-)              |
| <b>Net present value of cash flows (recoverable amount)</b> | <b>105</b>       | <b>130</b>       |
| Carrying amount of PPE (including cost of future closure)   | 125              | 125              |
| Carrying amount of closure provision                        | (25)             | (-)              |
| <b>Net carrying amount of CGU</b>                           | <b>100</b>       | <b>125</b>       |

The recoverable amount in both cases exceeds the carrying amount of the assets and hence, no impairment charge is required. However, if the discount rate used for arriving at the cash outflows from decommissioning is different from that used for the carrying amount of closure provision, a difference in their values could arise.



### 9.8 Goodwill impairment testing

IAS 36 requires goodwill to be tested for impairment at least annually and tested at the lowest level at which management monitors it. The lowest level cannot be higher than the operating segment to which goodwill belongs to under IFRS 8 “Operating Segments”.

The grouping of CGUs for impairment testing should reflect the lowest level at which management monitors the goodwill. If that is on an individual CGU basis, testing goodwill for impairment should be performed on that individual basis. However, when management monitors goodwill based on a group of CGUs the impairment testing of the goodwill should reflect this.

Goodwill is tested for impairment annually and when there are impairment indicators. Those indicators might be specific to an individual CGU or group of CGUs.

IAS 36 requires a bottom up then top down approach for impairment testing and the order in which the testing is performed is crucial. The correct approach is particularly important if there is goodwill, indefinite lived assets, shared assets or corporate assets. First, any individual CGUs with indicators of impairment must be tested and the impairment loss recorded in the individual CGU. Then CGUs can be grouped for the purposes of testing

shared assets, indefinite lived intangibles, goodwill and corporate assets. The amended carrying values of any individual CGUs that have been adjusted for an impairment charge are used as part of the second stage of the impairment test.

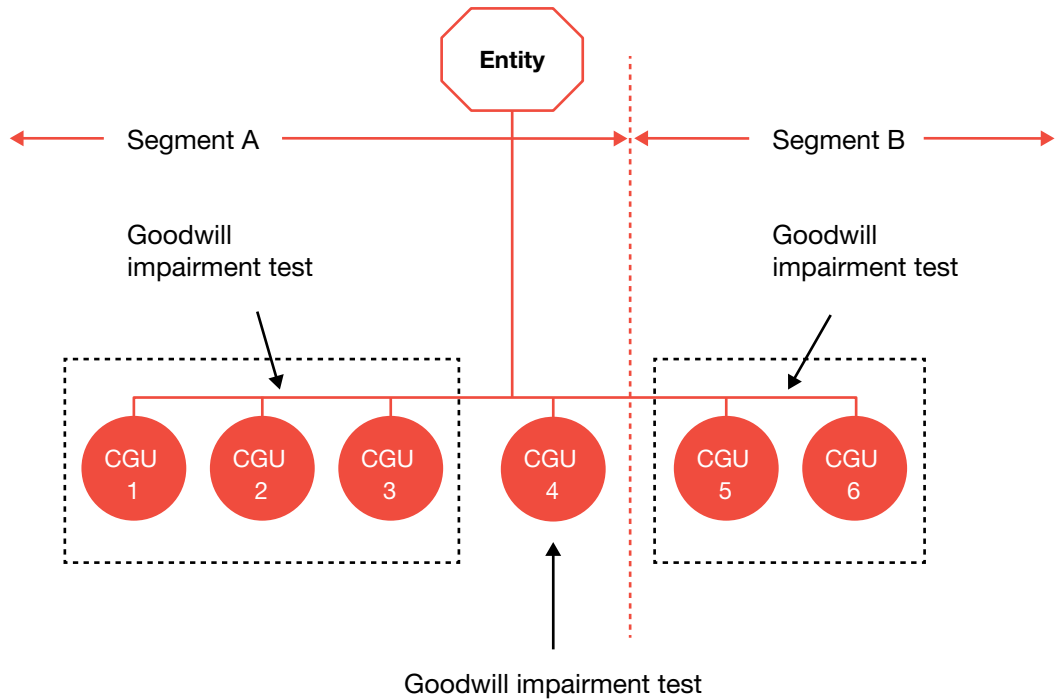
If the impairment test shows that the recoverable amount of the group of CGUs exceeds the carrying amount of that group of CGUs (including goodwill), there is no impairment to recognise. However, if the recoverable amount is less than the combined carrying value, the group of CGUs and the goodwill allocated to it is impaired. The impairment charge is allocated first to the goodwill balance to reduce it to zero, and then pro rata to the carrying amount of the other assets within the group of CGUs. However, if the assessment of impairment indicators and the impairment tests have been performed accurately at the individual CGUs, it is unlikely that a further impairment of fixed assets will be required as a result of the top down test.

Goodwill is also tested for impairment when there is an indicator that it is impaired, or when there is an indicator that the CGU(s) to which it is allocated is impaired. When the impairment indicator relates to specific CGUs, those CGUs are tested for impairment separately before testing the group of CGUs and the goodwill together.

**Impairment testing of goodwill**

At what level is goodwill tested for impairment?

The diagram below illustrates the levels at which impairment testing may be required. The entity has two operating segments, A and B. Segment A comprises four CGUs; segment B comprises two CGUs. The goodwill within segment A is monitored in two parts. The goodwill allocated to CGUs 1, 2 and 3 is monitored on a collective basis; the goodwill allocated to CGU 4 is monitored separately. The goodwill within segment B is monitored at the segment B level—that is, goodwill allocated to CGUs 5 and 6 is monitored on a combined basis.



If there is an impairment indicator for CGU 2, the CGU is tested for impairment separately, excluding the goodwill allocated to it. Any impairment loss calculated in this impairment test is allocated against the assets within the CGU. This allocation of the impairment charge is made on a pro rata basis to the carrying value of the assets within the CGU. The testing of CGU 2 at this level excludes goodwill, so no impairment is allocated against goodwill in this part of the impairment test.

After recording any impairment arising from testing CGU 2 for impairment, CGUs 1, 2 and 3 and the goodwill allocated to them is then tested for impairment on a combined basis. Any impairment loss calculated in this impairment test is allocated first to the goodwill. If the impairment charge in this test exceeds the value of goodwill allocated to CGUs 1, 2 and 3, the remaining impairment charge is allocated against the fixed and intangible assets of CGUs 1, 2 and 3 pro rata to the carrying value of the assets within those CGUs. However, if the assessment of impairment indicators and the impairment tests at CGUs 1, 2 and 3 have been performed accurately, it is unlikely that a further impairment of fixed assets will be required as a result of the top down test.

A similar approach is taken for Segment B (comprising CGUs 5 and 6) and CGU 4. However, because no other CGU is combined with CGU 4 for goodwill impairment testing, there is no need to test CGU 4 for impairment separately from the goodwill allocated to it.

## 9.9 Impairment reversals

The actual results in subsequent periods should be compared with the cash flow projections (used in impairment testing) made in the previous year. Where performance has been significantly better than previously estimated, this is an indicator of potential impairment reversal. Impairment charges are reversed (other than against goodwill) where the increase in recoverable amount arises from a change in the estimates used to measure the impairment. Estimates of variables, such as commodity prices, reflect the expectations of those variables over the period of the forecast cash flows, rather than changes in current spot prices. The use of medium to long term prices for commodities means that impairment charges and reversals tend not to reflect the same volatility as current spot prices.

## 9.10 Disclosure

A number of disclosures are required where an entity has recognised an impairment loss during the period or reversed a previous impairment loss, including:

- the amount of the impairment loss (or reversal), analysed per reportable segment;
- for each material impairment loss (or reversal):
  - the events and circumstances leading to the recognition of the loss (or reversal);
  - an explanation of the nature of the asset or a description of the CGU;
  - whether the recoverable amount is based on FVLCTS or VIU;
  - the basis used to determine FVLCTS (where this is the recoverable amount); and
  - the discount rate used to calculate the recoverable amount, if the recoverable amount is based on a discounted cash flow analysis.
- the main classes of assets affected and the main events and circumstances giving rise to the impairment losses (or reversals) for the aggregate impairment losses (or reversals) not covered by the detailed disclosures summarised above.

Additional disclosures are required in cases where a mining entity has significant amounts of goodwill. These are:

- the carrying amount of the goodwill allocated to a CGU (or group of CGUs);
- the basis on which the CGU's (or group of CGUs') recoverable amount has been determined;

- where the recoverable amount is based on FVLCTS, the methodology used to determine FVLCTS; where it is not based on an observable market price (which will usually be the case), a description of the key assumptions and management's approach to determining key assumptions;
- where the recoverable amount has been calculated by means of a discounted cash flow analysis, the key assumptions (including management's approach to determining key assumptions), the period for which cash flow projections have been prepared (and an explanation as to why this exceeds five years, where relevant), and the discount rate; and
- where a reasonably possible change in a key assumption would cause an impairment loss, the amount of headroom between the recoverable amount and the carrying amount, the value assigned to the assumption and the amount by which the value assigned to the assumption would have to change in order to eliminate the headroom.

These disclosures are required for:

- any individual CGUs (or groups of CGUs) that account for a significant proportion of the entity's total goodwill; and
- any CGUs (or groups of CGUs) that do not account for a significant proportion of the entity's goodwill individually but are affected by the same key assumptions and account for a significant proportion of the entity's goodwill in aggregate.

An entity may need to disclose its commodity price and foreign exchange rate assumption(s) in order to meet the above disclosure requirements, given that the value of each key assumption must be disclosed where a reasonably possible change to the assumption would cause an impairment loss.

Where goodwill or an indefinite lived intangible asset is not allocated to a CGU, entities are encouraged to disclose the assumptions used to determine the recoverable amount of each asset (or CGU). If a change in these assumptions have a significant risk of resulting in an impairment being recognised, disclosure of these assumptions is required in terms of IAS 1.

Similar disclosures to those required for goodwill also need to be made for intangible assets with indefinite lives, although this rarely applies to mining entities.

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## ***10 Royalties and income taxes***

# 10 Royalties and income taxes

Mining taxes can arise due to specific legislation or separate negotiation with the authorities and generally fall into two main categories—those that are calculated on profits earned (income taxes) and those calculated on sales (royalty or production taxes). The categorisation is crucial: royalty and production taxes are deducted from revenue or included in operating expenses, while income taxes usually require deferred tax accounting. In some countries the authorities may also charge “production taxes”: charges which are based on a specified tax rate per quantity of mineral ore extracted regardless of whether that mineral ore is subsequently sold. Such taxes may be recognised as operating expenses.

## 10.1 Mining taxes—royalty and excise

Mining taxes that are calculated by applying a tax rate to volume or a measure of revenue which has not been adjusted for expenditure do not fall within the scope of IAS 12 and are not income taxes. Determining whether a mining tax represents an income tax can require judgement.

Mining taxes outside the scope of IAS 12 do not give rise to deferred tax liabilities. Revenue-based and volume-based taxes are recognised when the revenue is recognised or production occurs [IAS 18 para 8]. These taxes are most often described as royalty or production taxes. They are measured in accordance with the relevant tax legislation and a liability is recorded for amounts due that have not yet been paid to the government. No deferred tax is calculated. The smoothing of the estimated total tax charge over the life of a mine is not appropriate [IAS 37 para 15, 36].

Royalty and production taxes are in effect the government’s share of the natural resources exploited and are a share of production free of cost. They may be paid in cash or in kind. If in cash, the entity sells the mineral ore and remits to the government its share of the proceeds.

## 10.2 Mining taxes based on profits

Mining taxes that are calculated by applying a tax rate to a measure of profit fall within the scope of IAS 12 [IAS 12 para 5] and are accounted for as income taxes. The profit measure used to calculate the tax is that required by the tax legislation and will, accordingly, differ from the IFRS profit measure. Profit in this context is revenue less costs as defined by the relevant tax legislation, and thus might include costs that are capitalised for financial reporting purposes.

Mineral taxes on income are often ‘super’ taxes applied in addition to ordinary corporate income taxes. The tax may apply only to profits arising from specific geological areas or sometimes on a mine-by-mine basis within larger areas. The mineral tax may or may not be deductible when determining corporate income tax; this does not change its character as a tax on income. The computation of the tax is often complicated. There may be a certain volume of production which is free of tax, accelerated depreciation and additional tax credits for investment. Often there is a minimum tax computation as well. Each complicating factor in the computation must be separately evaluated and accounted for in accordance with IAS 12.

Deferred tax must be calculated in respect of all taxes that fall within the scope of IAS 12 [IAS 12 para 15, 24]. The deferred tax is calculated separately for each tax by identifying the temporary differences between the IFRS carrying amount and the corresponding tax base for each tax. Mineral income taxes may be assessed on a mine-specific basis or a regional basis. An IFRS balance sheet and a tax balance sheet will be required for each area or mine subject to separate taxation for the calculation of deferred tax. See section 10.6 for a more detailed discussion of the relevant deferred tax issues.

The tax rate applied to the temporary differences will be the statutory rate for the relevant tax. The statutory rate may be adjusted for certain allowances and reliefs in certain limited circumstances where the tax is calculated on a mine-specific basis without the opportunity to transfer profits or losses between mines [IAS 23 para 47, 51].

### 10.3 Resource rent taxes

Resource rent taxes are becoming more common in the mining and resources industry. The determination of whether resource rent tax is an income tax or royalty is important to the amount and presentation of both the balance sheet and the income statement. It is a key judgement.

A number of factors should be considered to determine if a particular tax is in the scope of IAS 12.

Some of the factors that indicate that a particular tax may be in the scope of IAS 12 are:

- Charged on the overall result of the company from activities (e.g. mining, processing and marketing);

- Reference to specific mining areas instead of the whole company's operation in the respective country;
- Reference to profits for the year; and
- Charged to all entities operating in the country/area.

Some of the factors that indicate that a particular tax may not be in the scope of IAS 12 are:

- Reference to physical quantities as opposed to profits;
- Caps and collars established in relation to the amounts payable;
- Charged on areas of interest only; and
- Reference to gross proceeds rather than profit.

#### Classification as income tax or royalty

Do Resource Rent Taxes (RRT) fall within the scope of IAS 12?

#### Background

Entity A has an interest in a mine. The mine is subject to RRT.

The determination of the amount of RRT payable by an entity is set out in the tax legislation. The RRT payable by an entity is calculated based on the profits earned from the production of mineral ore.

The profits against which RRT is calculated are determined by legislation. The RRT taxable profit is calculated as the revenue earned from the sale of mineral ore, on an accruals basis, less the costs incurred to produce and deliver the mineral ore to its point of sale.

The deductible costs permitted by the legislation include all direct costs of production and delivery. Capital type costs are allowable as incurred—there is no spreading/amortisation of capital costs as occurs in financial reporting or corporation tax calculations.

The non-deductible costs are financing costs, freehold property costs and certain other types of costs. However, an additional allowance (“uplift”) against income is permitted in place of interest costs. The uplift deduction is calculated as 35% of qualifying capital expenditure.

#### Solution

RRT falls within the scope of IAS 12. It is calculated by applying the stated tax rate to a measure of profit that is calculated in accordance with the tax legislation.

**How should management account for RRT tax losses?****Background**

Entity A has an interest in a mine. The mine is subject to Resource Rent Tax (RRT). Entity A has incurred RRT losses in prior years of C30,000. These losses arose because a deduction for capital expenditure can be made in the year in which agreement is reached with the tax authorities rather than spread over future periods. The RRT rules allow the losses to be carried forward indefinitely, and used against future RRT. The losses include the 100% basic deduction and the 35% super deduction (uplift) permitted by the tax authorities for qualifying capital expenditure.

The statutory RRT tax rate is 45%. The effective RRT rate that reflects reliefs is 41%. Entity A's management expect that the mine will be sufficiently profitable over its life to absorb all of the C30,000 RRT losses carried forward.

At what value should A's management recognise deferred RRT in respect of the RRT losses carried forward?

**Solution**

Entity A's management should recognise a deferred tax asset of C13,500 (C30,000 x 45%). The temporary difference arising in respect of the RRT losses is a deductible temporary difference of C30,000. The appropriate RRT rate to apply to the temporary difference is the statutory rate.

**10.4 Discounting of mineral taxes**

Under IAS 12, tax liabilities shall be measured at the amount expected to be paid to the taxation authorities and accordingly would not be discounted. Accordingly, mineral taxes which fall within the scope of IAS 12 would not be discounted. Mineral taxes outside the scope of IAS 12 must be measured after considering the effects of discounting.

**10.5 Royalties to non-governmental bodies and retained interests**

Mineral "taxes" do not always relate to dealings with government authorities. Sometimes arrangements with third parties are such that they result in the payment of a royalty. For example, one party may own the licence to a mine which is used by an operating party on the terms that once the operator starts producing, it must pay the licence holder a percentage of its profits or a percentage of production.

In cases where the licence holder receives a fixed payment per unit extracted or sold, it would generally be in the nature of royalty. However, if the licence holder is entitled to a portion of the mineral ore extracted, it could potentially mean that the licence holder retains an interest in the mine.

It would be important to consider whether the licence holder has a claim on the profits of the entity or on its net assets. If the licence holder retains an interest in the net assets of the entity, it would have to be accounted for under the relevant IFRS.

**10.6 Deferred taxation**

Most transactions and events recorded in the financial statements have a tax consequence. The amount of tax payable on the taxable profits for a particular period often bears little relationship to the amount of income and expenditure appearing in the financial statements, as tax laws and financial accounting standards differ in their recognition of income, expenditure, assets and liabilities.

The tax charge in profit or loss reflects not only the charge based on taxable profit (or loss) for the year, but also an amount that recognises the tax effects of transactions appearing in the financial statements in one period, which will fall to be taxed in a different period. The recognition of this additional amount gives rise to deferred taxation.

Examples where such differences arise include the following:

- capitalised stripping costs which may be deducted in the current year for tax purposes;
- there may be accelerated deductions allowed for calculating taxable income that create temporary differences between the tax written-down value of an asset and its carrying value for accounting purposes (refer to example 1 below); and
- a fair value adjustment to the accounting value of an asset acquired as part of a business combination may have nil impact on the tax value of the asset.

### 10.6.1 Balance sheet liability method

IAS 12 requires the use of the 'balance sheet liability method' and requires a deferred tax liability or asset to be recognised in respect of temporary differences that exist at the balance sheet date. Temporary differences are defined as 'differences between the carrying amount of an asset or liability in the balance sheet and its tax base'. The deferred tax expense for the period represents the amount required to adjust the net deferred tax liability or asset to the new balance at each reporting date.

The balance sheet liability method requires an asset recorded in the financial statements to be realised for at least its carrying amount in the form of future economic benefits, even where timing differences do not give rise to tax obligations in their own right. These may give rise to amounts that enter into the determination of taxable profits and result in the recognition of a deferred tax liability.

This is commonly seen on the fair value uplifts on mining licences in business combinations. IAS 12 requires the recognition of a deferred tax liability; this is released to taxation expense at the same time as the fair value adjustment is charged to depreciation.

### 10.6.2 Tax base

Deferred tax is calculated on the difference between the carrying amount of an asset or liability in the balance sheet and its tax base. The tax base of an asset or liability is defined as 'the amount attributed to that asset or liability for tax purposes'.

#### 10.6.2.1 Tax base of an asset

The tax base of an asset is the amount that will be deductible from any taxable income derived when the carrying amount of the asset is recovered.

Examples include:

- mining equipment—the tax base is usually the written-down value for tax purposes (the amount that can still be claimed as a deduction in future periods); and
- receivables from the sale of concentrate—the tax base will be equal to the carrying value in the accounts if the revenue is taxed on an accruals basis and therefore has already been included in taxable income.

#### 10.6.2.2 Tax base of a liability

The tax base of a liability is its carrying amount minus any amount that will be deductible for tax purposes in respect of that liability in future periods. For revenue received in advance, the carrying amount will be reduced by revenue that will not be taxable in future periods.

Examples include:

- provisions for future restoration costs—the tax base will be nil if the costs are deductible at the time when the restoration work is undertaken (but not when the costs are accrued); and
- trade creditors:
  - if the related expenditure has already been deducted for tax purposes, the tax base is equal to the carrying amount of the liability;
  - if the related expenses will be deducted on a cash basis, the tax base is nil; and
  - if the creditors relate to the acquisition of fixed assets, the payment has no tax consequences, and the tax base equals the carrying amount.



### 10.6.3 Recognition

A deferred tax asset or liability is recognised for a temporary difference between the accounting carrying value and the tax base of an asset or liability. For an asset to be recognised, it must be probable that when it is realised it will create future economic benefits. In other words, it must be probable that there will be a taxable profit against which the deductible temporary differences can be used. A deferred tax liability should always be recognised in full.

There are exceptions to these rules for deferred tax assets or liabilities that arise from:

- the initial recognition of goodwill; and
- the initial recognition of an asset or a liability (as long as the recognition does not affect the accounting profit or the taxable income at that time and the transaction is not a business combination).

### 10.6.4 Measurement

The deferred tax assets and liabilities are measured at tax rates expected to apply when the associated asset is realised or liability settled.

The measurement must reflect the manner in which the asset or liability is expected to be recovered or settled. For example, if the tax rate on gains on disposal is different from the tax rate on other income and the entity expects to sell the asset without further use, the tax rate applicable for disposals is used.

Where there is an intention for the asset to be used to generate income for a period of time and then sold, a blended rate should be utilised which reflects management's intention of both the timing of the disposal and the carrying value which will be recovered through both use and sale. In such a circumstance, it is not appropriate to only use the tax rate applicable for disposals nor that applicable to income, rather a rate that does reflect the actual plans of the entity.

Discounting of deferred tax assets and liabilities is not permitted under IAS 12.

### 10.6.5 Tax losses

A deferred tax asset is recognised for the estimated future tax benefit relating to unused tax losses and unused tax credits if it is probable that taxable profits will be available against which the deferred tax asset can be used.

Mining operations often generate significant tax losses in the exploration, evaluation and development phases, which are subsequently recouped through sale of product over many years. When is it appropriate to recognise a deferred tax asset in relation to tax losses available?

In assessing the probability that the losses will be recouped and therefore whether the deferred tax asset is recognised, management must first consider if any expiry period under relevant tax legislation exists. Any assessment of future taxable profits against which these losses are recouped must not be over a longer period than the tax loss expiry period.

Cash flows used to determine future taxable profits are generally based on the same assumptions as those used for forecasting cash flows in impairment assessments.

### 10.6.6 Tax holidays

Governments may offer tax concessions to encourage development of mine sites in the form of temporary tax holidays or concessional tax rates. Where entities receive such benefits, an entity should record a deferred tax based on the expected future tax consequences.

Deferred tax on temporary differences reversing within the tax holiday period is measured at the tax rates that are expected to apply during the tax holiday period, which is generally the nil tax rate. Deferred tax on temporary differences reversing after the tax holiday period is measured at the tax rates that will apply after the tax holiday period.

### 10.6.7 Deferred tax and acquisitions of participating interests in joint operation which is not a legal entity

The deferred tax consequences of the acquisition of a participating interest in a joint operation which is not a legal entity are discussed in section 6.9. The initial recognition exemption applies and deferred tax is not recognised if the transaction is not deemed to be a business combination.

#### 10.6.7.1 Why does deferred tax not arise on acquisition of an interest in a joint venture?

The initial recognition exemption ('IRE') is applicable on the acquisition of an asset and no deferred tax is recognised. The IRE applies to temporary timing differences which arise from transactions which are not business combinations and affect neither accounting profit nor taxable profit. These criteria would be considered to apply to:

- Acquisitions of participating interests in joint operations which are not legal entities; and
- Acquisitions of interests in jointly controlled entities

Application of the IRE is mandatory and must be used when the tax base of the acquisition costs differs from the accounting base. The IRE is not applied where there is no such difference, but this has the same result of no deferred tax being recognised.

From a tax perspective, acquisitions of an additional interest in an asset or entity are treated the same as if the asset or entity were being acquired for the first time. The application of the IRE is required for each acquisition of an additional interest that does not provide control over the asset or entity.

In March 2012 the IFRS Interpretations Committee made a recommendation to the IASB on an amendment to IFRS 11 in relation to the acquisition of interests in joint operations. Should the IASB adopt the recommendation, deferred tax would arise for such a transaction. Section 6.9 explains this in more detail.

#### 10.6.7.2 Timing differences arising subsequent to acquisition

Timing differences between the carrying value of the investment and the tax base will often arise subsequent to the initial acquisition for investment in jointly controlled entities. Investors should consider whether the exemption in IAS12.39 for interests in joint arrangements where the venturer is able to control the timing of reversal of the temporary difference can be applied to avoid recognition of a deferred tax liability.

The exemption allows a joint venturer or joint operator not to recognise a deferred tax liability where they are able to control the timing of the reversal of the related temporary difference and be able to conclude that it is probable it will not reverse in the future. In joint ventures, the determining factor will be whether the contractual arrangement provides for the retention of profit in the joint venture, and whether the venturer can control the sharing of profits. From a tax perspective, the ability to control the sharing of profits is viewed as the ability to prevent their distribution rather than enforce their distribution.

## 10.7 Disclosure

The disclosure requirements set out in IAS 12 are addressed below.

### 10.7.1 Accounting policy

Disclose an accounting policy explaining

- how taxes and royalties are accounted for;
- how royalties are assessed as within the scope of IAS 12 or otherwise
- presentation of royalty and production taxes

### 10.7.2 Tax expense

Disclose the major components of tax expense separately with:

- a reconciliation between the tax expense and the profit multiplied by the statutory tax rate; or
- a reconciliation between the average effective tax rate and the applicable tax rate.

Also disclose:

- an explanation of any change in tax rates.

### **10.7.3 Temporary differences**

For each type of temporary difference, disclose:

- the amount of any temporary differences not recognised as a deferred tax asset;
- the amount of the deferred tax assets and liabilities recognised in the balance sheet; and
- the amount of deferred tax income or expense recognised in the income statement.

### **10.7.4 Recognition of deferred tax asset**

Disclose the amount of deferred tax asset and evidence supporting the asset when:

- the use of the asset depends on future taxable profits;
- the entity has suffered a loss in the current or preceding year; and
- tax losses are carried forward.

### **10.7.5 Netting deferred tax assets and liabilities**

Deferred tax assets and liabilities can only be disclosed net where there is a right of offset; i.e. the following conditions are met:

- the tax liabilities and assets are in relation to the same tax authority/country;
- taxes relate to the same tax grouping; and
- taxes are expected to be settled or recovered net.

### **10.7.6 Other disclosures**

- The tax consequences of dividends proposed or declared before the issue of the financial statements but not recognised as a liability in the financial statements
- The existence and financial effect of any tax holiday.

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## ***11 Functional currency***

# 11 Functional currency

## 11.1 Overview

Mining entities commonly undertake transactions in more than one currency, as commodity prices are often denominated in US dollars and costs are typically denominated in the local currency. Determination of the functional currency can require significant analysis and judgement.

An entity's functional currency is the currency of the primary economic environment in which it operates. This is the currency in which the entity measures its results and financial position. A group comprised of multiple entities must identify the functional currency of each entity, including joint ventures and associates. Different entities within a multinational group often have different functional currencies. The group as a whole does not have a functional currency.

An entity's presentation currency is the currency in which it presents its financial statements. Reporting entities may select any presentation currency (subject to the restrictions imposed by local regulations or shareholder agreements). However, the functional currency must reflect the substance of the entity's underlying transactions, events and conditions; it is unaffected by the choice of presentation currency. Exchange differences can arise for two reasons: when a transaction is undertaken in a currency other than the entity's functional currency; or when the presentation currency differs from the functional currency.

## 11.2 Determining the functional currency

Identifying the functional currency for an mining entity can be complex because there are often significant cash flows in both the US dollar and local currency. Management should focus on the primary economic environment in which the entity operates when determining the functional currency. The denomination of selling prices is important but not determinative. Many sales within the mining industry are conducted either in, or with reference to, the US dollar. However, the US dollar may not always be the main influence on these transactions. Although entities may buy and sell in dollar denomination, they are not exposed to the US economy.

Dollar denomination is a pricing convention rather than an economic driver. Instead, the main influence on the entity is demand for the products and ability to produce the products at a competitive margin, which will be dependent on the local economic and regulatory environment. Accordingly, it is relatively common for mining entities to have a functional currency which is their local currency rather than the US dollar, even where their sales prices are in dollars.

Functional currency is determined on an entity by entity basis for a multi-national group. It is not unusual for a multi-national mining company to have many different functional currencies within the group. There are three primary indicators of functional currency:

- the currency that mainly influences sales prices for goods and services;
- the currency of the country whose competitive forces and regulations mainly determine the sales prices of its goods and services; and
- the currency that mainly influences labour, material and other costs of providing goods and services.

It is difficult to identify a single country whose competitive forces and regulations mainly determine selling prices of commodities in mining. If the primary indicators do not provide an obvious answer to the functional currency question, the currency in which an entity's finances are denominated should be considered i.e., the currency in which funds from financing activities are generated and the currency in which receipts from operating activities are retained.

If the primary and secondary indicators are mixed and inconclusive, management judgement should be considered to determine the functional currency that most faithfully represents the economic effects of the underlying transactions, events and conditions.

### How to determine the functional currency of an entity with products normally traded in a non-local currency (1)

What is the functional currency of an entity which is based in the Dominican Republic but prices all products sold in US dollars?

#### Background

Entity A operates a gold mine in the Dominican Republic. All of the entity's income is denominated and settled in US dollars. Refined gold ore is primarily sold to US banks. The gold price is subject to the global supply and demand, and gold is routinely traded in US dollars around the world. Around 55% of entity A's cash costs are imports or expatriate salaries denominated in US dollars. The remaining 45% of cash expenses are incurred in the Dominican Republic and denominated and settled in Dominican pesos. The non-cash costs (depreciation) are US dollar denominated, as the initial investment was in US dollars.

#### Solution

The factors point toward the functional currency of entity A being the US dollar. The product is primarily exported to the US. The revenue analysis points to the US dollar. The cost analysis is mixed. Depreciation (or any other non-cash expenses) is not considered, as the primary economic environment is where the entity generates and expends cash. Operating cash expenses are influenced by the pesos (45%) and the US dollar (55%). Management is able to determine the functional currency as the US dollar, as the revenue is clearly influenced by the US dollar and expenses are mixed.

### How to determine the functional currency of an entity with products normally traded in a non-local currency (2)

What is the functional currency of an entity which is based in South Africa but prices all products sold in US dollars?

#### Background

Entity A operates a producing coal mine in South Africa and sells their product domestically. All of the entity's income is denominated in US dollars but is settled in a mixture of US dollars and South African Rand. Around 35% of entity A's cash costs are expatriate salaries denominated in US dollars. The remaining 65% of cash expenses are incurred and settled in South African Rand.

#### Solution

The factors point toward the functional currency of entity A being the South African Rand. Although selling prices are determined in US dollars, the demand for the product is dependent on the local economic environment in South Africa. Although the cost analysis is mixed based, on the level of reliance on the South African marketplace for revenue and margin management is able to determine the functional currency as the South African Rand.

Determining the functional currency of holding companies and treasury companies may present some unique challenges; these have largely internal sources of cash although they may pay dividends, make

investments, raise debt and provide risk management services. The underlying source of the cash flows to such companies is often used as the basis for determining the functional currency.

### **11.3 Change in functional currency**

Once the functional currency of an entity is determined, it should be used consistently, unless significant changes in economic facts, events and conditions indicate that the functional currency has changed.

Mining entities at different stages of operation may reach a different view about their functional currency. A company which is in the exploration phase may have all of its funding in US dollars and be reliant on their parent company. They may also incur the majority of its exploration costs in US dollars (the availability of mining equipment may require this to be sourced from the US). At this stage they may conclude US dollars as being the functional currency.

However, when it reaches the development phase, its transactions may be predominantly denominated in local currency as they are more reliant on the local workforce and suppliers to perform the development activity. The functional currency may then change to being the local currency.

The functional currency may then change again when the project reaches the production phase and revenue is generated in US dollars. As explained above, a selling price in dollars would not automatically mean that the functional currency is US dollars and factors such as the territory the company sells to and marketplace in which they operate would have to be considered. This does, however, illustrate that determination of the functional currency can be an ongoing process and conclusions may change depending on the current facts and circumstances.

A change in functional currency should be accounted for prospectively from the date of change. In other words, management should translate all items (including balance sheet, income statement and statement of comprehensive income items) into the new functional currency using the exchange rate at the date of change. Because the change was brought about by changed circumstances, it does not represent a change in accounting policy and a retrospective adjustment under IAS 8 is not required.

The resulting translated amounts for non-monetary items are treated as their historical cost. It would be consistent that the equity items are also translated using the exchange rate at the date of the change of functional currency. This means that no additional exchange differences arise on the date of the change.

Entities should also consider presentation currency when there is a change in functional currency. A change in functional currency may be accompanied by a change in presentation currency, as many entities prefer to present financial statements in their functional currency. A change in presentation currency is accounted for as a change in accounting policy and is applied retrospectively, as if the new presentation currency had always been the presentation currency. It may be that the presentation currency does not change when there is a change in functional currency.

For example, an entity previously presented its financial statements in its functional currency being Euros. Subsequently on account of certain change in economic facts its functional currency changes to US dollar. Since it is based in a country where Euros is the local currency, it does not wish to change its presentation currency and so continues to present its financial statements in Euros. In such a case the numbers in the entity's financial statements for the period up to the change in functional currency do not change in presentational currency terms. From the point that the functional currency changes new foreign exchange differences will arise in the entity's own financial statements when items expressed in the new functional currency are translated into the presentation currency.

### **11.4 Hyperinflationary economies**

Mining operations may be located in a country that is experiencing hyperinflation. IAS 29 "Financial Reporting in Hyperinflationary Economies" describes a number of characteristics that indicate hyperinflation, including a cumulative inflation rate over three years which approaches, or exceeds, 100 percent.

If the functional currency is determined to be the US Dollar the normal translation requirements described above apply.

## 11 Functional currency

If the functional currency is determined to be the local currency, IAS 29 requires the entity's local currency financial statements (including the corresponding figures for earlier periods) to be restated to reflect current price levels in accordance with the specific rules in IAS 29. These restated financial statements can then be translated into a different, non-hyperinflationary presentation currency (as would often be the case for a reporting entity with a subsidiary operating in a hyperinflationary environment). All amounts (i.e., income, expenditure and equity items, not just assets and liabilities) are translated at the exchange rate on the most recent balance sheet date, including comparative figures.

A mining entity does not have the option to use another currency (such as the US Dollar) as its functional currency to avoid the need to restate its local currency financial statements at current price levels. The functional currency must be determined on the basis of the indicators described above.

### 11.5 Disclosure

There is no explicit requirement to disclose an entity's accounting policies in respect of foreign currency transactions. However, IAS 1 requires disclosure of significant accounting policies that are relevant to providing a true understanding of the financial statements, which is likely to include the policies relating to foreign currency transactions for most mining entities. Where significant judgement is involved in determining the functional currency, some disclosure of this will also be needed to meet the IAS 1 requirements for the disclosure of significant judgements.

Some of the disclosure requirements that can impact mining entities include:

- the aggregate net exchange difference recognised through the income statement (excluding amounts arising on financial instruments measured at fair value through the income statement);
- the aggregate net exchange difference classified in a separate component of equity (and a reconciliation of the movements during the year);
- when the presentation currency is different from the functional currency, that fact shall be stated, together with disclosure of the functional currency and the reason for using a different presentation currency; and
- currency risks and how these risks are managed, as required by IAS 32 "Financial Instruments: Disclosure and Presentation" and IFRS 7 "Financial Instruments: Disclosures".

Exchange differences can be classified in the income statement according to the nature of the item to which they relate. Exchange differences arising from trading transactions may therefore be included in the results of operating activities and exchange differences relating to financing (such as US Dollar debt in a mining entity with its local currency as the functional currency) may be included as a component of the finance cost/income.



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## *12 Leasing*

# 12 Leasing

## 12.1 Overview

The IASB has an ongoing project on leasing. The new standard is likely to contain a model for lessee accounting whereby all existing and new leases with a term of greater than one year will be recognised on balance sheet. A final standard is not expected to be issued until 2013 at the earliest. This section deals with the current requirements of IAS 17 “Leases”.

IAS 17 excludes application to leases to explore for or use minerals and similar non-regenerative resources. The exemption includes exploration and prospecting licences. IAS 17 is, however, applicable to other arrangements that are in substance a lease, and this would include the plant and machinery used to perform the exploration activity.

Many mining entities enter into other arrangements that convey a right to use specific assets and these may need to be classified as leases. Examples of such arrangements include:

- service agreements;
- through put arrangements;
- tolling contracts;
- contractor facilities at mine sites;
- energy-related contracts; and
- transportation service contracts

## 12.2 When does a lease exist?

IFRIC 4 establishes criteria for determining whether a contract should be accounted for as a lease.

The following conditions must be met for an arrangement to be considered a lease:

- fulfilment of the arrangement is dependent on the use of a specific asset; and
- the arrangement conveys the right to use the asset.

### 12.2.1 Use of a specific asset

A specific asset is identified either explicitly or implicitly in an arrangement. A specific asset is implicitly identified when:

- it is not economically feasible or practical for the supplier to use alternative assets;
- the supplier only owns one suitable asset for the performance of the obligation;

- the asset used needs to be at a particular location or is specialised; or
- the supplier is a special purpose entity formed for a limited purpose.

An arrangement that involves the use of assets located at or near a mine, where the geographical isolation precludes any practical form of substitution of the assets, would often meet this test.

### 12.2.2 Right to use the specific asset

Payment provisions under an arrangement should be analysed to determine whether the payments are made for the right to use the asset, rather than for the actual use of the asset or its output. This requires a consideration of whether any of these conditions are met:

- the purchaser has the ability (or right) to operate or direct others to operate the asset in a manner it determines while obtaining (or controlling) more than an insignificant amount of the output of the asset;
- the purchaser has the ability (or right) to control physical access to the asset while obtaining (or controlling) more than an insignificant amount of the output of the asset; and
- the purchase price is not a fixed/market price per unit of output, and it is remote that any third party will take more than an insignificant amount of the output of the asset.

Arrangements in which mining entity takes substantially all of the output from a dedicated asset will often meet one of the above conditions, resulting in treatment as a lease. This occurs sometimes in the mining industry because of the remote location of mines.

### 12.2.3 Reassessment of whether an arrangement contains a lease

The reassessment of whether an arrangement contains a lease after inception is required if any of the following conditions are met:

- a change is made to the contractual terms, other than renewals and extensions;
- a renewal option is exercised or an extension is agreed that had not been included in the initial arrangement;

- a change is determined in relation to the assessment of whether fulfilment is dependent on a specified asset; or
- there is a substantial change to the asset.

The above conditions require arrangements to be continued to be assessed for treatment as a lease, however a change in the determination of whether other parties obtain more than an insignificant amount from an asset is not a reassessment trigger.

For example, where a third party previously identified as obtaining more than an insignificant amount of an asset's output shuts production, the entity continuing to operate is not required to reassess the arrangement under IFRIC 4.

### 12.3 Accounting for a lease

When an arrangement is within the scope of IFRIC 4, cash flows under the arrangement must be separated into their respective components. The components frequently include the right to use the asset, service agreements, maintenance agreements, and fuel supply. The payments for the right to use the asset are accounted for as a lease in accordance with the guidance in IAS 17. This includes the classification of the right of use as either an operating lease or a finance lease. The accounting for the other components is in accordance with the relevant guidance in IFRS.

#### 12.3.1 Operating lease

If an arrangement contains an operating lease, the specific asset leased remains on the balance sheet of the lessor. Operating lease payments are recognised by the lessee on a straight-line basis over the life of the lease.

#### 12.3.2 Finance lease

If an arrangement contains a finance lease, the specific asset leased is recorded on the balance sheet of the lessee and not the lessor. The lessor recognises a lease receivable which falls within the scope of IAS 39's derecognition and impairment provisions.

The impact of this accounting treatment to the lessee is a gross-up on the balance sheet of both assets and liabilities, whilst earnings will be impacted by the depreciation of the leased asset as well as an imputed interest charge. As a result of the finance lease accounting treatment, the earnings profile and key financial ratios may be materially impacted.

### 12.4 Disclosure

IAS 17 contains detailed disclosure requirements for leases. Common disclosures required include:

- a general description of an entity's significant lease arrangements;
- the total of future minimum lease payments and the present value for each of the following periods:
  - no later than one year;
  - later than one year and not later than five years; and
  - later than five years; and
- the carrying amount of assets held under finance leases.

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## ***13 Operating segments***

# 13 Operating segments

## 13.1 Overview

Mining companies often operate in a range of geographic locations and, in many cases, produce a diverse range of mineral commodities from numerous mines. The core principle of segment reporting is to provide information to the users of financial statements to enable them to evaluate the nature, economic environments and financial effects of the business activities in which a company operates. For mining companies, a key element of transparent financial reporting is the ability of a user to understand financial information and operating results from each of a company's mines. Although the user may want detailed information at a mine level, companies often manage on a geographic or even product group basis. Financial reporting requirements for segment reporting are covered in IFRS 8.

## 13.2 Guidance on what constitutes an operating segment

An operating segment is defined as a component of an entity:

- that engages in business activities from which it may earn revenues and incur expenses;
- for which discreet financial information is available; and
- whose operating results are regularly reviewed by the chief operating decision maker (CODM) of the entity to make decisions about resources to be allocated to the segment and assess a segments performance.

A development project or exploration project will not necessarily earn revenues but they might still constitute an operating segment.

### 13.2.1 Identifying operating segments: 'The management approach'

The concept of defining segments at the level of review of the CODM is commonly referred to as the 'management approach'. The key benefits of this approach are that detailed segment information can be reported more

frequently at a low incremental cost to prepare that allows a user to better understand an entity as they are able to see an entity through the eyes of management.

Identification of operating segments typically involves a four step process:

1. Identify the CODM;
2. Identify the business activities (these could be different mines or mining regions as well as development/exploration or Corporate head office);
3. Determine whether discrete information is available for the business activities; and
4. Determine whether that information is reviewed by the CODM

The CODM defines a function and not necessarily a position or title - examples of the CODM include the Chief Executive Officer, the Chief Operating Officer and a group of executives or Directors functioning in the CODM capacity.

## 13.3 Aggregation of operating segments

Two or more operating segments may be aggregated into a single operating segment for reporting purposes if the segments have similar economic characteristics and the segments are similar in each of the following respects:

- a) the nature of the products and services;
- b) the nature of the production processes;
- c) the type or class of customer for their products and services;
- d) the methods used to distribute their products or provide their services; and
- e) if applicable, the nature of the regulatory environment

The ability of an entity to aggregate its segments based on the 'similar economic characteristics' criteria requires judgement to be applied to each set of facts and circumstances.

**Aggregation of operating segments (1)**

**Background**

An entity has three copper mines in one region using a central concentrator. Production processes and cash costs are similar and marketing of the product is performed centrally (and sold based on the LME price). The CODM reviews information for the individual mines.

Each of the three copper mines is an operating segment. Can they be aggregated into a single reportable segment?

**Solution**

Yes, the aggregation criteria are met due to the similarity of economic characteristics (products, processes and financial and operating risks).

**Aggregation of operating segments (2)**

**Background**

An entity has two gold mines; one is underground and the other is open-cut. Their cash costs are quite different and with one of the mines having a copper by-product. One mine produces gold ore and the other produces a combination of gold ore and concentrate. The CODM reviews information for each of the mines and investors are provided with reserves and operational information for each mine.

Each of the mines is an operating segment. Can the two gold mines be aggregated into a single reportable segment?

**Solution**

In this case, it is unlikely that the mines would be aggregated due to the differences in products and processes. They do not have similar economic characteristics and would be two reportable segments.

### 13.4 Minimum reportable segments

After identifying operating segments and aggregating those that met the aggregation criteria an entity should determine which operating segments or aggregations of operating segments meet the quantitative thresholds for separate disclosure as reportable segments. An entity must report information separately if any of the following quantitative thresholds are met:

- a. Reported revenues, including sales to external customers and intersegment sales/transfers are 10% or more of the combined internal and external revenue of all operating segments.
- b. The absolute amount of the reported profit or loss is 10% or more of the greater, in absolute amounts, of the combined reported profit of all operating segments that did not report a loss and the combined reported loss of all reporting segments that reported a loss.
- c. Assets are 10% or more of the combined assets of all operating segments.

#### Identifying reportable segments

##### Background

A company has the following operating segments. The revenues (internal and external), profits and assets are set out below.

| Segment | Total revenue     |     | Profit/(loss)    |     | Total assets      |     |
|---------|-------------------|-----|------------------|-----|-------------------|-----|
| A       | 11,000,000        | 36% | 2,000,000        | 50% | 25,000,000        | 37% |
| B       | 7,500,000         | 25% | 1,000,000        | 25% | 15,500,000        | 23% |
| C       | 3,000,000         | 10% | (1,000,000)      | 25% | 10,500,000        | 15% |
| D       | 3,500,000         | 11% | (500,000)        | 13% | 7,000,000         | 10% |
| E       | 4,000,000         | 13% | 600,000          | 15% | 7,000,000         | 10% |
| F       | 1,500,000         | 5%  | 400,000          | 10% | 3,500,000         | 5%  |
|         | <b>30,500,000</b> |     | <b>2,500,000</b> |     | <b>68,500,000</b> |     |

How many reportable segments does entity A have?

##### Solution

Segments A, B, D and E clearly satisfy the revenue and assets test (so there is no need to consider the profits test in these cases) and are reportable segments.

Segment C does not satisfy the revenue test but does satisfy the asset test and the profits test and is also a reportable segment.

Segment F does not satisfy the revenue or the assets test but does satisfy the profits test.

Therefore all six segments represent reportable segments and should not be aggregated.

If the total external revenue reported by reportable segments is less than 75% of the entity's revenue, additional operating segments will need to be identified

as reportable segments until at least 75% of the entity's revenue is included in reportable segments.

### 13.5 Disclosure

Entities are required to disclose information consistent with the core principles of segment

reporting. The disclosure requirements are summarised in the table below.

| Reference to disclosure requirements  | Required disclosures  |
|---|---|
| General information   | <ul style="list-style-type: none"> <li>• Factors used to identify the reportable segments</li> <li>• Types of product/service from which each reportable segment derives its revenue.</li> </ul>  |
| Information about the reportable segment; profit or loss, revenue, expenses, assets, liabilities and the basis of measurement | <ul style="list-style-type: none"> <li>• For each reportable segment an entity should disclose:               <ul style="list-style-type: none"> <li>• A measure of profit or loss.</li> <li>• A measure of total assets or liabilities if this is regularly provided to the CODM.</li> <li>• A number of specific disclosures, such as revenues from external customers if they are included in segment profit or loss and presented regularly to the CODM.</li> </ul> </li> <li>• Explanation of the measurement of the segment disclosures.</li> <li>• The basis of accounting for transactions between reportable segments.</li> <li>• The nature of differences between the measurements of segment disclosures and comparable items in the entity's financial report.</li> </ul>  |
| Reconciliations   | <ul style="list-style-type: none"> <li>• Totals of segment revenue, segment profit or loss, segment assets and segment liabilities and any other material segment items to corresponding totals within the financial statements.</li> </ul>   |
| Entity-wide disclosures   | <ul style="list-style-type: none"> <li>• Revenues from external customers for each product and service, or each group of similar products and services.</li> <li>• Revenues from external customers attributed to the entity's country of domicile and attributed to all foreign countries from which the entity derives revenues.</li> <li>• Revenues from external customers attributed to an individual foreign country, if material.</li> <li>• Non-current assets (other than financial instruments, deferred tax assets, post-employment benefit assets, and rights arising under insurance contracts) located in the entity's country of domicile and in all foreign countries in which the entity holds assets.</li> <li>• Non-current assets in an individual foreign country, if material</li> <li>• Extent of reliance on major customers, including details if any customer's revenue is greater than 10% of the entity's revenue.</li> </ul> |



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## ***14 Financial instruments***

# 14 Financial instruments, including embedded derivatives

## 14.1 Overview

Accounting for financial instruments will be seeing some significant change in the coming years as the IASB's projects in this area reach completion. IFRS 9 has already been published as a final standard and is mandatorily applicable from 2015. Few entities have early adopted IFRS 9; it is not yet available for adoption within the European Union as it has not been endorsed. Accordingly, this section is presented based on the current requirements of IAS 39 and does not address any changes that may be necessary once IFRS 9 is applicable. The requirements of IFRS 9 are instead discussed in Future Developments Section 17.2. IFRS 13 "Fair Value Measurement" issued in May 2011, mandatorily applicable from 2013, is also discussed in section 17.1. IFRS 13 is unlikely to result in substantial change as it is largely consistent with current valuation practices. The IASB also have an ongoing project on hedge accounting that may result in simplification in current requirements, however, a final standard is yet to be issued.

The accounting for financial instruments can have a major impact on a mining entity's financial statements. Some entities have specific commodity trading activities and those are discussed in section 14.6. Many entities use a range of derivatives to manage the commodity, currency and interest-rate risks to which they are operationally exposed. Other, less obvious, sources of financial instruments issues arise through both the scope of IAS 39 and the rules around accounting for embedded derivatives. Many entities that are solely engaged in producing, refining and selling commodities may be party to commercial contracts that are either wholly within the scope of IAS 39 or contain embedded derivatives from pricing formulas or currency.

### 14.1.1 Scope of IAS 39

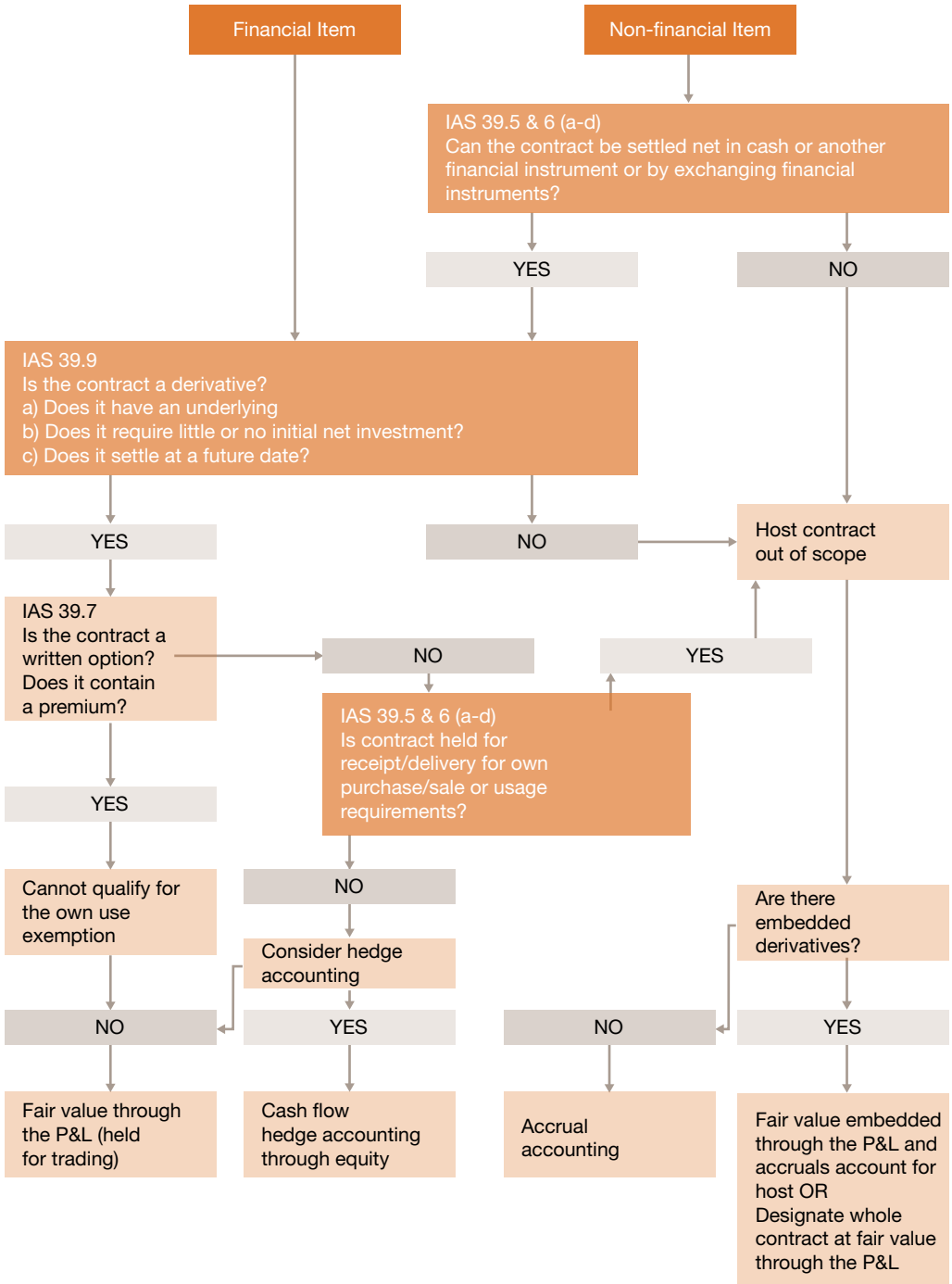
Contracts to buy or sell a non-financial item, such as a commodity, that can be settled net in cash or another financial instrument, or by exchanging financial instruments, are within the scope of IAS 39. They are accounted for as derivatives and are marked to market through the income statement. Contracts that are for an entity's 'own use' are exempt from the requirements of IAS 39 but these 'own use' contracts may include embedded derivatives that may be required to be separately accounted for. An 'own use' contract is one that was entered into and continues to be held for the purpose of the receipt or delivery of the non-financial item in accordance with the entity's expected purchase, sale or usage requirements. In other words, it will result in physical delivery of the commodity. Some practical considerations for the own use assessment are included in section 14.6.

The 'net settlement' notion in IAS 39 para 6 is quite broad. A contract to buy or sell a non-financial item can be net settled in any of the following ways:

- a) the terms of the contract permit either party to settle it net in cash or another financial instrument;
- b) the entity has a practice of settling similar contracts net, whether:
  - with the counterparty;
  - by entering into offsetting contracts; or
  - by selling the contract before its exercise or lapse;
- c) the entity has a practice, for similar items, of taking delivery of the underlying and selling it within a short period after delivery for the purpose of generating a profit from short-term fluctuations in price or dealer's margin; or
- d) the commodity that is the subject of the contract is readily convertible to cash [IAS 39 para 6].

The process for determining the accounting for a commodity contract can be summarised in the following decision tree:

Commodity contracts decision tree (IAS 39)



## 14 Financial instruments, including embedded derivatives

### 14.1.2 Application of 'own use'

'Own use' applies to those contracts that were entered into and continue to be held for the purpose of the receipt or delivery of a non-financial item. The practice of settling similar contracts net (in cash or by exchanging another financial instrument) can prevent an entire category of contracts from qualifying for the 'own use' treatment (i.e., all similar contracts must then be recognised as derivatives at fair value). A level of judgement will be required in this area as net settlements caused by unique events beyond management's control may not necessarily prevent the entity from applying the 'own use' exemption to all similar contracts. This should be assessed on a case by case situation. Judgement will also be required on what constitutes "similar" in the context of the 'own use' assessment—contracts with "similar" legal terms may be "dissimilar" if they are clearly segregated from each other from inception via book structure.

A contract that falls into IAS 39 para 6(b) or (c) cannot qualify for 'own use' treatment. These contracts must

be accounted for as derivatives at fair value. Contracts subject to the criteria described in (a) or (d) are evaluated to see if they qualify for 'own use' treatment.

Many contracts for commodities such as gold, copper and other mineral ore meet the criterion in IAS 39 para 6(d) (i.e., readily convertible to cash) when there is an active market for the commodity. An active market exists when prices are publicly available on a regular basis and those prices represent regularly occurring arm's length transactions between willing buyers and willing sellers.

Consequently, sale and purchase contracts for commodities in locations where an active market exists must be accounted for at fair value unless 'own use' treatment can be evidenced. An entity's policies, procedures and internal controls are critical in determining the appropriate treatment of its commodity contracts. It is important to match the own use contracts with the physical needs for a commodity by the entity. A well-managed process around forecasting these physical levels and matching them to contracts are both very important.

#### 'Own use' contracts

##### Background

Entity A owns a copper mine and enters into a fixed price forward contract to sell one million kilograms of copper in accordance with a counterparty's expected usage requirements. The contract permits physical delivery of the copper at the end of the 12 months or payment of a net settlement in cash based on the change in the fair value of copper during the 12 month period. The counterparty cannot choose to refuse delivery.

A intends to settle the contract by delivering the copper, has no history of settling similar contracts net in cash and has sufficient production capacity to provide the required quantity of copper to meet the delivery requirements.

From entity A's perspective, is this contract an 'own use' contract?

##### Solution

The 'own use' criteria are likely to be met. There is an embedded derivative (being the net settlement provision based on the change in the fair value of copper) but it does not require separation. See further discussion of embedded derivatives at section 14.4.

Although the contract allows net settlement the contract will still qualify as 'own use' as long as it has been entered into and continues to be held for the expected counterparties' sales/usage requirements. However, if there is volume flexibility then the contract is to be regarded as a written option. A written option is not entered into for 'own use'.

Therefore, although the contract may be considered net settled, it can still claim an 'own use' exemption provided the contract is entered into and is continued to be held for the parties own usage requirements.

'Own use' is not an election. A contract that meets the 'own use' criteria cannot be selectively fair valued unless it otherwise falls into the scope of IAS 39.

A written option to buy or sell a non-financial item that can be settled net cannot be considered to be entered into for the purpose of the receipt or delivery of the non-financial item in accordance with the entity's expected purchase, sale or usage requirements. This is because an option written by the entity is outside its control as to whether the holder will exercise or not. Such contracts are, therefore, always within the scope of IAS 32 and IAS 39 [IAS 32 para 10; IAS 39 para 7]. Volume adjustment features are also common, particularly within commodity contracts and are discussed within section 14.3.

If an 'own use' contract contains one or more embedded derivatives, an entity may designate the entire hybrid contract as a financial asset or financial liability at fair value through profit or loss unless:

- a) the embedded derivative(s) does not significantly modify the cash flows of the contract; or
- b) it is clear with little or no analysis that separation of the embedded derivative is prohibited [IAS 39 para 11A]

Further discussion of embedded derivatives is presented in section 14.4.

## 14.2 Measurement of long-term contracts that do not qualify for 'own use'

Long-term commodity contracts are not uncommon. Some of these contracts may be within the scope of IAS 39 if they contain net settlement provisions and do not get 'own use' treatment. These contracts are measured at fair value using the valuation guidance in IAS 39 with changes recorded in the income statement. There may not be market prices for the entire period of the contract. For example, there may be prices available for the next three years and then some prices for specific dates further out. This is described as having illiquid periods in the contract. These contracts are valued using valuation techniques in the absence of an active market for the entire contract term.

Valuation is complex and is intended to establish what the transaction price would have been on the measurement date in an arm's length exchange motivated by normal business considerations. The valuation of a contract should:

- a) incorporate all factors that market participants would consider in setting a price, making maximum use of market inputs and relying as little as possible on entity-specific inputs;
- b) be consistent with accepted economic methodologies for pricing financial instruments; and
- c) be tested for validity using prices from any observable current market transactions in the same instrument or based on any available observable market data.

The assumptions used to value long-term contracts are updated at each balance sheet date to reflect changes in market prices, the availability of additional market data and changes in management's estimates of prices for any remaining illiquid periods of the contract. Clear disclosure of the policy and approach, including significant assumptions, are crucial to ensure that users understand the entity's financial statements.

### 14.2.1 Day-one profits

Commodity contracts that fall within the scope of IAS 39 and fail to qualify for 'own use' treatment have the potential to create day-one gains.

A day-one gain is the difference between the fair value of the contract at inception as calculated by a valuation model and the amount paid to enter the contract. The contracts are initially recognised under IAS 39 at fair value. Any such profits or losses can only be recognised if the fair value of the contract:

- (1) is evidenced by other observable market transactions in the same instrument; or
- (2) is based on valuation techniques whose variables include only data from observable markets.

Thus, the profit must be supported by objective market-based evidence. Observable market transactions must be in the same instrument (i.e., without modification or repackaging and in the same market where the contract was originated). Prices must be established for transactions with different counterparties for the same commodity and for the same duration at the same delivery point.

## 14 Financial instruments, including embedded derivatives

Any day-one profit or loss that is not recognised at initial recognition is recognised subsequently only to the extent that it arises from a change in a factor (including time) that market participants would consider in setting a price. Commodity contracts include a volume component, and mining entities are likely to recognise the deferred gain/loss and release it to profit or loss on a systematic basis as the volumes are delivered, or as observable market prices become available for the remaining delivery period.

### 14.3 Volume flexibility (optionality), including 'take or pay' arrangements

Long-term commodity contracts frequently offer the counterparty flexibility in relation to the quantity of the commodity to be delivered under the contract. A supplier who gives the purchaser volume flexibility may have created a written option. Volume flexibility to the extent that a party can choose not to take any volume and instead pay a penalty is referred to as a 'Take or pay' contract.

A written option must be accounted for in accordance with IAS 39 if it can be settled net in cash, e.g., when the item that is subject of the contract is readily convertible into cash. Contracts need to be considered on a case-by-case basis in order to determine whether they contain written options.

From a supplier's perspective a volume flexibility feature in a contract can be viewed in two ways:

1. View the contract as one instrument—the contract includes a written option for the element of volume flexibility. If the commodity being supplied is readily convertible to cash, the option will prevent the supplier from claiming the 'own use' exemption.
2. View the contract as having two components:
  - a. an 'own use' fixed volume host contract outside of IAS 39's scope for any contractually fixed volume element; and

- b. an embedded written option within IAS 39's scope for the volume flexibility element if the item is readily convertible to cash

IFRIC have recognised that there is diversity in practice on the issue of volume flexibility but have decided not to add the issue to their agenda because of the Board's project to develop a replacement for IAS 39. Readers should monitor developments in this area.

The nature of end user commodity contracts is that they often have volume optionality but they are accounted for as 'own use'. Although they may include volume flexibility they will not contain a true written option if the purchaser did not pay a premium for the optionality. Receipt of a premium to compensate the supplier for the risk that the purchaser may not take the optional quantities specified in the contract is one of the distinguishing features of a written option.

The premium might be explicit in the contract or implicit in the pricing. Therefore it would be necessary to consider whether a net premium is received either at inception or over the contract's life in order to determine the accounting treatment. Any penalty payable for non-performance by the buyer may well amount to the receipt of a premium. Another factor which may be used to determine if a premium exists is whether usage of a volume option by the purchaser is driven by market conditions or their own physical requirements. In practice, it may be difficult to determine the rationale for the behaviour of a counterparty, but an assessment of the liquidity of the market may provide assistance. A volume option in a contract delivered to a tradable market is more likely than not to cause the contract to fail the 'own use' test.

If no premium can be identified, other terms of the contract may need to be examined to determine whether it contains a written option; in particular, whether the buyer is able to secure economic value from the option's presence by net settlement of this contract as defined in IAS 39 para 6.

## 14.4 Embedded derivatives

Long-term commodity purchase and sale contracts frequently contain a pricing clause (i.e., indexation) based on a commodity other than the commodity deliverable under the contract. Such contracts contain embedded derivatives that may have to be separated and accounted for under IAS 39 as a derivative. Examples are coal prices that are linked to the price of oil or other products, or a pricing formula that includes an inflation component.

An embedded derivative is a derivative instrument that is combined with a non-derivative host contract (the 'host' contract) to form a single hybrid instrument. An embedded derivative causes some or all of the cash flows of the host contract to be modified, based on a specified variable. An embedded derivative can arise through market practices or common contracting arrangements.

An embedded derivative is separated from the host contract and accounted for as a derivative if:

- (a) the economic characteristics and risks of the embedded derivative are not closely related to the economic characteristics and risks of the host contract;
- (b) a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and
- (c) the hybrid (combined) instrument is not measured at fair value with changes in fair value recognised in the profit or loss (i.e., a derivative that is embedded in a financial asset or financial liability at fair value through profit or loss is not separated).

Embedded derivatives that are not closely related must be separated from the host contract and accounted for at fair value, with changes in fair value recognised in the income statement. It may not be possible to measure just the embedded derivative. Therefore, the entire combined contract must be measured at fair value, with changes in fair value recognised in the income statement.

An embedded derivative that is required to be separated may be designated as a hedging instrument, in which case the hedge accounting rules are applied.

A contract that contains one or more embedded derivatives can be designated as a contract at fair value through profit or loss at inception, unless:

- (a) the embedded derivative(s) does not significantly modify the cash flows of the contract; and
- (b) it is clear with little or no analysis that separation of the embedded derivative(s) is prohibited.

### 14.4.1 Assessing whether embedded derivatives are closely related

All embedded derivatives must be assessed to determine if they are 'closely related' to the host contract at the inception of the contract.

A pricing formula that is indexed to something other than the commodity delivered under the contract could introduce a new risk to the contract. Some common embedded derivatives that routinely fail the closely related test are indexation to an unrelated published market price and denomination in a foreign currency that is not the functional currency of either party and not a currency in which such contracts are routinely denominated in transactions around the world. The assessment of whether an embedded derivative is closely related is both qualitative and quantitative, and requires an understanding of the economic characteristics and risks of both instruments.

The following examples illustrate some of the types of embedded derivatives that arise in the mining industry and provide guidance on how they should be accounted for under IAS 39.

## 14 Financial instruments, including embedded derivatives

| Example contract   | Embedded derivative   | Is it closely related?  | Accounting outcome   |
|--|---|---|--|
| South African mining company (rand functional currency), with gold sale contract denominated in US\$.  | Yes—rand: US\$ forward.   | Yes—because certain commodities (for example, gold) are routinely denominated in the US\$ in transactions around the world.   | No need to separate and fair value.  |
| Australian mining company (Aus\$ functional currency), with a contract to purchase equipment from a US supplier in US\$.   | Yes—Aus\$: US\$ forward.  | Yes—because the US\$ is the functional currency of a substantial party to the contract.   | No need to separate and fair value.  |
| Australian mining company (Aus\$ functional currency), with a contract to purchase equipment from a Japanese supplier (Japanese yen functional currency) in US\$.  | Yes—Aus\$: US\$ forward.  | No—because the US\$ is not the functional currency of either party to the contract, nor could it be argued that such contracts are routinely denominated in US\$.   | Separate the Aus\$: US\$ forward from the host contract, and account for it at fair value. |
| Australian mining company has an electricity supply contract for its aluminium smelter indexed to the LME aluminium price.   | Yes—aluminium forward.  | No—because the index is not closely related to the relevant economic characteristics of the host contract, relating to the supply of electricity. The exemption cannot be applied even though the index is relevant to the smelter. | Separate the aluminium forward from the host contract and account for it at fair value.    |
| Gold mining company enters into a gold loan with a financial institution. (Gold loans involve a company borrowing gold bullion from a bank, selling the gold on the market to receive financing. A gold loan is denominated in ounces of gold and is repaid over the life of the loan in gold from production. In effect, the company sells future production through a gold loan at market (“spot”) gold prices at the time the loan is advanced. Through this process, the company locks in its gold revenue for that future production at the spot price) | Yes—commodity forward (In substance the gold loan is a debt contract. By fixing the number of ounces that would have to be repaid to satisfy the debt obligation, the entity is essentially entering into a commodity forward.) | No—the price of gold is not closely related to the host debt contract.  | Separate the forward from the host contract and account for it at fair value.              |



The currency in which the price of the related goods is routinely denominated in commercial transactions around the world is a currency that is used for similar transactions all around the world, not just in one local area. For example, if transactions in a commodity in North America are routinely denominated in US dollars and such transactions are routinely denominated in euros in Europe, neither the US dollar nor the Euro is a currency in which that commodity is routinely denominated in commercial transactions around the world. Accordingly, apart from some exchange traded metals and globally trade bulk commodities which are routinely denominated in US dollar in international commerce, very few items are likely to meet this requirement.

Many mining entities operate in countries where more than one currency may be used in local business transactions or external trade. The determination as to whether the foreign-currency embedded derivative is closely related to the host contract depends on whether the host contract requires foreign currency payments that are:

- the currency in which the price of the related goods or services acquired is routinely denominated—refer to the first example in the table above where a South African mining company has a gold sale contract denominated in US\$;
- the functional currency of any substantial party to the contract—refer to the second example in the table above where a Australian mining company has a contract to purchase equipment from a US supplier in US\$; or
- the currency that is commonly used in contracts to purchase or sell non-financial items in the economic environment in which the transaction takes place.

Management should consider how other contracts for that particular commodity are normally priced in the absence of an active market price for a particular commodity. A pricing formula will often emerge as a commonly used proxy for market prices. When it can be demonstrated that a commodity contract is priced by reference to an identifiable industry 'norm' and contracts are regularly priced in that market according to that norm, the pricing mechanism does not modify the cash flows under the contract and is not considered an embedded derivative.

#### **14.4.2 Timing of assessment of embedded derivatives**

All contracts need to be assessed for embedded derivatives at the date when the entity first becomes a party to the contract. Subsequent reassessment of embedded derivatives is required when there is a significant change in the terms of the contract and prohibited in all other cases. A significant change in the terms of the contract has occurred when the expected future cash flows associated with the embedded derivative, host contract, or hybrid contract have significantly changed relative to the previously expected cash flows under the contract.

The principles apply to an entity that purchases a contract containing an embedded derivative and also when an entity acquires a subsidiary that holds a contract with an embedded derivative. The date of purchase or acquisition is treated as the date when the entity first becomes party to the contract. Therefore, from the new owner's perspective an embedded derivative may now require separation if market conditions have changed since the original assessment date by the entity.

### **14.5 Hedge accounting**

#### **14.5.1 Principles and types of hedging**

Entities often manage exposure to financial risks (including commodity price risks) by deciding to which risk, and to what extent, they should be exposed, by monitoring the actual exposure and taking steps to reduce risks to within agreed limits, often through the use of derivatives.

The process of entering into a derivative transaction with a counterparty in the expectation that the transaction will eliminate or reduce an entity's exposure to a particular risk is referred to as hedging. Risk reduction is obtained because the derivative's value or cash flows are expected, wholly or partly, to move inversely and, therefore, offset changes in the value or cash flows of the 'hedged position' or item. Hedging in an economic sense, therefore, concerns the reduction or elimination of different financial risks such as price risk, interest rate risk, currency risk, etc, associated with the hedged position.

Once an entity has entered into a hedging transaction,

## 14 Financial instruments, including embedded derivatives

it will be necessary to reflect the transaction in the financial statements of the entity. Accounting for the hedged position should be consistent with the objective of entering into the hedging transaction, which is to eliminate or reduce significantly specific risks that management considers can have an adverse effect on the entity's financial position and results. This consistency can be achieved if both the hedging instrument and the hedged position are recognised and measured on symmetrical bases and offsetting gains and losses are reported in profit or loss in the same periods. Without hedge accounting mismatches would occur under recognition and measurement standards and practices set out in IFRS. Hedge accounting practices have been developed to avoid or mitigate these mismatches.

Hedge accounting rules therefore allow modifying the normal basis for recognising gains and losses (or revenues and expenses) on associated hedging instruments and hedged items so that both are recognised in profit or loss in the same accounting period. Hedge accounting therefore affords management the opportunity to eliminate or reduce the income statement volatility that otherwise would arise if the hedged items and hedging instruments were accounted for separately.

IAS 39 defines three types of hedge:

1. Cash flow hedge—a hedge of the exposure to variability in cash flows that (i) is attributable to a particular risk associated with a recognised asset or liability (such as all or some future interest payments on variable rate debt) or a highly probable forecast transaction and (ii) could affect profit or loss. This is the most common type of a hedge in the mining industry.
2. Fair value hedge—a hedge of the exposure to changes in fair value of a recognised asset or liability or an unrecognised firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect profit or loss.
3. Hedge of a net investment in a foreign operation as defined in IAS 21.

To comply with the requirements of IAS 39 hedges must be:

- Documented from inception of hedge relationship;
- Expected to be highly effective; and
- Demonstrated to have been highly effective in mitigating the hedged risk in the hedged item.

There is no prescribed single method for assessing hedge effectiveness. Instead, a company must identify a method that is appropriate to the nature of the risk being hedged and the type of hedging instrument used. The method an entity adopts for assessing hedge effectiveness depends on its risk management strategy. A company must document at the inception of the hedge how effectiveness will be assessed and then apply that effectiveness test on a consistent basis for the duration of the hedge. The hedge must be expected to be effective at the inception of the hedge and in subsequent periods and the actual results of the hedge should be within a range of 80-125% (i.e., changes in the fair value or cash flows of the hedged item should be between 80% and 125% of the changes in fair value or cash flows of the hedging instrument). The effective part of a cash flow hedge and a net investment hedge is recognised in Other Comprehensive Income and the effective part of a fair value hedge is adjusted against the carrying amount of the hedged item. Any ineffectiveness of an effective hedge must be recognised in the income statement. The requirement for testing effectiveness can be quite onerous.

Effectiveness tests need to be performed for each hedging relationship at least as frequently as financial information is prepared, which for listed companies could be up to four times a year. Experience shows that the application of hedge accounting is not straightforward, particularly in the area of effectiveness testing, and a company looking to apply hedge accounting to its commodity hedges needs to invest time in ensuring that appropriate effectiveness tests are developed.

Companies that combine commodity risk from different business units before entering into external transactions to offset the net risk position might not qualify for hedge accounting, as IFRS does not permit a net position to be designated as a hedged item. However it may be possible to obtain hedge accounting by designating the hedged item as a part of one of the gross positions.

The IASB has an ongoing project on hedge accounting. Two significant expected developments for mining companies are a proposed relaxation in the requirements for hedge effectiveness and the ability to hedge non-financial portions in some circumstances. These may make hedge accounting much more attractive. Entities should monitor the progress on this and assess what the impact on their current accounting will be.

#### 14.5.2 Cash flow hedges and ‘highly probable’

Hedging of commodity-price risk or its foreign exchange component is often based on expected cash inflows or outflows related to forecasted transactions, and therefore are cash flow hedges. Under IFRS, only a highly probable forecast transaction can be designated as a hedged item in a cash flow hedge relationship. The hedged item must be assessed regularly until the transaction occurs. If the forecasts change and the forecasted transaction is no longer expected to occur, the hedge relationship must be ended immediately and all retained hedging results in equity must be recycled to the income statement. Cash flow hedging is not available if an entity is not able to forecast the hedged transactions reliably.

Factors that should be considered when assessing whether a forecasted transaction is highly probable of occurring include:

- **Proved and probable reserves:** Does the company have proved and probable reserves supporting the forecasted future sale?
- **Mine plan:** Is the forecasted transaction supported by a mine plan demonstrating that the company will produce at least the hedged quantity on the specified date?
- **Infrastructure:** Has the company completed the necessary mine development and capital investment to support the future production?
- **Percentage of total forecasted production hedged:** The probability of a forecasted sale of 50% of an entity’s expected production is easier to demonstrate as ‘highly probable’ than close to 100%.
- **Time to forecasted sale:** The further out the forecasted sale, the more evidence is required to demonstrate that the forecasted sale is highly probable.
- **Track record of forecasted sales:** a past pattern of designated hedge transactions not actually occurring as specified will call into question an entity’s ability to predict forecasted transactions accurately.

Companies that buy or sell commodities (e.g., mining companies) may designate hedge relationships between hedging instruments, including commodity contracts that are not treated as ‘own use’ contracts, and hedged items. In addition to hedges of foreign currency and interest rate risk, mining companies primarily hedge the exposure to variability in cash flows arising from commodity price risk in forecast purchases and sales.

#### 14.5.3 Hedging of non-financial Items

It is difficult to isolate and measure the appropriate portion of the cash flows or fair value changes attributable to specific risks other than foreign currency risks. Therefore, a hedged item which is a non-financial asset or non-financial liability may be designated as a hedged item only for:

- a) Foreign currency risks;
- b) In its entirety for all risks; or
- c) All risks apart from foreign currency risks

In practice the main sources of ineffectiveness in hedging non-financial items arise from differences in location and differences in grade or quality of commodities delivered in the hedged contract compared to the one referenced in the hedging instrument.

#### 14.5.4 Reassessment of hedge relationships in business combinations

An acquirer re-designates all hedge relationships of the acquired entity on the basis of the pertinent conditions as they exist at the acquisition date (i.e., as if the hedge relationship started at the acquisition date). Since derivatives previously designated as hedging derivatives were entered into by the acquired entity before the acquisition, these contracts are unlikely to have a zero fair value at the time of the acquisition. For cash flow hedges in particular, this is likely to lead to more hedge ineffectiveness in the financial statements of the post-acquisition group and also to more hedge relationships failing to qualify for hedge accounting as a result of failing the hedge effectiveness test.

Some of the option-based derivatives that the acquired entity had designated as hedging instruments may meet the definition of a written option when the acquiring entity reassesses them at the acquisition date. Consequently the acquiring entity won’t be able to designate such derivatives as hedging instruments.

## 14.6 Centralised trading units

Many entities have established centralised trading or risk management units in response to the increasing volatilities and further sophistication of markets. The operation of such a central trading unit may be similar to the operation of the trading units of banks.

The scale and scope of the unit's activities vary from market risk management through to dynamic profit optimisation. An integrated entity with significant extraction and related processing operations is particularly exposed to the movements in the prices of commodities. The trading unit's objectives and activities are indicative of how management of the company operates the business. The central trading unit often operates as an internal market place in larger integrated businesses. The centralised trading function thus 'acquires' all of the entity's exposure to the various commodity risks, and is then responsible for hedging those risks in the external markets.

Some centralised trading departments are also given the authority to enhance the returns obtained from the integrated business by undertaking a degree of speculative trading. A pattern of speculative activity or trading directed to profit maximisation is likely to result in many contracts failing to qualify for the 'own use' exemption.

A centralised trading unit therefore undertakes two classes of transaction:

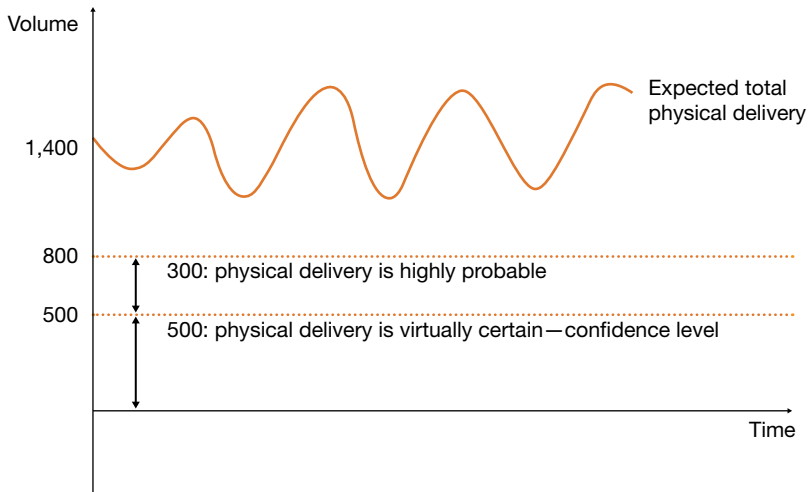
- 1) Transactions that are non-speculative in nature: for example, the purchase of output from local producers for further processing. Contracts for such an activity are sometimes held in a 'physical book'.
- 2) Transactions that are speculative in nature, to achieve risk management returns from wholesale trading activities. Contracts for such activity is sometimes held in a 'trading book' and often involves entering into offsetting sales and purchase contracts that are settled on a net basis. Those contracts and all similar contracts (i.e., all contracts in the trading book) do not qualify for the 'own use' exemption and are accounted for as derivatives.

A company that maintains separate physical and trading books needs to maintain the integrity of the two books to ensure that the net settlement of contracts in the trading book does not 'taint' similar contracts in the physical book, thus preventing the 'own use' exemption from applying to contracts in the physical book. Other entities may have active commodity trading programmes that go far beyond mitigation of risk.

A contract must meet the 'own use' requirements to be included in the 'own use' or physical book. Contracts must meet the physical requirements of the business at inception and continue to do so for the duration of the contract as discussed in section 14.1.2.

Practical requirements for a contract to be 'own use' are:

- At inception and through its life, the contract has to reduce the market demand or supply requirements of the entity by entering into a purchase contract or a sale contract respectively.
- The market exposure is identified and measured following methodologies documented in the risk management policies of production and distribution. These contracts should be easily identifiable by recording them in separate books.
- If the contract fails to reduce the market demand or supply requirements of the entity or is used for a different purpose, the contract will cease to be accounted for as a contract for 'own use' purposes.
- Own-use treatment could be applied at a gross level i.e., sale of the copper production does not have to be offset against purchases of coal by the refinery in order to determine an 'own use' level.
- The number of own-use contracts would be capped by reference to virtually certain production and distribution volumes ('confidence levels') to avoid the risk of 'own use' contracts becoming surplus to the inherent physical requirements. If in exceptional circumstances the confidence levels proved to be insufficient they would have to be adjusted.



The only reason that physical delivery would not take place at the confidence level would be unforeseen operational conditions beyond control of the management of the entity (such as a smelter closure due to a technical fault). Entities would typically designate contracts that fall within the confidence level (with volumes up to 500 in the above diagram) as ‘own use’, contracts with physical delivery being highly probable (up to 800) as ‘all in one’ hedges and other contracts where physical delivery is expected but is not highly probable (over 800) as at fair value through profit or loss.

We would expect the result of the operations that are speculative in nature to be reported on a net basis on the face of the income statement. The result could be reported either within revenue or preferably as a separate line (e.g., trading margin) above gross operating profit. Such a disclosure would provide a more accurate reflection of the nature of trading operations than presentation on a gross basis.

### 14.7 Disclosure

The objectives of IFRS 7 are to provide information to users about an entity’s exposure to financial risks and how the entity manages those risks. To this end, an entity should provide disclosure that enable users to evaluate:

- the significance of financial instruments for the entity’s financial position and performance; and
- the nature and extent of risks arising from financial instruments to which it is exposed (quantitative disclosure) and how the entity manages those risks (qualitative disclosure).

The disclosures provided should be given ‘through the eyes of management’. That is, entities are required to communicate to the market how they perceive, manage and measure the financial risks they are exposed to. Essentially, IFRS 7 requires mining entities to tell the users which financial risks weigh on the minds of management and what it is doing about them. Certain minimum disclosures are also required to the extent they are not already covered by the ‘through the eyes of management’ information.

## 14 Financial instruments, including embedded derivatives

The level of IFRS 7 disclosure is generally driven by the variety and extent of financial risks that the entity is exposed to as well as the use of fair value in measuring financial instruments. For example, a mining entity that is heavily geared is required to make extensive disclosure regarding liquidity risk, or a mining entity that holds derivatives will be required to make extensive disclosure regarding the methodology and assumptions applied in determining the fair value of such derivatives.

The following IFRS 7 disclosures are particularly relevant in the mining industry:

- **Liquidity risk:** The risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset. The entity is required to provide a maturity analysis of all derivative and no-derivative financial liabilities (including issued financial guarantees), reflecting the contractual, undiscounted cash flows (i.e. principal and interest payments), as well as a description of how it manages the liquidity risk inherent in these financial liabilities.
- **Market risk:** The risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency risk, interest rate risk and other price risk, which includes commodity risk.

In respect of each market risk, the entity is required to explain:

- how the risk arises (for example, as a result of borrowings payable in a foreign currency);

- how such risk is managed (for example, by taking out forward exchange contracts); and
  - how changes in the risk variable (for example, the foreign exchange rate) will impact the entity's profit or loss and / or other comprehensive income (referred to as a "sensitivity analysis").
- **Fair value:** Entities are required to disclose the fair value of all financial assets and liabilities, including those which are carried at amortised cost, as well as the methods and assumptions applied in arriving at such fair values. However, should the carrying amount be a reasonable approximation of fair value, for example, for financial instruments such as short-term trade receivables and payables, the disclosure of fair value is not required.
  - **Hedge accounting:** The disclosure in respect of the application of hedge accounting is generally not onerous as the information should be readily available from the hedge documentation, effectiveness testing and journal entries that give effect to hedge accounting. Certain disclosures worth noting include the following:
    - For cash flow hedges, the periods in which the cash flows are expected to occur and when they are expected to enter into the determination of profit or loss; and
    - The amount of hedge ineffectiveness recorded in profit or loss.

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## ***15 Shares and national interest arrangements***

## 15 Shares and national interest arrangements

There are a number of arrangements where mining entities make share grants where no identifiable goods or services are received in return. These share grants may be made as part of corporate social responsibility programs, or as required by local legislation designed to empower local communities. The economic benefits derived from an enhanced corporate image can take a variety of forms, such as attracting or retaining employees, or improving or maintaining the ability to do business with local suppliers.

Consideration of all types of arrangement are outwith the scope of this publication, however, an example of one type of arrangement is the black economic empowerment (BEE) provisions in South Africa; legislation requires locally disadvantaged communities to have a minimum share ownership percentage in mining entities.

IFRS 2 addresses the accounting for such grants where no identifiable benefit is received in return for a grant of shares or options.

### 15.1 When does this apply?

A mining entity would normally expect to receive goods or services in return for shares and options granted. IFRS 2 requires either an expense or an asset to be recognised, based on the fair value of shares and options granted (employees) or the fair value of goods and services received (suppliers). However, in all such instances an identifiable good or service is received.

Grants made under a corporate responsibility program or the BEE provisions do not have an identifiable good or service. This is described in IFRS 2 as receipt of an unidentifiable benefit. A further example of this is where a principal shareholder transfers a tranche of shares for no consideration to a related entity for tax planning purposes.

### 15.2 How is the unidentifiable benefit measured and recorded?

The value of the unidentifiable benefit received is measured as the difference between the fair value of the shares or options granted and any identifiable benefits received. For example, if disadvantaged community members can purchase shares at a bargain price, the unidentifiable benefit is the difference between the fair value of the shares and the price paid. If there is no consideration or identifiable benefits received, the value of the unidentifiable benefit is the fair value of the shares.

The benefit is accounted for in accordance with IFRS 2. Any identifiable good, such as a mining licence, is recorded at its fair value and the remainder is recognised as an expense in the income statement. Shares or options that vest immediately result in immediate recognition of expense. The expense is allocated over the relevant periods where there is a vesting period associated with the shares. Few BEE deals have vesting periods.

#### Recording an unidentifiable benefit

##### Background

Entity A awards C1,500 of shares to a local government in return for a five-year exploration licence. The fair value of the licence is C1,000, resulting in an unidentifiable benefit of C500.

How should the unidentifiable benefit of C500 be accounted for?

##### Solution

A should immediately expense the unidentifiable benefit of C500 as it does not meet the criteria for recognition as an asset.



## ***16 First time adoption***

# 16 First time adoption

IFRS 1 provides transition relief and guidance for entities adopting IFRS. However, it is regularly updated and amended by the IASB. The amendments either update IFRS 1 for new standards and interpretations or address newly identified issues. However, keeping abreast of these changes can be challenging.

Entities in the mining industry face many of the same transition issues as entities in other industries. This section focuses on the specific transition issues and reliefs provided by IFRS 1 that are of particular importance in the industry.

## 16.1 Deemed cost

Depreciation under IFRS is calculated on a component basis (see also section 4.2.6). Similarly, section 9.3 describes the requirement for impairment tests to be performed at the cash generating unit level which is the smallest group of assets generating cash flows independent of other assets. These approaches may require more detailed information than entities recorded under local GAAP, and it may not be possible to allow reconstruction of historical cost carrying amounts.

IFRS 1 allows entities to elect to revalue an item of property, plant and equipment to:

- the fair value of the asset; or
- a previous GAAP revaluation as deemed cost if the revaluation was broadly comparable to fair value, or to the IFRS cost or depreciated cost adjusted to reflect changes in a price index.

The assets are then tested for impairment at the date of transition.

This election provides mining companies with a method of setting an appropriate book value for assets which can be used for the calculation of depreciation on a component basis or test for impairment on a CGU basis going forward.

Few first-time adopters have chosen to use the fair value approach. Those that have used it have done so selectively as permitted under the standard. Fair value as deemed cost often results in a significant increase in carrying value with the corresponding credit adjusting retained earnings. There is also a higher depreciation charge in subsequent years.

There is also an exemption that allows the use of fair value for intangible assets at transition to IFRS.

However, it requires there to be an active market in the intangible assets as defined in IAS 38; this criterion is not met for common intangibles in the mining industry such as licences and patents.

## 16.2 Restoration and rehabilitation provisions

Restoration and rehabilitation provisions are recognised at the present value of expected future cash flows, discounted using a pre-tax discount rate. The discount rate should be updated at each balance sheet date if necessary and should reflect the risks inherent in the asset.

The requirements for a pre-tax rate and periodic updating can also result in differences on adoption of IFRS. An entity's previous GAAP may not have required an obligation to be recognised, allowed a choice of rate or not required the rate to be updated.

Changes in a decommissioning liability are added to or deducted from the cost of the related asset under IFRIC 1. There is an optional short cut method for recognition of restoration and rehabilitation obligations and the related asset at the date of first time adoption. The entity calculates the liability in accordance with IAS 37 as of the date of transition (the opening balance sheet date). The related asset is derived by discounting the liability back to the date of installation of the asset from the opening balance sheet date. This estimated asset amount at initial recognition is then depreciated to the date of transition using the appropriate method.

## 16.3 Functional currency

IFRS distinguishes between the functional currency and the presentation currency. An entity can choose to present its financial statements in any currency; the functional currency is that of the primary economic environment in which an entity operates. Functional currency must be determined for each entity in the group and is the currency that of the primary economic environment in which the specific entity operates. Functional currency is determined by the denomination of revenue and costs and the regulatory and economic environment that has the most significant impact on the entity.

A first-time adopter must determine the functional currency for each entity in the group. Changes of functional currency on adoption of IFRS are not unusual as previous GAAP may have required the use of the domestic currency or allowed a free choice of functional currency. This can result in a significant amount of work to determine the opening balance sheet amounts for all non-monetary assets. An entity needs to determine the historical purchase price in functional currency for all non-monetary assets. These amounts may have been recorded in US dollars, for example. There is no exemption in IFRS 1 for this situation although use of the fair value as deemed cost exemption may prove less complex and time consuming than reconstruction of historical cost.

Other common foreign currency challenges for mining entities on adoption of IFRS include the impact of hyperinflation, revaluations of fixed assets in a currency other than the functional currency and the impact on hedging strategies. These can involve considerable time and effort to address and need to be considered early during the planning process for transition to IFRS.

IFRS 1 does provide an exemption that allows all cumulative translation differences in equity for all foreign operations to be reset to nil at the date of transition. This exemption is used by virtually all entities on transition to IFRS as the alternative is to recast the results for all foreign operations under IFRS for the history of the entity.

### **16.4 Assets and liabilities of subsidiaries, associates and joint ventures**

A parent or group may well adopt IFRS at a different date from its subsidiaries, associates and joint ventures ("subsidiaries"). Adopting IFRS for the group consolidated financial statements means that the results of the group are presented under IFRS even if the underlying accounting records are maintained under national GAAP, perhaps for statutory or tax reporting purposes.

IFRS 1 provides guidance on a parent adopting IFRS after one or more of its subsidiaries and for subsidiaries adopting after the group. When a parent adopts after one or more subsidiaries the assets and liabilities of the subsidiary are measured at the same carrying value as in the IFRS financial statements of the subsidiaries after appropriate consolidation and equity accounting adjustments.

A subsidiary that adopts after the group can choose to measure its assets and liabilities at the carrying amounts in the group consolidated financial statements as if no consolidation adjustments (excludes purchase accounting adjustments) were made, or as if the subsidiary was adopting IFRS independently.

### **16.5 Deferred tax**

There are no exemptions from recording deferred tax assets and liabilities on all differences between the accounting base and tax base where the initial recognition exemption does not apply. The corresponding adjustment is taken to retained earnings.

### **16.6 Financial instruments**

Embedded derivatives are discussed in section 14.4. Upon adoption of IFRS, an entity must assess whether an embedded derivative is required to be separated from a host contract and accounted for as a derivative on the basis of the conditions that existed at the later of the date it first became a party to the contract and the date any reassessment is required.

Therefore if an entity became a party to a contract containing an embedded derivative prior to transition date, and the entity is still a party to the contract, the embedded derivative must be recognised as of IFRS transition date. This would include contracts where the definition of a derivative was not met under previous GAAP (for example, where a quantity to be purchased was not specified or otherwise determinable).

The embedded derivative would then be measured at fair value using facts and circumstances in existence as of transition date and an appropriate adjustment made to equity in the opening balance sheet.

## 16.7 Impairment

A first time adopter should apply IAS 36 regardless of whether there are any indicators of impairment, to test goodwill for impairment at the date of transition to IFRS, based on conditions at the transition date. Any impairment loss should be recorded in retained earnings.

In addition, IFRS requires that impairment losses be reversed if the circumstances leading to the impairment charge have changed and cause the impairment to be reduced. Some local GAAPs would not have allowed this approach.

## 16.8 Stripping costs in the production phase of a surface mine

Section 4.3 noted that there was diversity in practice on accounting for production stripping costs. Previous GAAPs may have required that such costs be treated as current production costs.

As IFRS requires the capitalisation of production stripping costs, entities may choose on transition to IFRS to capitalise costs which had been expensed under previous GAAP. The impact of this could be significant, and would also affect depreciation charges related to the production assets.

IAS 8.53 states that “hindsight should not be used when applying a new accounting policy to...a prior period”. Entities should therefore exercise caution where they choose to retrospectively capitalise costs previously expensed as there must be sufficient information available from the relevant time period to confirm that those costs were of future benefit to the entity.

## 16.9 Borrowing costs

Sections 2.3.5 and 3.2 explained that the cost of borrowing should be capitalised for qualifying assets. Previous GAAP may also have allowed an entity to expense borrowing costs. IAS 23 “Borrowing costs” is mandatory from the date of transition, however, an entity can choose to adopt it with effect from an earlier date.

Transitioning entities must determine the date from which they will apply the standard, identify all qualifying projects commencing after that date and capitalise costs accordingly. The deemed cost exemption described in section 16.1 above may provide some relief where an entity does not have the detailed records to perform this for all qualifying assets. IFRS 1 also provides a separate exemption from restating any borrowing cost component capitalised under a previous GAAP—instead, for qualifying assets under construction at the date of transition, IAS 23 requirements are only applied to borrowing costs incurred after that date.

An entity’s previous GAAP may also have allowed the capitalisation of borrowing costs for investments accounted for using the equity method of accounting. An investment in an associate or joint venture would not meet the IAS 23 definition of a qualifying asset. The associate or joint venture may only capitalise borrowing costs if they have their own borrowings and a qualifying asset.

Therefore, an entity should consider whether it needs to make any adjustments to reverse previously capitalised interest on transition.

## 16.10 Disclosure requirements

A first-time adopter is required to present disclosures that explain how the entity’s financial statements were affected by the transition from previous GAAP to IFRS.

These include:

- an opening balance sheet, prepared as at the transition date, with related footnote disclosure;
- reconciliation of equity reported in accordance with previous GAAP to equity in accordance with IFRS;
- reconciliation of total comprehensive income in accordance with IFRSs to the latest period in the entity’s most recent annual financial statements;
- sufficient disclosure to explain the nature of the main adjustments that would make it comply with IFRS;
- if the entity used the deemed cost exemption, the aggregate of the fair values used and aggregate adjustment to the carrying amounts reported under previous GAAP; and
- IAS 36 disclosures if impairment losses are recognised in the opening balance sheet.

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## ***17 Future developments— standards issued and not yet effective***

# 17 Future developments—standards issued and not yet effective

The IASB has been very active over the last several years. The 2008 global financial crisis accelerated the timetable for a number of projects including fair value measurement, consolidation, joint arrangements and accounting for financial instruments. The IASB has also been working with the FASB on major convergence projects on revenue recognition and leasing. These latter projects could well impact every entity. Portions of the revenue recognition and leasing projects have been re-exposed and no final standards are expected before early 2013 at the earliest.

A portion of the financial instruments project was published as IFRS 9 with an implementation date of 2015. This date may be deferred as major portions of the project, including impairment and hedge accounting, are incomplete. The final versions of these standards could be significantly different from the published proposals.

No decision has been taken on next steps for the Extractive Activities project. It will be considered as part of the wider agenda consultation.

This section focuses on those standards which have been issued and are not yet effective. This section was written as of 31 August 2012. Readers should check for any changes to the standards before application.

Ongoing projects which have not been finalised, such as revenue and leasing, will be examined in separate publications as the development of those standards progresses.

## 17.1 Fair value measurement

The IASB released IFRS 13 “Fair Value Measurement” in May 2011. This consolidates fair value measurement guidance across various IFRSs into a single standard, and applies when another IFRS requires or permits fair value measurements, including fair value less costs to sell. Share based payments, leasing transactions and measurements similar to fair value but which are not fair value (such as net realisable value in IAS 2 or value in use in IAS 36) are out of the scope of the standard.

There may be some changes on adoption of the new standard but this is not expected to be widespread as the requirements are largely consistent with current valuation practices.

IFRS 13 will be most relevant for certain financial assets and derivatives in the mining industry as few entities use fair value for non-financial assets outside of business combinations. The most significant impact will be on entities that are involved in trading activities with non-financial contracts measured at fair value through profit or loss.

The other main changes introduced are:

- An introduction of fair value hierarchy levels for non-financial assets similar to current IFRS 7 requirements;
- A requirement for the fair value of financial liabilities (including derivatives) to be determined based on the assumption that the liability will be transferred to another party rather than settled or extinguished;
- The removal of the requirement for bid prices to be used for actively-quoted financial assets and ask prices to be used for actively-quoted financial liabilities. Instead, the most representative price within the bid-ask spread should be used. Identifying this price could be challenging; and
- Additional disclosure requirements.

The new standard is available for immediate adoption, and is mandatory from 2013. It can be adopted separately from IFRS 9.

## 17.2 Financial instruments

### 17.2.1 New Standard IFRS 9

IFRS 9 “Financial Instruments” has been issued by the IASB and addresses the classification and measurement of financial assets and liabilities. It replaces the existing guidance under IAS 39. It is applicable from January 2015 - early adoption is permitted. IFRS 9 may be applied retrospectively; however, entities may choose to provide additional disclosures for the comparative period instead of restating.

The main feature of IFRS 9 is that it emphasises the entity’s business model when classifying financial assets. Accordingly, the business model and the characteristics of the contractual cash flows of the financial asset determine whether the financial asset is subsequently measured at amortised cost or fair value. This is a key difference to current practice.

### **17.2.2 How does it impact the mining sector?**

The effect of IFRS 9 on the financial reporting of mining entities is expected to vary significantly depending on entities' investment objectives. Mining entities will be impacted by the new standard if they hold many or complex financial assets. The degree of the impact will depend on the type and significance of financial assets held by the entity and the entity's business model for managing financial assets.

For example, entities that hold bond instruments with complex features (such as interest payments linked to company performance or foreign exchange rates) will be significantly impacted. In contrast, mining entities that hold only shares in publicly listed companies that are not held for trading won't be impacted as these continue to be measured at fair value with changes taken to other comprehensive income.

### **17.2.3 What are the key changes for financial assets?**

IFRS 9 replaces the multiple classification and measurement models in IAS 39 with a single model that has only two classification categories: amortised cost and fair value. A financial instrument is measured at amortised cost if two criteria are met:

- a) the objective of the business model is to hold the financial instrument for the collection of the contractual cash flows; and
- b) the contractual cash flows under the instrument solely represent payments of principal and interest.

If these criteria are not met, the asset is classified at fair value. This will be welcome news for most mining entities that hold debt instruments with simple loan features (such as bonds that pay only fixed interest payments and the principal amount outstanding) which are not held for trading.

The new standard removes the requirement to separate embedded derivatives from the rest of a financial asset. It requires a hybrid contract to be classified in its entirety at either amortised cost or fair value. In practice, we expect many of these hybrid contracts to be measured at fair value. The convertible bonds held by mining entities are often considered to be hybrid contracts and may need to be measured at fair value.

IFRS 9 prohibits reclassifications from amortised cost to fair value (or vice versa) except in rare circumstances when the entity's business model changes. In cases where it does, entities will need to reclassify affected financial assets prospectively.

There is specific guidance for contractually linked instruments that create concentrations of credit risk, which is often the case with investment tranches in a securitisation (i.e. asset backed securities). In addition to assessing the instrument itself against the IFRS 9 classification criteria, management should also 'look through' to the underlying pool of instruments that generate cash flows to assess their characteristics. To qualify for amortised cost, the investment must have equal or lower credit risk than the weighted-average credit risk in the underlying pool of other instruments, and those instruments must meet certain criteria. If 'a look through' is impractical, the tranche must be classified at fair value through profit or loss.

Under IFRS 9 all equity investments should be measured at fair value. However, management has an option to present in other comprehensive income the fair value gains and losses on equity investments that are not held for trading. For a mining company, this may include an interest in a listed junior explorer. Such designation is available on initial recognition on an instrument-by-instrument basis and it's irrevocable. There is no subsequent recycling of fair value gains and losses on disposal to the income statement; however, dividends from such investments will continue to be recognised in the income statement. This is good news for many because mining entities may own ordinary shares in public entities. As long as these investments are not held for trading, fluctuations in the share price will be recorded in other comprehensive income. Under the new standard, recent events such as the global financial crisis will not yield volatile results in the income statement from changes in the share prices.

17.2.4 **How could current practice change for mining entities?**

| Type of instrument /<br>Categorisation of instrument   | Accounting under IAS 39  | Accounting under IFRS 9   | Insight  |
|--|--|---|--|
| <p><b>Investments in equity instruments that are not held for trading purposes (e.g., equity securities of a listed entity).</b></p> <p>Note. This does not include associates or subsidiaries unless entities specifically make that election</p> | <p>Usually classified as ‘available for sale’ with gains/losses deferred in other comprehensive income (but may be measured at fair value through profit or loss depending on the instrument).</p> | <p>Measured at fair value with gains/losses recognised in the income statement or through other comprehensive income if applicable.</p>       | <p>Equity securities that are not held for trading can be classified and measured at fair value with gains/losses recognised in other comprehensive income. This means no charges to the income statement for significant or prolonged impairment on these equity investments, which will reduce volatility in the income statement as a result of the fluctuating share prices.</p>   |
| <p><b>Available for sale debt instruments (e.g., corporate bonds)</b></p>  | <p>Recognised at fair value with gains/losses deferred in other comprehensive income.</p>  | <p>Measured at amortised cost where certain criteria are met. Where criteria are not met, measured at fair value through profit and loss.</p> | <p>Determining whether the debt instrument meets the criteria for amortised cost can be challenging in practice. It involves determining what the bond payments represent. If they represent more than principal and interest on principal outstanding (for example, if they include payments linked to a commodity price), this would need to be classified and measured at fair value with changes in fair value recorded in the income statement.</p> |



| Type of instrument /<br>Categorisation of instrument         | Accounting under IAS 39   | Accounting under IFRS 9  | Insight   |
|--|---|--|---|
| <b>Convertible instruments (e.g., convertible bonds)</b>     | Embedded conversion option split out and separately recognised at fair value. The underlying debt instrument is usually measured at amortised cost. | The entire instrument is measured at fair value with gains/losses recognised in the income statement.                                  | <p>Many entities found the separation of conversion options and the requirement to fair value the instrument separately challenging.</p> <p>However, management should be aware that the entire instrument will now be measured at fair value. This may result in a more volatile income statement as it will need to have fair value gains/losses recognised not only on the conversion option, but on the entire instrument.</p>  |
| <b>Held-to-maturity investments (e.g., government bonds)</b> | Measured at amortised cost.   | Measured at amortised cost where certain criteria are met. Where criteria are not met, measured at fair value through profit and loss. | Determining whether the government bond payments meet the criteria for amortised cost remains a challenge. For example, if the government bond includes a component for inflation, as long as the payment represents only compensation for time value of money, it may still meet the criteria for amortised cost. In contrast, a government bond that is linked to foreign currency exchange rates would not meet the criteria for amortised cost; instead this would need to be measured at fair value through profit and loss. |

### **17.2.5 What are the key changes for financial liabilities?**

The main concern in revising IAS 39 for financial liabilities was potentially showing, in the income statement, the impact of ‘own credit risk’ for liabilities recognised at fair value – that is, fluctuations in value due to changes in the liability’s credit risk. This can result in gains being recognised in income when the liability has had a credit downgrade, and losses being recognised when the liability’s credit risk improves. Many users found these results counterintuitive, especially when there is no expectation that the change in the liability’s credit risk will be realised. In view of this concern, the IASB has retained the existing guidance in IAS 39 regarding classifying and measuring financial liabilities, except for those liabilities where the fair value option has been elected.

IFRS 9 changes the accounting for financial liabilities that an entity chooses to account for at fair value through profit or loss, using the fair value option. For such liabilities, changes in fair value related to changes in own credit risk are presented separately in other comprehensive income (OCI).

In practice, a common reason for electing the fair value option is where entities have embedded derivatives that they do not wish to separate from the host liability. In addition, entities may elect the fair value option where they have accounting mismatches with assets that are required to be held at fair value through profit or loss.

Financial liabilities that are required to be measured at fair value through profit or loss (as distinct from those that the entity has chosen to measure at fair value through profit or loss) continue to have all fair value movements recognised in profit or loss with no transfer to OCI. This includes all derivatives (such as foreign currency forwards or interest rate swaps), or an entity’s own liabilities that it classifies as being held for trading.

Fair valuing derivatives could result in the instrument changing from an asset to a liability; this means that it would reflect a different credit risk adjustment depending on the movements in the market prices, which could be volatile.

Amounts in OCI relating to own credit are not recycled to the income statement even when the liability is derecognised and the amounts are realised. However, the standard does allow transfers within equity.

### **17.2.6 What else should entities in the mining sector know about the new standard?**

Entities that currently classify their investments as loans and receivables need to carefully assess whether their business model is based on managing the investment portfolio to collect the contractual cash flows from the financial assets. To meet that objective the entity does not need to hold all of its investments until maturity, but the business must be holding the investments to collect their contractual cash flows.

We expect most mining entities to be managing their loans and receivables (normally trade receivables) to collect their contractual cash flows. As a result, for many entities these new rules will not have a significant impact on their financial assets.

Entities in the mining sector that manage their investments and monitor performance on a fair value basis will need to fair value their financial assets with gains and losses recognised in the income statement. Primarily that’s because their business model is not considered to be based on managing the investment portfolio to collect the contractual cash flows and so a different accounting treatment is required. We expect only a minority of entities in the sector to be managing their investments on this basis.

Some entities made use of the cost exception in the existing IAS 39 for their unquoted equity investments. Under the new standard, these entities can continue to use cost only where it is an appropriate estimate of fair value. Mining entities should be aware that the scenarios in which cost would be an appropriate estimate of fair value are limited to cases when insufficient recent information is available to determine the fair value. Therefore, entities will need to implement mechanisms to determine fair value periodically. There will be a substantial impact on entities that hold investments in unlisted entities where the investing entity doesn’t have significant influence. This could significantly affect businesses as IFRS 9 requires a process or system in place to determine the fair value or range of possible fair value measurements.

Entities that currently classify their financial assets as available-for-sale and plan to make use of the “other comprehensive income option” to defer fair value gains should be aware that it is only available for equity investments on an instrument-by-instrument basis. These entities will not be able to use other comprehensive income for debt instruments. Once this election is chosen, it will irrevocably prevent the entity from recycling gains and losses through the income statement on disposal. For some entities in the sector this will remove some of the freedoms they currently enjoy with the accounting for equity instruments.

Entities in the mining sector may want to consider early adopting the standard, particularly where they have previously recorded impairment losses on equity investments that are not held for trading or where entities would like to reclassify their financial assets. Upon adoption of this standard, entities need to apply the new rules retrospectively. This will allow some entities to reverse some impairment charges recognised on listed equity securities as a result of the global financial crisis. However, an important requirement here is that the entity must still be holding the investment. We expect that some mining entities will consider early adopting the standard to take advantage of this.

Management should bear in mind that the financial instruments project is evolving. IFRS 9 is only the first part of the project to replace IAS 39. Other exposure drafts have been issued in respect of Impairment and Hedge accounting with the intention of improving and simplifying hedge accounting. In addition the IASB has recently agreed to propose limited amendments to IFRS 9 to address some practice problems with the contractual cash flows test and to possibly introduce a third business model, fair value through OCI.

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## *Appendix—Financial statement disclosure examples*

# Financial disclosure examples

## 1 Exploration and Evaluation activities

### 1.1 Capitalisation of exploration property acquisition costs

#### Anglo American Plc

Exploration and evaluation expenditure is expensed in the year in which it is incurred. When a decision is taken that a mining property is economically feasible, all subsequent evaluation expenditure is capitalised within property, plant and equipment including, where applicable, directly attributable pre-production development expenditure. Capitalisation of such expenditure ceases when the mining property is capable of commercial production.

Exploration properties acquired are recognised in the balance sheet at cost less any accumulated impairment losses. Such properties and capitalised evaluation and pre-production development expenditure prior to commercial production are assessed for impairment in accordance with the Group's accounting policy stated above.

*Extract from annual report and accounts 2011, Anglo American Plc, p. 131*

#### China Coal Energy Company Limited

##### Exploration and evaluation expenditure

During the initial stage of a project, exploration and evaluation costs, other than costs incurred in acquiring land use and mining rights, are expensed as incurred. Expenditure on a project after it has reached a stage at which there is a high degree of confidence in its viability is capitalised and transferred to property, plant and equipment if the project proceeds. If a project does not prove viable, all irrecoverable costs associated with the project are expensed in the income statement.

##### Land use rights

Land use rights are stated at cost less accumulated amortisation and impairment losses. Cost represents consideration paid for the rights to use the land on which various plants and buildings are situated for periods varying from 20 to 50 years. Amortisation of land use rights is calculated on a straight-line basis over the period of the land use rights.

#### Mining and exploration rights

Mining rights are stated at cost less accumulated amortisation and impairment losses and are amortised based on the units of production method utilising only recoverable coal reserves as the depletion base.

Exploration rights are stated at cost less impairment losses. Cost of the exploration rights are transferred to mining rights upon the government's approval of the mining license and the commencement of the mining activities.

*Extract from annual report and accounts 2011, China Coal Energy Company Limited, p. 128 and 130*

### 1.2 No capitalisation of exploration study costs

#### First Quantum Minerals Ltd

- i) Mineral properties and mine development costs
- Exploration and evaluation costs are expensed in the period incurred. Property acquisition costs are capitalized. Development costs relating to specific properties are capitalized once management determines the property will be developed. A development decision is made based upon consideration of project economics, including future metal prices, reserves and resources, and estimated operating and capital costs.

*Extract from annual report and accounts 2011, First Quantum Minerals Ltd, p. 58*

### 1.3 Capitalisation of exploration study costs in specific circumstances

#### BHP Billiton Plc

Exploration and evaluation activity involves the search for mineral and petroleum resources, the determination of technical feasibility and the assessment of commercial viability of an identified resource.

Exploration and evaluation activity includes:

- researching and analysing historical exploration data
- gathering exploration data through topographical, geochemical and geophysical studies

- exploratory drilling, trenching and sampling
- determining and examining the volume and grade of the resource
- surveying transportation and infrastructure requirements
- conducting market and finance studies

Administration costs that are not directly attributable to a specific exploration area are charged to the income statement. Licence costs paid in connection with a right to explore in an existing exploration area are capitalised and amortised over the term of the permit.

Exploration and evaluation expenditure (including amortisation of capitalised licence costs) is charged to the income statement as incurred except in the following circumstances, in which case the expenditure may be capitalised:

- In respect of minerals activities:
  - the exploration and evaluation activity is within an area of interest which was previously acquired in a business combination and measured at fair value on acquisition; or
  - the existence of a commercially viable mineral deposit has been established;
- In respect of petroleum activities:
  - the exploration and evaluation activity is within an area of interest for which it is expected that the expenditure will be recouped by future exploitation or sale; or
  - exploration and evaluation activity has not reached a stage which permits a reasonable assessment of the existence of commercially recoverable reserves.

Capitalised exploration and evaluation expenditure considered to be tangible is recorded as a component of property, plant and equipment at cost less impairment charges. Otherwise, it is recorded as an intangible asset (such as licences). As the asset is not available for use, it is not depreciated.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 168*

#### *1.4 Capitalisation decision based on greenfield or brownfield site*

##### **Impala Platinum Holdings Limited**

The Group expenses all exploration and evaluation expenditures until the directors conclude that a future economic benefit is more likely than not of being realised, i.e. probable. In evaluating if expenditures meet this criterion to be capitalised, the directors utilise several different sources of information depending on the level of exploration. While the criteria for concluding that expenditure should be capitalised is always the “probability” of future benefits, the information that management use to make that determination depends on the level of exploration.

- Exploration and evaluation expenditure on greenfields sites, being those where the Group does not have any mineral deposits which are already being mined or developed, is expensed as incurred until a final feasibility study has been completed, after which the expenditure is capitalised within development costs, if the final feasibility study demonstrates that future economic benefits are probable.
- Exploration and evaluation expenditure on brownfields sites, being those adjacent to mineral deposits which are already being mined or developed, is expensed as incurred until management are able to demonstrate that future economic benefits are probable through the completion of a prefeasibility study, after which the expenditure is capitalised as a mine development cost. A ‘prefeasibility study’ consists of a comprehensive study of the viability of a mineral project that has advanced to a stage where the mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, has been established, and which, if an effective method of mineral processing has been determined, includes a financial analysis based on reasonable assumptions of technical, engineering, operating economic factors and the evaluation of other relevant factors.
- The prefeasibility study, when combined with existing knowledge of the mineral property that is adjacent to mineral deposits that are already being mined or developed, allows management to conclude that it is more likely than not that the Group will obtain future economic benefit from the expenditures

- Exploration and evaluation expenditure relating to extensions of mineral deposits which are already being mined or developed, including expenditure on the definition of mineralisation of such mineral deposits, is capitalised as a mine development cost following the completion of an economic evaluation equivalent to a prefeasibility study.
- This economic evaluation is distinguished from a pre-feasibility study in that some of the information that would normally be determined in a prefeasibility study is instead obtained from the existing mine or development. This information when combined with existing knowledge of the mineral property already being mined or developed allows management to conclude that more likely than not the Group will obtain future economic benefit from the expenditures.

Exploration and evaluation assets acquired in a business combination are initially recognised at fair value. Subsequently it is stated at cost less impairment provision. Once commercial reserves are found, exploration and evaluation assets are tested for impairment and transferred to assets under construction. No amortisation is charged during the exploration and evaluation phase.

*Extract from annual report and accounts 2011, Impala Platinum Holdings Limited, p. 125-126*

### *1.5 Impairment considerations for exploration and evaluation assets*

#### **BHP Billiton Plc**

All capitalised exploration and evaluation expenditure is monitored for indications of impairment. Where a potential impairment is indicated, assessment is performed for each area of interest in conjunction with the group of operating assets (representing a cash generating unit) to which the exploration is attributed. Exploration areas at which reserves have been discovered but that require major capital expenditure before production can begin are continually evaluated to ensure that commercial quantities of reserves exist or to ensure that additional exploration work is under way or planned. To the extent that capitalised expenditure is no longer expected to be recovered it is charged to the income statement.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 168*

#### **Rio Tinto Plc**

The carrying values of capitalised evaluation expenditure are reviewed twice a year by management. In the case of undeveloped mining projects, there may be only inferred resources to form a basis for that impairment review. The review is based on a status report summarising the Group's intentions for development. In some cases, the undeveloped projects are regarded as successors to ore bodies, smelters or refineries currently in production. Where this is the case, it is intended that these will be developed and go into production when the current source of ore is exhausted or to replace the reduced output which results where existing smelters and/or refineries are closed. It is often the case that technological and other improvements will allow successor smelters and/or refineries to more than replace the capacity of their predecessors.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 141*

### *1.6 Grouping of exploration and evaluation assets for impairment testing*

#### **Impala Platinum Holdings Limited**

For the purposes of assessing impairment, the exploration and evaluation assets subject to testing are grouped with existing cash-generating units of operating mines that are located in the same geographical region. Where the assets are not associated with a specific cash generating unit, the recoverable amount is assessed using fair value less cost to sell for the specific exploration area.

*Extract from annual report and accounts 2011, Impala Platinum Holdings Limited, p. 125-126*

### *1.7 Reclassification out of E&E*

#### **ENRC Plc**

Once a project has been established as commercially viable, capitalised expenditures are transferred from 'exploration and evaluation' to 'mining assets'. In addition, mining assets include mineral rights, expenditure incurred to establish or expand productive capacity, costs to conduct mining-construction and mining-capital works, as well as costs arising from mining preparation works during the development or mine reconstruction phase.

*Extract from annual report and accounts 2011, ENRC Plc, p. 82-83*

## 2 Development activities

### 2.1 Capitalisation of development costs

#### ENRC Plc

Development expenditure incurred by or on behalf of the Group is accumulated separately for each area of interest in which economically recoverable resources have been identified. Such expenditure comprises costs directly attributable to the construction of a mine and the related infrastructure, including the cost of materials, direct labour and an appropriate proportion of production overheads.

When further development expenditure is incurred in respect of a mining asset after the commencement of production, such expenditure is carried forward as part of mining assets when it is probable that additional future economic benefits associated with the expenditure will flow to the Group.

Otherwise such expenditure is recognised as a cost of production.

Mining assets are included within the category 'Buildings and mining assets' of property, plant and equipment.

*Extract from annual report and accounts 2011, ENRC Plc, p. 82-83*

### 2.2 Capitalisation of borrowing costs

#### BHP Billiton Plc

Finance costs are generally expensed as incurred except where they relate to the financing of construction or development of qualifying assets requiring a substantial period of time to prepare for their intended future use.

Finance costs are capitalised up to the date when the asset is ready for its intended use. The amount of finance costs capitalised (before the effects of income tax) for the period is determined by applying the interest rate applicable to appropriate borrowings outstanding during the period to the average amount of capitalised expenditure for the qualifying assets during the period.

*Annual Report and Accounts 2011, BHP Billiton Plc, p. 170*

#### Anglo American Plc

Interest on borrowings directly relating to the financing of qualifying capital projects under construction is added to the capitalised cost of those projects during the construction phase, until such time as the assets are substantially ready for their intended use or sale which, in the case of mining properties, is when they are capable of commercial production. Where funds have been borrowed specifically to finance a project, the amount capitalised represents the actual borrowing costs incurred. Where the funds used to finance a project form part of general borrowings, the amount capitalised is calculated using a weighted average of rates applicable to relevant general borrowings of the Group during the period.

All other borrowing costs are recognised in the income statement in the period in which they are incurred.

*Annual Report and Accounts 2011, Anglo American Plc, p. 133*

### 2.3 Estimation of reserves

#### BHP Billiton Plc

Reserves are estimates of the amount of product that can be economically and legally extracted from the Group's properties. In order to estimate reserves, estimates are required about a range of geological, technical and economic factors, including quantities, grades, production techniques, recovery rates, production costs, transport costs, commodity demand, commodity prices and exchange rates.

Estimating the quantity and/or grade of reserves requires the size, shape and depth of ore bodies or fields to be determined by analysing geological data such as drilling samples. This process may require complex and difficult geological judgements to interpret the data.

The Group determines and reports ore reserves in Australia and the UK under the principles incorporated in the Australasian Code for Reporting Exploration Results of Mineral Resources and Ore Reserves December 2004, known as the JORC Code. The JORC Code requires the use of reasonable investment assumptions when reporting reserves. As a result, management will form a view of forecast sales prices, based on current and long-term historical average price trends. For example, if current prices remain above long-term historical averages for an extended period of time,



management may assume that lower prices will prevail in the future and as a result, those lower prices are used to estimate reserves under the JORC Code. Lower price assumptions generally result in lower estimates of reserves.

Reserve reporting requirements for SEC (United States of America) filings are specified in Industry Guide 7, which requires economic assumptions to be based on current economic conditions (which may differ from assumptions based on reasonable investment assumptions). Accordingly, for SEC filings, we test our reserve estimates derived under JORC against assumed ‘current economic conditions’. ‘Current economic conditions’ are based on the three-year historical average contract prices for commodities, such as iron ore and coal, and the three-year historical average for commodities that are traded on the London Metal Exchange, such as copper and nickel. However, we only report a different reserve in the US if, based on the US SEC pricing assumptions test, the reserve will be lower than that reported under JORC in Australia and the UK.

Because the economic assumptions used to estimate reserves change from period to period, and because additional geological data is generated during the course of operations, estimates of reserves may change from period to period. Changes in reported reserves may affect the Group’s financial results and financial position in a number of ways, including the following:

- Asset carrying amounts may be affected due to changes in estimated future cash flows.
- Depreciation, depletion and amortisation charged in the income statement may change where such charges are determined by
- The units of production basis, or where the useful economic lives of assets change.
- Overburden removal costs recorded on the balance sheet or charged to the income statement may change due to changes in stripping ratios or the units of production basis of depreciation.
- Decommissioning, site restoration and environmental provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities.
- The carrying amount of deferred tax assets may change due to changes in estimates of the likely recovery of the tax benefits.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 172*

### **Rio Tinto Plc**

The Group estimates its ore reserves and mineral resources based on information compiled by Competent Persons as defined in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves of December 2004 (“the JORC code”). Reserves and, for certain mines, other mineral resources, determined in this way are used in the calculation of depreciation, amortisation and impairment charges, the assessment of life of mine stripping ratios and for forecasting the timing of the payment of close down and restoration costs and clean up costs. In assessing the life of a mine for accounting purposes, mineral resources are only taken into account where there is a high degree of confidence of economic extraction.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 144*

## **3 Production activities**

### **3.1 Revenue Recognition**

#### **Rio Tinto Plc**

Sales revenue comprises sales to third parties at invoiced amounts. Most sales are priced ex works, free on board (fob) or cost, insurance and freight (cif). Amounts billed to customers in respect of shipping and handling are classed as sales revenue where the Group is responsible for carriage, insurance and freight. All shipping and handling costs incurred by the Group are recognised as operating costs. If the Group is acting solely as an agent, amounts billed to customers are offset against the relevant costs. Revenue from services is recognised as services are rendered and accepted by the customer.

Sales revenue excludes any applicable sales taxes. Mining royalties are presented as an operating cost or, where they are in substance a profit based tax, within taxes.

Revenues from the sale of significant by products such as gold, are included in sales revenue. Sundry revenue incidental to the main revenue generating activities of the operations and which is a consequence of producing and selling the main products is treated as a credit to operating costs.

Third party commodity swap arrangements for delivery and receipt of smelter grade alumina are offset within operating costs.

A large proportion of Group production is sold under medium to long term contracts.

Sales revenue is only recognised on individual sales when all of the following criteria are met:

- the significant risks and rewards of ownership of the product have been transferred to the buyer;
- neither continuing managerial involvement to the degree usually associated with ownership, nor effective control over the goods sold, has been retained;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits associated with the sale will flow to the Group; and
- the costs incurred or to be incurred in respect of the sale can be measured reliably.

These conditions are generally satisfied when title passes to the customer. In most instances sales revenue is recognised when the product is delivered to the destination specified by the customer, which is typically the vessel on which it will be shipped, the destination port or the customer's premises.

Sales revenue is commonly subject to adjustment based on an inspection of the product by the customer. In such cases, sales revenue is initially recognised on a provisional basis using the Group's best estimate of contained metal, and adjusted subsequently.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 140*

#### **ENRC Plc**

A significant portion of production is sold under contracts of sale of goods. Revenue from sales of goods is only recognised on individual shipments when persuasive evidence exists that the following criteria are satisfied:

- The significant risks and rewards of ownership of the product have been transferred to the buyer. If it is arranged that the goods are transported to a specified location, revenue is recognised when the goods are passed to the customer at the destination point. The revenue from sales of many products is subject to adjustment based on an inspection of the product by the customer. In such cases, revenue is initially recognised on a provisional basis using the Group's best estimate of the quantity/quality of the product. Any subsequent adjustments to the initial estimate of quantity/quality of the product is recorded in revenue once they have been determined;

- Neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold has been retained;
- The amount of revenue and respective costs incurred or to be incurred in respect of the transaction can be measured reliably; and
- It is probable that the economic benefits associated with the sale will flow to the Group.

Revenues from sales of services are recognised in the accounting period in which the services are rendered by reference to the stage of completion of the specific transaction, assessed on the basis of the actual services provided, as a proportion of the total services to be provided.

Revenues are measured at the fair value of the consideration received or receivable. When the fair value of goods or services received in a barter transaction involving dissimilar items cannot be measured reliably, the revenue is measured at the fair value of the goods or service given up. Revenues are shown net of VAT and discounts.

*Extract from annual report and accounts 2011, ENRC Plc, p. 80-81*

#### **3.2 Revenue recognition—provisional pricing arrangements**

##### **Teck Resources Limited**

Sales of product are recognized when the risks and rewards of ownership pass to the customer and the price is reasonably determinable. The majority of our cathode and metal concentrates are sold under pricing arrangements where final prices are determined by quoted market prices in a period subsequent to the date of sale. For these sales, the price is determined on a provisional basis at the date of sale and revenues are recorded at that time based on forward prices.

Adjustments are made to the sale price in subsequent periods based on movements in quoted market prices up to the date of final pricing. As a result, the value of our cathode and concentrate sales receivables change as the underlying commodity market prices vary and this adjustment mechanism has the characteristics of a derivative. Accordingly, the fair value of the receivable is adjusted each reporting period by reference to forward market prices and the changes in fair value are recorded as an adjustment to other operating income (expense).

*Extract from annual report and accounts 2011, Teck Resources Limited Plc, p. 69*

### Anglo American Plc

Revenue is derived principally from the sale of goods and is measured at the fair value of consideration received or receivable, after deducting discounts, volume rebates, value added tax and other sales taxes. Sales of concentrate are stated at their invoiced amount which is net of treatment and refining charges. A sale is recognised when the significant risks and rewards of ownership have passed. This is usually when title and insurance risk have passed to the customer and the goods have been delivered to a contractually agreed location.

Revenue from metal mining activities is based on the payable metal sold. Sales of certain commodities are provisionally priced such that the price is not settled until a predetermined future date based on the market price at that time. Revenue on these sales is initially recognised (when the above criteria are met) at the current market price. Provisionally priced sales are marked to market at each reporting date using the forward price for the period equivalent to that outlined in the contract. This mark to market adjustment is recognised in revenue.

*Extract from annual report and accounts 2011, Anglo American Plc, p. 130*

### Rio Tinto Plc

Certain products are “provisionally priced”, ie the selling price is subject to final adjustment at the end of a period normally ranging from 30 to 180 days after delivery to the customer. The final price is based on the market price at the relevant quotation point stipulated in the contract.

As is customary in the industry, revenue on provisionally priced sales is recognised based on estimates of the fair value of the consideration receivable based on relevant forward market prices. At each reporting date provisionally priced metal is marked to market based on the forward selling price for the quotational period stipulated in the contract. For this purpose, the selling price can be measured reliably for those products, such as copper, for which there exists an active and freely traded commodity market such as the London Metals Exchange and the value of product sold by the Group is directly linked to the form in which it is traded on that market.

The marking to market of provisionally priced sales contracts is recorded as an adjustment to sales revenue. Information on provisionally priced sales contracts is included in note 31. Certain of the Group’s products, such as iron ore, were previously sold under long term contracts at a benchmark price. During 2010, pricing for the majority of iron ore customers changed to a quarterly basis reflecting the structural shift away from annual benchmark pricing. Changes to pricing mechanisms have continued in some markets during 2011 and substantially all iron ore sales are reflected at final prices in the results for the period, based on the best available information at the period end.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 140*

### 3.3 Depreciation of mining assets— Use of UoP basis

#### Xstrata Plc

On initial acquisition, land and buildings and plant and equipment are valued at cost, being the purchase price and the directly attributable costs of acquisition or construction required to bring the asset to the location and condition necessary for the asset to be capable of operating in the manner intended by management.

In subsequent periods, buildings, plant and equipment are stated at cost less accumulated depreciation and any impairment in value, whilst land is stated at cost less any impairment in value and is not depreciated.

Depreciation is provided so as to write off the costs, less estimated residual values of buildings and plant and equipment (based on prices prevailing at the balance sheet date), on the following bases:

Mine production assets are depreciated using a unit-of-production method based on estimated economically recoverable reserves, which results in a depreciation charge proportional to the depletion of reserves.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 127-128*

#### **ENRC Plc**

Once a project has been fully commissioned, depreciation is charged using the units of production method, based on proved and probable reserves, with separate calculations being made for each area of interest. The units of production basis results in a depreciation charge proportional to the depletion of proved and probable reserves.

*Extract from annual report and accounts 2011, ENRC Plc, p. 82-83*

#### **3.4 Depreciation of mining assets—Use of UoP and straight line bases**

##### **Rio Tinto Plc**

Property, plant and equipment is depreciated over its useful life, or over the remaining life of the mine if that is shorter and there is no alternative use for the asset.

The useful lives of the major assets of a cash-generating unit are often dependent on the life of the ore body to which they relate. Where this is the case, the lives of mining properties, and their associated refineries, concentrators and other long lived processing equipment generally relate to the expected life of the ore body. The life of the ore body, in turn, is estimated on the basis of the life-of-mine plan. Where the major assets of a cash-generating unit are not dependent on the life of a related ore body, management applies judgment in estimating the remaining service potential of long lived assets. In the case of smelters, factors affecting the remaining service potential include smelter technology and electricity contracts when the power is not sourced from the company's own electricity generating capacity.

Depreciation commences when an asset is available for use. The major categories of property, plant and equipment are depreciated on a units of production and/ or straight line basis as follows:

##### *Units of production basis:*

For mining properties and leases and certain mining equipment, the consumption of the economic benefits of the asset is linked to the production level. Except as noted below, these assets are depreciated on a units of production basis.

In applying the units of production method, depreciation is normally calculated using the quantity of material extracted from the mine in the period as a percentage of the total quantity of material to be extracted in current and future periods based on proved and probable reserves and, for some mines, other mineral resources. These other mineral resources may be included in depreciation calculations in limited circumstances and where there is a high degree of confidence in their economic extraction.

##### *Straight line basis:*

Assets within operations for which production is not expected to fluctuate significantly from one year to another or which have a physical life shorter than the related mine are depreciated on a straight line basis.

Development costs that relate to a discrete section of an ore body, and which only provide benefit over the life of those reserves, are depreciated over the estimated life of that discrete section. Development costs incurred which benefit the entire ore body are depreciated over the estimated life of the ore body.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 142-143*

#### **3.5 Depreciation of non-mining assets**

##### **Xstrata Plc**

Buildings and plant and equipment unrelated to production are depreciated using the straight-line method based on estimated useful lives.

Where parts of an asset have different useful lives, depreciation is calculated on each separate part. Each asset or part's estimated useful life has due regard to both its own physical life limitations and the present assessment of economically recoverable reserves of the mine property at which the item is located, and to possible future variations in those assessments. Estimates of remaining useful lives and residual values are reviewed annually. Changes in estimates are accounted for prospectively.

The expected useful lives are as follows:

Buildings 15 – 40 years

Plant and equipment 4 – 30 years

The net carrying amounts of land, buildings and plant and equipment are reviewed for impairment either individually or at the cash-generating unit level when events and changes in circumstances indicate that the carrying amounts may not be recoverable. To the extent that these values exceed their recoverable amounts, that excess is fully provided against in the financial year in which this is determined.

Where an item of property, plant and equipment is disposed of, it is derecognised and the difference between its carrying value and net sales proceeds is disclosed as a profit or loss on disposal in the income statement. Any items of property, plant or equipment that cease to have future economic benefits are derecognised with any gain or loss included in the income statement in the financial year in which the item is derecognised.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 127-128*

### 3.6 Capitalisation of care and maintenance costs

#### Xstrata Plc

Expenditure on major maintenance or repairs includes the cost of the replacement of parts of assets and overhaul costs. Where an asset or part of an asset is replaced and it is probable that future economic benefits associated with the item will be available to the Group, the expenditure is capitalised and the carrying amount of the item replaced derecognised. Similarly, overhaul costs associated with major maintenance are capitalised and depreciated over their useful lives where it is probable that future economic benefits will be available and any remaining carrying amounts of the cost of previous overhauls are derecognised. All other costs are expensed as incurred.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 127-128*

### 3.7 Inventory valuation

#### Rio Tinto Plc

Inventories are valued at the lower of cost and net realisable value, primarily on a weighted average cost basis. Average costs are calculated by reference to the cost levels experienced in the relevant month together with those in opening inventory. Cost for raw materials

and stores is purchase price and for partly processed and saleable products is generally the cost of production. For this purpose the costs of production include:

- labour costs, materials and contractor expenses which are directly attributable to the extraction and processing of ore;
- the depreciation of mining properties and leases and of property, plant and equipment used in the extraction and processing of ore; and
- production overheads.

Stockpiles represent ore that has been extracted and is available for further processing. If there is significant uncertainty as to when the stockpiled ore will be processed it is expensed as incurred. Where the future processing of this ore can be predicted with confidence, eg because it exceeds the mine's cut off grade, it is valued at the lower of cost and net realisable value. If the ore will not be processed within the 12 months after the statement of financial position date it is included within non-current assets and net realisable value is calculated on a discounted cash flow basis. Work in progress inventory includes ore stockpiles and other partly processed material. Quantities are assessed primarily through surveys and assays.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 145*

#### First Quantum Minerals Limited

Product inventories comprise ore in stockpiles; acid and metal work-in-progress; finished acid; and finished cathode and metal in concentrate and gold bullion. Product inventories are recorded at the lower of average cost and net realizable value. Cost includes materials, direct labour, other direct costs and production overheads and amortization of plant, equipment and mineral properties directly involved in the mining and production processes. Waste rock stripping costs related to production are inventoried as incurred.

When inventories have been written down to net realizable value, a new assessment of net realizable value is made in each subsequent period. When the circumstances that caused the write down no longer exist, or when there is clear evidence of an increase in net realizable value because of changed economic circumstances the amount of the write down is reversed.

Consumable stores are valued at the lower of purchase cost and net realizable value and recorded as a current asset.

Inventories on hand that will not be processed within one year are classified as long-term.

*Extract from annual report and accounts 2011, First Quantum Minerals, p. 58*

### *3.8 Inventory valuation—Stockpiles and heap leaching*

#### **Barrick Gold Corporation**

Material extracted from our mines is classified as either ore or waste. Ore represents material that, at the time of extraction, we expect to process into a saleable form and sell at a profit. Raw materials are comprised of both ore in stockpiles and ore on leach pads as processing is required to extract benefit from the ore. Ore is accumulated in stockpiles that are subsequently processed into gold/copper in a saleable form. The recovery of gold and copper from certain oxide ores is achieved through the heap leaching process. Work in process represents gold/copper in the processing circuit that has not completed the production process, and is not yet in a saleable form. Finished goods inventory represents gold/copper in saleable form that has not yet been sold. Mine operating supplies represent commodity consumables and other raw materials used in the production process, as well as spare parts and other maintenance supplies that are not classified as capital items.

Inventories are valued at the lower of cost and net realizable value. Cost is determined on a weighted average basis and includes all costs incurred, based on a normal production capacity, in bringing each product to its present location and condition. Cost of inventories comprises direct labor, materials and contractor expenses, including non-capitalized stripping costs; depreciation on PP&E including capitalized stripping costs; and an allocation of mine site overhead costs. As ore is removed for processing, costs are removed based on the average cost per ounce/pound in the stockpile.

*Extract from annual report and accounts 2011, Barrick Gold Corporation, p. 116-117*

### *3.9 Inventory valuation—Joint products and by-products*

#### **Teck Resources Limited**

We use both joint-product and by-product costing for work in process and finished product inventories. Joint costing is applied to primary products at the Red Dog, Antamina, Duck Pond and Trail operations, where the profitability of the operations is dependent upon the production of a number of primary products. Joint costing allocates total production costs based on the relative values of the products. Where by-product costing is used, by-products are allocated the incremental costs of processes that are specific to the production of that product.

*Extract from annual report and accounts 2011, Teck Resources Limited, p. 70*

## *4 Business Combinations*

### *4.1 Allocation of purchase price*

#### **Xstrata Plc**

On the acquisition of a subsidiary, the acquisition method of accounting is used, whereby the purchase consideration is allocated to the identifiable assets, liabilities and contingent liabilities (identifiable net assets) on the basis of fair value at the date of acquisition. Those mining rights, mineral reserves and resources that are able to be reliably valued are recognised in the assessment of fair values on acquisition. Other potential reserves, resources and mineral rights, for which in the Directors' opinion values cannot be reliably determined, are not recognised. Acquisition costs are expensed.

When the cost of acquisition exceeds the fair values attributable to the Group's share of the identifiable net assets, the difference is treated as purchased goodwill, which is not amortised but is reviewed for impairment annually or where there is an indication of impairment. If the fair value attributable to the Group's share of the identifiable net assets exceeds the cost of acquisition, the difference is immediately recognised in the income statement.

Non-controlling interests represent the portion of profit or loss and net assets in subsidiaries that are not held by the Group and are presented in equity in the consolidated balance sheet, separately from the parent's shareholders' equity.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date through profit or loss.

Any contingent consideration to be transferred by the acquirer will be recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability will be recognised in accordance with IAS 39 either in profit or loss or as a change to other comprehensive income. If the contingent consideration is classified as equity, it will not be re-measured.

Subsequent settlement is accounted for within equity. In instances where the contingent consideration does not fall within the scope of IAS 39, it is measured in accordance with the appropriate IFRS.

Similar procedures are applied in accounting for the purchases of interests in associates. Any goodwill arising on such purchases is included within the carrying amount of the investment in the associates, but not thereafter amortised. Any excess of the Group's share of the net fair value of the associate's identifiable assets, liabilities and contingent liabilities over the cost of the investment is included in income in the period of the purchase.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 125-126*

#### *4.2 Contingent consideration*

##### **ENRC Plc**

The acquisition method of accounting is used to account for business combinations.

The Group elects on a transaction-by-transaction basis, to measure non-controlling interests at the value of their proportion of identifiable assets and liabilities or at full fair value. The excess of the cost of acquisition over the Group's interest in the net fair value of the identifiable assets, liabilities and contingent liabilities of the acquiree, represents goodwill. 'Bargain purchase gain' is recognised immediately in profit and loss.

The consideration transferred in a business combination is measured at fair value, with contingent consideration recognised at fair value as part of that consideration transferred. The obligation to pay contingent consideration is classified as a liability or equity on the basis of the terms and conditions of the contingent consideration. Contingent consideration that is classified as equity is not remeasured, and its subsequent settlement is accounted for within equity. In a business combination achieved in stages, the previously held equity interest in the acquiree is re-measured at its acquisition date fair value and the resulting gain or loss, if any, is recognised in profit or loss.

Transaction costs, other than those associated with the issue of debt or equity securities, that the Group incurs in conjunction with a business combination are expensed as incurred.

*Extract from annual report and accounts 2011, ENRC Plc, p. 83-84*

#### *4.3 Goodwill and bargain purchases*

##### **BHP Billiton Plc**

Where the fair value of consideration paid for a business combination exceeds the fair value of the Group's share of the identifiable net assets acquired, the difference is treated as purchased goodwill. Where the fair value of the Group's share of the identifiable net assets acquired exceeds the cost of acquisition, the difference is immediately recognised in the income statement. The recognition and measurement of goodwill attributable to a non-controlling interest in a business combination is determined on a transaction by transaction basis.

Goodwill is not amortised, however its carrying amount is assessed annually against its recoverable amount as explained below under 'Impairment of non-current assets'. On the subsequent disposal or termination of a previously acquired business, any remaining balance of associated goodwill is included in the determination of the profit or loss on disposal or termination.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 167*



## 6 Closure and rehabilitation liabilities

### 6.1 Recognition and measurement of rehabilitation liabilities

#### BHP Billiton Plc

The mining, extraction and processing activities of the Group normally give rise to obligations for site closure or rehabilitation. Closure and rehabilitation works can include facility decommissioning and dismantling; removal or treatment of waste materials; site and land rehabilitation. The extent of work required and the associated costs are dependent on the requirements of relevant authorities and the Group's environmental policies.

Provisions for the cost of each closure and rehabilitation program are recognised at the time that environmental disturbance occurs. When the extent of disturbance increases over the life of an operation, the provision is increased accordingly. Costs included in the provision encompass all closure and rehabilitation activity expected to occur progressively over the life of the operation and at the time of closure in connection with disturbances at the reporting date. Routine operating costs that may impact the ultimate closure and rehabilitation activities, such as waste material handling conducted as an integral part of a mining or production process, are not included in the provision.

Costs arising from unforeseen circumstances, such as the contamination caused by unplanned discharges, are recognised as an expense and liability when the event gives rise to an obligation which is probable and capable of reliable estimation.

The timing of the actual closure and rehabilitation expenditure is dependent upon a number of factors such as the life and nature of the asset, the operating licence conditions, the principles of the Group's Charter and the environment in which the mine operates. Expenditure may occur before and after closure and can continue for an extended period of time dependent on closure and rehabilitation requirements.

The majority of the expenditure is expected to be paid over periods of up to 50 years with some payments into perpetuity.

Closure and rehabilitation provisions are measured at the expected value of future cash flows, discounted to their present value and determined according to the probability of alternative estimates of cash flows occurring for each operation. Discount rates used are specific to the country in which the operation is located. Significant judgements and estimates are involved in forming expectations of future activities and the amount and timing of the associated cash flows. Those expectations are formed based on existing environmental and regulatory requirements or, if more stringent, Group environmental policies which give rise to a constructive obligation.

When provisions for closure and rehabilitation are initially recognised, the corresponding cost is capitalised as an asset, representing part of the cost of acquiring the future economic benefits of the operation.

The capitalised cost of closure and rehabilitation activities is recognised in property, plant and equipment and depreciated accordingly.

The value of the provision is progressively increased over time as the effect of discounting unwinds, creating an expense recognised in financial expenses.

Closure and rehabilitation provisions are also adjusted for changes in estimates. Those adjustments are accounted for as a change in the corresponding capitalised cost, except where a reduction in the provision is greater than the undepreciated capitalised cost of the related assets, in which case the capitalised cost is reduced to nil and the remaining adjustment is recognised in the income statement.

In the case of closed sites, changes to estimated costs are recognised immediately in the income statement. Changes to the capitalised cost result in an adjustment to future depreciation. Adjustments to the estimated amount and timing of future closure and rehabilitation cash flows are a normal occurrence in light of the significant judgements and estimates involved. Factors influencing those changes include:

- revisions to estimated reserves, resources and lives of operations;
- developments in technology;
- regulatory requirements and environmental management strategies;



- changes in the estimated extent and costs of anticipated activities, including the effects of inflation and movements in foreign
- exchange rates;
- movements in interest rates affecting the discount rate applied.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 171*

### *6.2 Performance of rehabilitation over life of operation and additional environmental damage*

#### **Rio Tinto Plc**

The Group holds provisions for close down and restoration costs which include the dismantling and demolition of infrastructure and the removal of residual materials and remediation of disturbed areas.

Close down and restoration costs are a normal consequence of mining, and the majority of close down and restoration expenditure is incurred at the end of the life of the mine. Although the ultimate cost to be incurred is uncertain, the Group's businesses estimate their costs based on feasibility and engineering studies using current restoration standards and techniques.

Close down and restoration costs are provided for in the accounting period when the obligation arising from the related disturbance occurs based on the net present value of future costs. This may occur during development or during the production phase of a facility.

Provisions for close down and restoration costs do not include any additional obligations which are expected to arise from future disturbance. The costs are estimated on the basis of a closure plan and are updated annually during the life of the operation to reflect known developments, e.g. revisions to cost estimates and to the estimated lives of operations. The estimates are subject to formal review at regular intervals.

The initial closure provision is capitalised within property, plant and equipment. Subsequent movements in these closure provisions, including those resulting from new disturbance, updated cost estimates, changes to the estimated lives of operations and revisions to discount rates are also capitalised within property, plant and equipment. These costs are then depreciated over the lives of the assets to which they relate.

The amortisation or “unwinding” of the discount applied in establishing the net present value of provisions is charged to the income statement in each accounting period. The amortisation of the discount is shown as a financing cost.

Where rehabilitation is conducted systematically over the life of the operation, rather than at the time of closure, provision is made for the estimated outstanding continuous rehabilitation work at each statement of financial position date and the cost is charged to the income statement.

Clean up costs result from environmental damage that was not a necessary consequence of operations, and may include remediation, compensation and penalties. Provision is made for the estimated present value of such costs at the statement of financial position date. These costs are charged to the income statement.

Movements in these clean up provisions are presented as an operating cost, except for the unwinding of the discount which is shown as a financing cost.

Remediation procedures may commence soon after the time the disturbance, remediation process and estimated remediation costs become known, but can continue for many years depending on the nature of the disturbance and the remediation techniques used.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 144*

### *6.3 Closure and rehabilitation funds*

#### **Anglo American Plc**

An obligation to incur environmental restoration, rehabilitation and decommissioning costs arises when disturbance is caused by the development or ongoing production of a mining property. Such costs arising from the decommissioning of plant and other site preparation work, discounted to their net present value, are provided for and capitalised at the start of each project, as soon as the obligation to incur such costs arises. These costs are recognised in the income statement over the life of the operation, through the depreciation of the asset and the unwinding of the discount on the provision. Costs for restoration of subsequent site damage which is created on an ongoing basis during production are provided for at their net present values and recognised in the income statement as extraction progresses.

Changes in the measurement of a liability relating to the decommissioning of plant or other site preparation work (that result from changes in the estimated timing or amount of the cash flow or a change in the discount rate), are added to or deducted from the cost of the related asset in the current period. If a decrease in the liability exceeds the carrying amount of the asset, the excess is recognised immediately in the income statement. If the asset value is increased and there is an indication that the revised carrying value is not recoverable, an impairment test is performed in accordance with the accounting policy set out above.

For some South African operations annual contributions are made to dedicated environmental rehabilitation trusts to fund the estimated cost of rehabilitation during and at the end of the life of the relevant mine. The Group exercises full control of these trusts and therefore the trusts are consolidated. The trusts' assets are disclosed separately on the balance sheet as noncurrent assets. The trusts' assets are measured based on the nature of the underlying assets in accordance with accounting policies for similar assets.

*Extract from annual report and accounts 2011, Anglo American Plc, p. 132*

## **7 Impairment**

### **7.1 Cash generating units**

#### **ENRC Plc**

The carrying amounts of property, plant and equipment and all other non-financial assets are reviewed for impairment if facts and circumstances indicate that impairment may exist. Goodwill is tested for impairment annually in accordance with paragraph 99 of IAS 36 for Cash Generating Units ('CGU') where there has been significant headroom in the preceding assessment.

In other CGUs, the recoverable amount is assessed by reference to the higher of 'value in use' (being the net present value of expected future cash flows of the relevant cash generating unit) and 'fair value less costs to sell' (the amount obtainable from the sale of an asset or CGU in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal). Where there is no binding sale agreement or active market, fair value less costs to sell is based on the best information available to reflect the amount

the Group could receive for the CGU in an arm's length transaction and based on Net Present Value ('NPV') of expected future cash flow of relevant CGUs. A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.

The estimates used for impairment reviews to determine 'value in use' are based on detailed mine plans and operating budgets, modified as appropriate to meet the requirements of IAS 36 'Impairment of Assets'. Future cash flows are based on:

- Estimates of the quantities of the reserves and mineral resources for which there is a high degree of confidence of economic extraction;
- Future production levels;
- Future commodity prices; and
- Future cash costs of production, capital expenditure related to construction in progress and development projects that are not yet completed, close down, restoration and environmental clean up.

If the carrying amount of the asset exceeds its recoverable amount, the asset is impaired and an impairment loss is charged to the income statement so as to reduce the carrying amount in the balance sheet to its recoverable amount. A previously recognised impairment loss is reversed if the recoverable amount increases as a result of a reversal of the conditions that originally resulted in the impairment. This reversal is recognised in the income statement and is limited to the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised in prior years. An impairment loss recognised for goodwill is not reversed in a subsequent period.

*Extract from annual report and accounts 2011, ENRC Plc, p. 83*

### **7.2 Cash flow forecasts in impairment tests**

#### **Rio Tinto Plc**

Property, plant and equipment and intangible assets with finite lives are reviewed for impairment if there is any indication that the carrying amount may not be recoverable. All goodwill and intangible assets that are not yet ready for use, or have an indefinite life, are tested annually for impairment regardless of whether there has been any change in events or circumstances.

Impairment is assessed at the level of cash-generating units which, in accordance with IAS 36 “Impairment of Assets”, are identified as the smallest identifiable group of assets that generates cash inflows, which are largely independent of the cash inflows from other assets.

In some cases, the business units within product groups consist of several operations with independent cash generating streams, which constitute separate cash-generating units.

Goodwill acquired through business combinations is allocated to the cash-generating unit, or groups of cash-generating units if that is the lowest level within the Group at which goodwill is monitored for internal management purposes, that are expected to benefit from the related business combination. When an impairment review is undertaken, the recoverable amount is assessed by reference to the higher of value in use (being the net present value of expected future cash flows of the relevant cash-generating unit in its current condition) and fair value less costs to sell (“fair value”). The best evidence of fair value is the value obtained from an active market or binding sale agreement. Where neither exists, fair value is based on the best information available to reflect the amount the Group could receive for the cash generating unit in an arm’s length transaction. This is often estimated using discounted cash flow techniques.

Where recoverable amount is assessed using fair value based on discounted cash flow techniques, the resulting estimates are based on detailed “life of mine” and/or production plans. For value in use, recent cost levels are considered, together with expected changes in costs that are compatible with the current condition of the business and which meet the requirements of IAS 36.

The cash flow forecasts for fair value purposes are based on management’s best estimates of expected future revenues and costs, including the future cash costs of production, capital expenditure, closure, restoration and environmental clean up. For the purposes of determining fair value from a market participant’s perspective, the cash flows incorporate management’s price and cost assumptions in the short and medium term. In the longer term, operating margins are assumed to remain constant as it is considered unlikely that a market participant would prepare detailed forecasts over a longer term period. The cash flow forecasts may include net cash flows expected to be realised from extraction, processing and sale of mineral resources that do not currently

qualify for inclusion in proved or probable ore reserves. Such non-reserve material is only included where there is a high degree of confidence in its economic extraction. This expectation is usually based on preliminary drilling and sampling of areas of mineralisation that are contiguous with existing reserves. Typically, the additional evaluation to achieve reserve status for such material has not yet been done because this would involve incurring costs earlier than is required for the efficient planning and operation of the mine.

As noted above, cost levels incorporated in the cash flow forecasts for fair value purposes are based on the current life-of-mine plan or long-term production plan for the cash-generating unit. Because future cash flows are estimates for the asset in its current condition, value in use does not reflect future cash flows associated with improving or enhancing an asset’s performance. Anticipated enhancements to assets are included in fair value calculations.

Where the recoverable amount of a cash-generating unit is dependent on the life of its associated orebody, expected future cash flows reflect long-term mine plans, which are based on detailed research, analysis and iterative modelling to optimise the level of return from investment, output and sequence of extraction. The mine plan takes account of all relevant characteristics of the orebody, including waste to ore ratios, ore grades, haul distances, chemical and metallurgical properties of the ore impacting on process recoveries and capacities of processing equipment that can be used. The life-of-mine plan is therefore the basis for forecasting production output in each future year and for forecasting production costs.

Forecast cash flows for ore reserve estimation for Joint Ore Reserves Committee (JORC) purposes are generally based on Rio Tinto’s price forecasts of commodity prices, which assume short term market prices will revert to the Group’s assessment of the long term price, generally over a period of three to five years. For most commodities, these forecast commodity prices are derived from a combination of analyses of the marginal costs of the producers and of the incentive price of these commodities. These assessments often differ from current price levels and are updated periodically. For the long run, the Group does not believe that forward prices quoted in the metals markets provide a good indication of future price levels since forward prices tend to be strongly influenced by spot price levels. Rio Tinto’s price forecasts of commodity prices include an element of

carbon pricing. These price forecasts are also used for impairment testing unless management deems that in certain economic environments, a market participant would not assign Rio Tinto's view on prices, in which case management base them upon assumptions which a market participant would be expected to use under these economic conditions.

In some cases, prices applying to some part of the future sales volumes of a cash-generating unit are predetermined by existing sales contracts. The effects of such contracts are taken into account in forecasting future cash flows.

The discount rates applied to the future cash flow forecasts represent an estimate of the rate the market would apply having regard to the time value of money and the risks specific to the asset for which the future cash flow estimates have not been adjusted. The Group's weighted average cost of capital is used as a starting point for determining the discount rates, with appropriate adjustments for the risk profile of the countries in which the individual cash-generating units operate. For final feasibility studies and ore reserve estimation, internal hurdle rates are used which are generally higher than the weighted average cost of capital.

For operations with a functional currency other than the US dollar, the impairment review is undertaken in the relevant functional currency. The great majority of the Group's sales are based on prices denominated in US dollars. To the extent that the currencies of countries in which the Group produces commodities strengthen against the US dollar without commodity price offset, cash flows and, therefore, net present values are reduced.

Management considers that over the long term, there is a tendency for movements in commodity prices to compensate to some extent for movements in the value of the US dollar (and vice versa). However, such compensating changes are not synchronised and do not fully offset each other. In estimating fair value, a forecast of the long term exchange rates, for the Australian and Canadian dollars, is made having regard to spot exchange rates, historical data and external forecasts, and is linked to price assumptions.

When calculating value in use, IAS 36 requires that calculations should be based on exchange rates current at the time of the assessment.

Non financial assets other than goodwill that have suffered an impairment are tested for possible reversal of the impairment whenever events or changes in circumstances indicate that the impairment may have reversed.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 143*

### *7.3 Impairment of goodwill*

#### **ENRC Plc**

Goodwill acquired through business combinations has been allocated to those cash-generating units or groups of CGUs that are expected to benefit from the business combination. These CGUs or groups of CGUs represent the lowest level within the Group at which goodwill is monitored for internal management purposes and these groups are not larger than the Group's operating segments, which are its product groups.

Goodwill is tested for impairment annually in accordance with the impairment policy described in the note above. Goodwill is initially measured as the excess of the aggregate of the consideration transferred and the fair value of non-controlling interest over the net identifiable assets acquired and liabilities assumed. Subsequently, goodwill is measured at cost initially recognised less accumulated impairment losses.

*Extract from annual report and accounts 2011, ENRC Plc, p. 83-84*

#### **BHP Billiton Plc**

##### *Goodwill*

Goodwill is not amortised, however its carrying amount is assessed annually against its recoverable amount as explained below under 'Impairment of non-current assets'. On the subsequent disposal or termination of a previously acquired business, any remaining balance of associated goodwill is included in the determination of the profit or loss on disposal or termination.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 167*

## 8 Royalties and taxes

### 8.1 Income taxes

#### ENRC Plc

The income tax expense for the period comprises current and deferred tax. Income tax is recognised in the income statement, except to the extent that it relates to items recognised in other comprehensive income or directly in equity, in which case tax is also recognised in other comprehensive income or directly in equity. Kazakhstan Excess Profits Tax, being a tax on income, forms part of the income tax expense.

Current tax expense is the expected tax payable on the taxable income for the year. It is calculated on the basis of the tax laws and rates enacted or substantively enacted at the balance sheet date, and includes any adjustment to tax payable in respect of previous periods.

Deferred income tax is recognised using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the Consolidated financial statements. However, deferred income tax is not accounted for if it arises from the initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates and laws that have been enacted or substantively enacted at the balance sheet date and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised. Deferred income tax assets are reviewed at each balance sheet date and are reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred assets to be utilised.

Deferred income tax is provided on temporary differences arising on investments in subsidiaries, branches, associates and interests in joint ventures, except where the timing of the reversal of the temporary difference is controlled by the Group and it is probable

that the temporary difference will not reverse in the foreseeable future. The aggregate amount of temporary differences associated with investments in subsidiaries, branches, associates and interests in joint ventures for which deferred tax liabilities have not been recognised is disclosed in the financial statements.

Deferred income tax assets and liabilities are offset only when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

*Extract from annual report and accounts 2011, ENRC Plc, p. 81*

### 8.2 Resource rent taxes and royalties treated as income taxes

#### BHP Billiton Plc

Royalties and resource rent taxes are treated as taxation arrangements when they have the characteristics of a tax. This is considered to be the case when they are imposed under government authority and the amount payable is calculated by reference to revenue derived (net of any allowable deductions) after adjustment for temporary differences. For such arrangements, current and deferred tax is provided on the same basis as described above for other forms of taxation. Obligations arising from royalty arrangements that do not satisfy these criteria are recognised as current provisions and included in expenses.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 170*

#### Barrick Gold Corporation

Income tax expense includes the cost of royalty and special mining taxes payable to governments that are calculated based on a percentage of taxable profit whereby taxable profit represents net income adjusted for certain items defined in the applicable legislation.

*Extract from annual report and accounts 2011, Barrick Gold Corporation, p. 116*

### 8.3 Royalties not treated as income taxes

#### Impala Platinum Holdings Limited

Prepaid royalty is recorded initially at cost and subsequently at cost less accumulated amortisation. The royalty is amortised using the units-of-production method based on the relevant estimated economically recoverable proved and probable minerals reserves.

*Extract from annual report and accounts 2011, Impala Platinum Holdings Limited, p. 126*

#### Rio Tinto Plc

Mining royalties are presented as an operating cost or, where they are in substance a profit based tax, within taxes.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 140*

## 9 Functional Currency

### 9.1 Identifying the functional currency

#### ENRC Plc

All amounts in these financial statements are presented in millions of US\$, unless otherwise stated.

The functional currency of the significant operating entities is either the Kazakhstani tenge ('KZT'), or the Russian rouble ('RUB') or Brazilian real ('BRL'), whilst for the Sales and Marketing entities and significant African operations it is the US dollar ('US\$'). The functional currency for major entities in the Group is determined as the currency of the primary economic environment in which it operates.

The following additional factors are considered in determining the functional currency of a foreign operation:

- Whether the activities of the foreign operation are carried out as an extension of the reporting entity, rather than being carried out with a significant degree of autonomy;
- Whether transactions with the reporting entity are a high or a low proportion of the foreign operation's activities;
- Whether cash flows from the activities of the foreign operation directly affect the cash flows of the reporting entity and are readily available for remittance to it; and

- Whether cash flows from the activities of the foreign operation are sufficient to service existing and normally expected debt obligations without funds being made available by the reporting entity.

The functional currency of the Company is the US\$.

*Extract from annual report and accounts 2011, ENRC Plc, p. 79-80*

#### Teck Resources Limited

The functional currency for each of our subsidiaries and for joint ventures and associates is the currency of the primary economic environment in which the entity operates. Transactions in foreign currencies are translated to the functional currency of the entity at the exchange rate in existence at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the balance sheet date are retranslated at the period end date exchange rates. Non-monetary items which are measured using historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

The functional currency of Teck Resources Limited, the parent entity, is the Canadian dollar, which is also the presentation currency of our consolidated financial statements.

*Extract from annual report and accounts 2011, Teck Resources Limited, p. 68*

### 9.2 Translation of balances

#### Barrick Gold Corporation

The functional currency of the Company, for each subsidiary of the Company, and for joint ventures and associates, is the currency of the primary economic environment in which it operates. The functional currency of our gold and copper operations is the US dollar. We translate non-US dollar balances for these operations into US dollars as follows:

- Property, plant and equipment ("PP&E"), intangible assets and equity method investments using historical rates;
- Available-for-sale securities using the closing exchange rate as at the balance sheet date with translation gains and losses recorded in OCI;

- Deferred tax assets and liabilities using the closing exchange rate as at the balance sheet date with translation gains and losses recorded in income tax expense;
- Other assets and liabilities using the closing exchange rate as at the balance sheet date with translation gains and losses recorded in other income/expense; and
- Income and expenses using the average exchange rate for the period, except for expenses that relate to non-monetary assets and liabilities measured at historical rates, which are translated using the same historical rate as the associated non-monetary assets and liabilities.

The functional currency of our Canadian oil and gas operations is the Canadian dollar. We translate non-US dollar balances related to these operations into US dollars as follows:

- Assets and liabilities using the closing exchange rate as at the balance sheet date with translation gains and losses recorded in OCI; and
- Income and expense using the average exchange rate for the period with translation gains and losses recorded in OCI.

*Extract from annual report and accounts 2011, Barrick Gold Corporation, p. 114*

### 9.3 Accounting for exchange differences

#### Xstrata Plc

Financial statements of subsidiaries, joint ventures and associates are maintained in their functional currencies and converted to US dollars for consolidation of the Group results. The functional currency of each entity is determined after consideration of the primary economic environment of the entity.

Transactions in foreign currencies are translated at the exchange rates ruling at the date of transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at year-end exchange rates. All differences that arise are recorded in the income statement except for differences arising on rehabilitation provisions which are capitalised for operating mines. Nonmonetary assets measured at historical cost in a foreign currency are translated using the exchange

rates at the date of the initial transactions. Where non-monetary assets are measured at fair value in a foreign currency, they are translated at the exchange rates when the fair value was determined.

Where the exchange difference relates to an item which has been recorded in equity, the related exchange difference is also recorded in equity.

On consolidation of foreign operations into US dollars, income statement items are translated at weighted average rates of exchange where this is a reasonable approximation of the exchange rate at the dates of the transactions. Balance sheet items are translated at closing exchange rates.

Exchange differences on the re-translation of the investments in foreign subsidiaries, joint ventures and associates at closing rates, together with differences between income statements translated at average and at closing rates, are recorded in a separate component of equity. Exchange differences relating to quasi-equity inter-company loan balances with the foreign operations that form part of the net investment in the foreign operation are also recognised in this component of equity. On disposal or partial disposal of a foreign entity, the deferred cumulative amount recognised in equity relating to that particular foreign operation is recognised in the income statement.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 126*

## 10 Operating segments

### 10.1 Identifying operating segments

#### ENRC Plc

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for making strategic decisions, allocating resources and assessing performance of the operating segments, has been identified as the Group Chief Executive Officer.

*Extract from annual report and accounts 2011, ENRC Plc, p. 87*



### Impala Platinum Holdings Limited

An operating segment is a component of an entity:

- That engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the same entity)
- Whose operating results are regularly reviewed by the entity's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance
- For which discrete financial information is available.

The Group is an integrated PGM and associated base metal producer. The operating segments are:

- Mine-to-market primary PGM producer, including the marketing of metals produced by the Group
- Toll refiner for third-party material (Impala Refining Services)
- Other

Extract from annual report and accounts 2011, Impala Platinum Holdings Limited, p. 135

### 10.2 Disclosing segments—By product type

#### Teck Resources Limited

Based on the primary products we produce and our development projects, we have five reportable segments—copper, coal, zinc, energy and corporate—which is the way we report information to our Chief Executive Officer. The corporate segment includes all of our initiatives in other commodities, our corporate growth activities and groups that provide administrative, technical, financial and other support to all of our business units. Other operating expenses include general and administration costs, exploration, research and development, and other operating income (expense). Sales between segments are carried out at arm's length.

| (Cdn\$ in millions)               | December 31, 2011 |          |          |        |           |           |
|-----------------------------------|-------------------|----------|----------|--------|-----------|-----------|
|                                   | Copper            | Coal     | Zinc     | Energy | Corporate | Total     |
| Segment revenues                  | \$ 3,108          | \$ 5,641 | \$ 3,015 | -      | -         | \$ 11,764 |
| Less: Intersegment revenues       | -                 | -        | (250)    | -      | -         | (250)     |
| Revenues                          | 3,108             | 5,641    | 2,765    | -      | -         | 11,514    |
| Gross profit                      | 1,369             | 2,800    | 708      | -      | -         | 4,877     |
| Other operating income (expenses) | (102)             | (10)     | (76)     | -      | (233)     | (421)     |
| Profit from operations            | 1,267             | 2,790    | 632      | -      | (233)     | 4,456     |
| Net finance expense               | (5)               | (31)     | (19)     | -      | (427)     | (482)     |
| Non-operating income (expenses)   | -                 | -        | -        | -      | 197       | 197       |
| Share of losses of associates     | -                 | -        | -        | -      | (5)       | (5)       |
| Profit before tax                 | 1,262             | 2,759    | 613      | -      | (468)     | 4,166     |
| Capital expenditures              | 538               | 524      | 106      | 49     | 19        | 1,236     |
| Goodwill                          | 444               | 1,203    | -        | -      | -         | 1,647     |
| Total assets                      | 7,538             | 17,186   | 4,952    | 1,152  | 3,391     | 34,219    |



The geographical distribution of our non-current assets and external sales revenue with revenue attributed to regions based on location of the customer are as follows:

| (Cdn\$ in millions) | Non-Current Assets |                   |                 |
|---------------------|--------------------|-------------------|-----------------|
|                     | December 31, 2011  | December 31, 2010 | January 1, 2010 |
| Canada              | \$ 19,460          | \$ 18,821         | \$ 18,693       |
| Chile               | 4,565              | 4,409             | 4,934           |
| United States       | 883                | 853               | 765             |
| Other               | 604                | 522               | 487             |
|                     | \$ 25,512          | \$24,605          | \$ 24,879       |

Non-current assets attributed to geographical locations exclude deferred tax assets, financial assets and pension assets.

Revenues are attributed to regions based on the location of the customer and are as follows:

| (Cdn\$ in millions) | Revenues  |          |
|---------------------|-----------|----------|
|                     | 2011      | 2010     |
| <b>Asia</b>         |           |          |
| Japan               | \$ 2,145  | \$ 1,786 |
| China               | 1,724     | 1,808    |
| South Korea         | 1,416     | 1,048    |
| Other               | 1,029     | 682      |
| <b>Americas</b>     |           |          |
| United States       | 1,673     | 1,353    |
| Latin America       | 707       | 588      |
| Canada              | 678       | 440      |
| <b>Europe</b>       |           |          |
| Germany             | 803       | 187      |
| Italy               | 334       | 225      |
| United Kingdom      | 212       | 494      |
| Other               | 793       | 612      |
|                     | \$ 11,514 | \$ 9,223 |

Extract from annual report and accounts 2011, Teck Resources Limited, p. 104-105

### 10.3 Disclosing segments—By mine

#### First Quantum Minerals Limited

The Company's reportable operating segments are individual mine development projects or operations, being Kansanshi, Guelb Moghrein, Frontier, Bwana/Lonshi, Kevitsa, Ravensthorpe, Sentinel and Corporate. Each mine and development project reports information separately to the CEO, chief operating decision maker.

The corporate segment is responsible for the evaluation and acquisition of new mineral properties, regulatory reporting, treasury and finance and corporate administration. Included in the corporate segment is the Company's metal marketing division which purchases and sells third party material. Operations at the Frontier

mine were suspended during 2010. The segment results below include sales of material which at the date of suspension of operations was stockpiled at other sites.

The Company's operations are subject to seasonal aspects, in particular the rain season in Zambia. The rain season in Zambia generally starts in November and continues through April, with the heaviest rainfall normally experienced in the months of January, February and March. As a result of the rain season, mine pit access and the ability to mine ore is lower in the first quarter of the year than other quarters and the cost of mining is higher.

For the year ended December 31, 2011, segmented information is presented as follows:

|   | Kansanshi | Guelb Moghrein | Frontier | Bwana/Lonshi | Projects under development | Corporate | Total     |
|---|-----------|----------------|----------|--------------|----------------------------|-----------|-----------|
| Segmented revenues                              | 2,048.3   | 346.2          | 13.5     | 79.6         | -                          | 206.5     | 2,694.1   |
| Less Inter-segment revenues                     | -         | -              | -        | (78.9)       | -                          | (31.7)    | (110.6)   |
| Sales revenues                                  | 2,048.3   | 346.2          | 13.5     | 0.7          | -                          | 174.8     | 2,583.5   |
| Costs of sales                                  | (861.2)   | (218.4)        | (17.1)   | (0.2)        | -                          | (178.6)   | (1,275.5) |
| Segmented gross profit (loss)                   | 1,187.1   | 127.8          | (3.6)    | 0.5          | -                          | (3.8)     | 1,308.0   |
| Net finance income (costs)                      | (5.2)     | -              | -        | (0.2)        | -                          | 0.8       | (4.6)     |
| Other   | 3.8       | (8.9)          | -        | (0.4)        | (1.9)                      | (180.5)   | (187.9)   |
| Segmented profit (loss) before undernoted items | 1,185.7   | 118.9          | (3.6)    | (0.1)        | (1.9)                      | (183.5)   | 1,115.5   |
| Income taxes                                    | (509.1)   | -              | -        | -            | 20.2                       | 28.2      | (460.7)   |
| Non-controlling interests                       | (126.4)   | -              | 0.5      | -            | -                          | -         | (125.9)   |
| Segmented profit (loss)                         | 550.2     | 118.9          | (3.1)    | (0.1)        | 18.3                       | 155.3     | 528.9     |
| Property, plant and equipment                   | 958       | 214.5          | -        | 19.5         | 2,027.5                    | 604.9     | 3,824.4   |
| Total assets                                    | 1,470.0   | 332.1          | 1.9      | 38.7         | 2,219.2                    | 1,236.1   | 5,298.0   |
| Total liabilities                               | 668.8     | 42.0           | 5.4      | 43.3         | 304.6                      | 65.4      | 1,129.5   |
| Capital expenditures                            | 332.1     | 46.9           | 1.5      | 0.6          | 666.1                      | 2.3       | 1,049.5   |

Projects under development during the year included Kevitsa, Ravensthorpe and Sentinel, with Ravensthorpe achieving commercial production on December 28, 2011.

The exploration and development costs related to these properties are capitalized. The segmented information for these projects is presented as follows:

|                               | Kevitsa | Ravensthorpe | Sentinel | Total   |
|-------------------------------|---------|--------------|----------|---------|
| Property, plant and equipment | 713.2   | 956.3        | 358.0    | 2,027.5 |
| Total assets                  | 747.5   | 1,049.5      | 422.2    | 2,219.2 |
| Total liabilities             | 61.8    | 221.1        | 21.7     | 304.6   |
| Capital expenditures          | 303.4   | 303.0        | 59.7     | 666.1   |

| Geographical information   |                   |                   |
|----------------------------|-------------------|-------------------|
|                            | December 31, 2011 | December 31, 2010 |
| Revenue by destination (a) |                   |                   |
| Zambia                     | 1,728.8           | 1,696.3           |
| China                      | 362.5             | 379.2             |
| Saudi Arabia               | 202.4             | 94.9              |
| South Africa               | 113.6             | 56.6              |
| Egypt                      | 76.3              | 5.1               |
| Taiwan                     | 17.8              | 25.6              |
| Switzerland                | 16.9              | -                 |
| South Korea                | 60.0              | 73.9              |
| The Netherlands            | 0.4               | 52.0              |
| Other                      | 4.7               | 9.6               |
|                            | <b>2,583.5</b>    | <b>2,393.2</b>    |

a) Presented based on the ultimate destination of the product if known. If the eventual destination of the product sold through traders is not known then

revenue is allocated to the location of the product at the time when the risks and rewards of ownership are passed.

*Appendix—Financial statement  
disclosure examples*

|                                     | December 31, 2011 | December 31, 2010 | January 1, 2010 |
|-------------------------------------|-------------------|-------------------|-----------------|
| Non-current assets by location      |                   |                   |                 |
| Zambia                              | 1,397.7           | 974.5             | 637.9           |
| Australia                           | 956.3             | 592.7             | -               |
| Finland                             | 713.2             | 370.4             | 240.4           |
| Peru                                | 607.7             | 604.3             | -               |
| Mauritania                          | 214.5             | 202.5             | 198.2           |
| United Kingdom                      | 4.4               | 6.4               | -               |
| RDC                                 | -                 | -                 | 544.8           |
| Other                               | 0.9               | 5.1               | 15.0            |
|                                     | <b>3,894.6</b>    | <b>2,755.9</b>    | <b>1,636.3</b>  |
| Investments and deferred tax assets | 29.3              | 22.2              | 494.4           |
|                                     | <b>3,923.9</b>    | <b>2,778.1</b>    | <b>2,130.7</b>  |

*Extract from annual report and accounts 2011, FirstQuantum Minerals Limited, p. 77 to 79*

10.4 Disclosing segments— By geographic region and product type

**AngloGold Ashanti Limited**

**Segmental information**

Anglogold Ashanti Limited's operating segments are being reported based on the financial information provided to the chief executive officer and the executive management team, collectively identified as the chief

operating decision maker (CODM). Individual members of the executive management team are responsible for geographic regions of the business.

Group analysis by origin is as follows:

| Figures in million<br>US Dollars                     | Net operating assets |              | Total assets  |              | Amortisation |            |
|--|----------------------|--------------|---------------|--------------|--------------|------------|
|  | 2011                 | 2010         | 2011          | 2010         | 2011         | 2010       |
| South Africa   | 1,834                | 2,122        | 2,148         | 2,469        | 338          | 331        |
| Continental Africa (1)                               | 3,129                | 2,764        | 4,288         | 3,884        | 219          | 176        |
| Australasia (2)                                      | 339                  | 281          | 736           | 555          | 42           | 34         |
| Americas (2)   | 2,068                | 1,653        | 2,501         | 2,109        | 169          | 150        |
| Other, including non-gold producing subsidiaries (3) | 60                   | 63           | 1,129         | 515          | 11           | 10         |
|  | <b>7,430</b>         | <b>6,883</b> | <b>10,802</b> | <b>9,532</b> | <b>779</b>   | <b>701</b> |
| Equity-accounted investments included above          |                      |              |               |              | (9)          | (9)        |
|  |                      |              |               |              | <b>770</b>   | <b>692</b> |

| SA Rands   |               |               |               |               |              |              |
|--|---------------|---------------|---------------|---------------|--------------|--------------|
| South Africa   | 14,745        | 13,942        | 17,272        | 16,226        | 2,435        | 2,415        |
| Continental Africa (1)                               | 25,156        | 18,160        | 34,478        | 25,520        | 1,605        | 1,287        |
| Australasia (2)                                      | 2,731         | 1,848         | 5,922         | 3,644         | 311          | 248          |
| Americas (2)   | 16,626        | 10,860        | 20,106        | 13,855        | 1,230        | 1,086        |
| Other, including non-gold producing subsidiaries (3) | 484           | 411           | 9,080         | 3,384         | 82           | 70           |
|  | <b>59,742</b> | <b>45,221</b> | <b>86,858</b> | <b>62,629</b> | <b>5,663</b> | <b>5,106</b> |
| Equity-accounted investments included above          |               |               |               |               | (64)         | (66)         |
|  |               |               |               |               | <b>5,599</b> | <b>5,040</b> |

Non-current assets by foreign countries have not been disclosed as it is impracticable.

| Figures in million                                   | Capital expenditure |            |               |              |
|--|---------------------|------------|---------------|--------------|
|  | 2011                | 2010       | 2011          | 2010         |
|  | US Dollars          |            | SA Rands      |              |
| South Africa   | 532                 | 424        | 3,919         | 3,096        |
| Continental Africa (1)                               | 420                 | 234        | 3,101         | 1,708        |
| Australasia (2)                                      | 102                 | 40         | 759           | 290          |
| Americas (2)   | 456                 | 311        | 3,348         | 2,270        |
| Other, including non-gold producing subsidiaries (3) | 17                  | 6          | 132           | 49           |
|  | 1,527               | 1,015      | 11,259        | 7,413        |
| Equity-accounted investments included above          | (88)                | (42)       | (655)         | (305)        |
|  | <b>1,439</b>        | <b>973</b> | <b>10,604</b> | <b>7,108</b> |

(1) Includes equity-accounted joint ventures/

(2) Total assets includes allocated goodwill of \$156m, R1,262m (2010: \$154m, R1,018m) for Australasia and \$23m, R179m (2010: \$23m, R146m) for Americas.

(3) Total assets includes assets held for sale in respect of the AGA-Polymetal Strategic Alliance consisting of AGA-Polymetal Strategic Alliance Management Company Holdings Limited, Arrikan Holding Limited, AS APK Holdings Limited, Imitzoloto Holdings Limited and Yeniseiskaya Holdings Limited of \$20m, R162m (2010: nil), ISS International Limited of nil (2010: \$15m, R100m) and properties held for sale by Rand Refinery of \$1m, R10m (2010: \$1m, R10m).

|                    | Gold production (attributable) |              |                |                |
|--------------------|--------------------------------|--------------|----------------|----------------|
|                    | (000 oz)                       |              | (kg)           |                |
|                    | 2011                           | 2010         | 2011           | 2010           |
| South Africa       | 1,624                          | 1,785        | 50,489         | 55,528         |
| Continental Africa | 1,570                          | 1,492        | 48,819         | 46,390         |
| Australasia        | 246                            | 396          | 7,658          | 12,313         |
| Americas           | 891                            | 842          | 27,733         | 26,187         |
|                    | <b>4,331</b>                   | <b>4,515</b> | <b>134,699</b> | <b>140,418</b> |

| Figures in millions   | Gold income  |              |               |               |
|---|--------------|--------------|---------------|---------------|
|   | 2011         | 2010         | 2011          | 2010          |
|   | US Dollars   |              | SA Rands      |               |
| Geographical analysis of gold income by origin is as follows:             |              |              |               |               |
| South Africa  | 2,560        | 2,207        | 18,610        | 16,056        |
| Continental Africa  | 2,530        | 1,868        | 18,486        | 13,604        |
| Australasia   | 385          | 466          | 2,797         | 3,391         |
| Americas  | 1,487        | 1,124        | 10,816        | 8,202         |
|   | 6,962        | 5,665        | 50,709        | 41,253        |
| Equity-accounted investments included above                               | (392)        | (331)        | (2,860)       | (2,420)       |
|   | <b>6,570</b> | <b>5,334</b> | <b>47,849</b> | <b>38,833</b> |
| Foreign countries included in the above and considered material are:      |              |              |               |               |
| Brazil  | 767          | 599          | 5,572         | 4,361         |
| Ghana   | 802          | 566          | 5,841         | 4,119         |
| Tanzania  | 754          |              | 5,542         |               |
| <b>Geographical analysis of gold income by destination is as follows:</b> |              |              |               |               |
| South Africa  | 2,620        | 2,820        | 19,109        | 20,534        |
| North America   | 1,022        | 609          | 7,440         | 4,438         |
| Australia   | 378          | 273          | 2,743         | 1,988         |
| Asia  | 478          | 647          | 3,474         | 4,708         |
| Europe  | 630          | 511          | 4,576         | 3,721         |
| United Kingdom  | 1,834        | 805          | 13,367        | 5,864         |
|   | 6,962        | 5,665        | 50,709        | 41,253        |
| Equity-accounted investments included above                               | (392)        | (331)        | (2,860)       | (2,420)       |
|   | <b>6,570</b> | <b>5,334</b> | <b>47,849</b> | <b>38,833</b> |

| Figures in millions                         | Gross profit (loss) (4) |              |               |              |
|---|-------------------------|--------------|---------------|--------------|
|   | 2011                    | 2010         | 2011          | 2010         |
|   | US Dollars              |              | SA Rands      |              |
| South Africa                                | 1,083                   | 429          | 7,934         | 3,180        |
| Continental Africa                          | 938                     | 604          | 6,797         | 4,219        |
| Australasia                                 | (13)                    | (206)        | (103)         | (1,452)      |
| Americas                                    | 744                     | 357          | 5,407         | 2,664        |
| Other                                       | 28                      | 23           | 202           | 171          |
|   | 2,780                   | 1,207        | 20,237        | 8,782        |
| Equity-accounted investments included above | (157)                   | (125)        | (1,142)       | (918)        |
|   | <b>2,623</b>            | <b>1,082</b> | <b>19,095</b> | <b>7,864</b> |

(4) The group's segment profit measure is gross profit, which excludes the results of equity accounted investments. For reconciliation of gross profit to profit before taxation, refer to the consolidated income statement.

*Extract from annual report and accounts 2011,  
AngloGold Ashanti Limited, p. 205-206*



## 11 Financial Instruments

### 11.1 Derivatives

#### Teck Resources Limited

##### *Derivative instruments*

Derivative instruments, including embedded derivatives, are recorded at fair value through profit or loss and accordingly are recorded on the balance sheet at fair value. Unrealized gains and losses on derivatives held for trading are recorded as part of other operating income (expense) or non-operating income (expense) in profit depending on the nature of the derivative. Fair values for derivative instruments are determined using valuation techniques, using assumptions based on market conditions existing at the balance sheet date. Derivatives embedded in non-derivative contracts are recognized separately unless they are closely related to the host contract.

*Extract from annual report and accounts 2011, Teck Resources Limited, p. 70*

#### BHP Billiton Plc

Derivatives, including those embedded in other contractual arrangements but separated for accounting purposes because they are not clearly and closely related to the host contract, are initially recognised at fair value on the date the contract is entered into and are subsequently remeasured at their fair value. The method of recognising the resulting gain or loss on remeasurement depends on whether the derivative is designated as a hedging instrument, and, if so, the nature of the item being hedged. The measurement of fair value is based on quoted market prices. Where no price information is available from a quoted market source, alternative market mechanisms or recent comparable transactions, fair value is estimated based on the Group's views on relevant future prices, net of valuation allowances to accommodate liquidity, modelling and other risks implicit in such estimates.

*Extract from annual report and accounts 2011, BHP Billiton Plc, p. 171*

### 11.2 Hedge accounting

#### Rio Tinto Plc

##### *Derivative financial instruments and hedge accounting*

Derivatives are initially recognised at their fair value on the date the derivative contract is entered into and transaction costs are expensed in the income statement. They are subsequently re-measured subject to IAS 39 at their fair value at each statement of financial position date. The method of recognising the resulting gain or loss depends on whether or not the derivative is designated as a hedging instrument and, if so, the nature of the item being hedged. The Group designates certain derivatives as either hedges of the fair value of recognised assets or liabilities or of firm commitments (fair value hedges) or hedges of highly probable forecast transactions (cash flow hedges).

##### *Fair value hedges:*

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recorded in the income statement, together with any changes in the fair value of the hedged asset or liability or firm commitment that is attributable to the hedged risk. Where derivatives are held with different counterparties or with the same counterparty with no intention to settle net to the underlying asset or liability or firm commitment, the fair values of the derivative assets and liabilities are shown separately in the statement of financial position as there is no legal right of offset.

When a fair value interest rate hedging instrument expires or is sold, or when a fair value interest rate hedge no longer meets the criteria for hedge accounting, the fair value adjustments which have been made to the hedged item are amortised through the income statement over the remaining life of the hedged item or written off immediately where the hedged item is derecognised.

**Cash flow hedges:**

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in equity. The gain or loss relating to the ineffective portion is recognised immediately in the income statement. Amounts accumulated in equity are recycled in the income statement in the period when the hedged item affects profit or loss, for example when the forecast sale that is being hedged takes place. When the forecast transaction that is being hedged results in the recognition of a non-financial asset the gains and losses previously deferred in equity are transferred from equity and adjust the cost of the asset. The gains and losses are recognised subsequently in the income statement when the non-financial asset is amortised.

When a cash flow hedging instrument expires or is sold, or when a cash flow hedge no longer meets the criteria for hedge accounting, although the forecasted transaction is still expected to occur, any cumulative gain or loss relating to the instrument which is held in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately transferred to the income statement.

**Derivatives that do not qualify for hedge accounting:**

Any derivative contracts that do not qualify for hedge accounting are marked to market at the statement of financial position date.

**Embedded derivatives:**

Derivatives embedded in other financial instruments or other host contracts are treated as separate derivatives when their risks and characteristics are not closely related to their host contracts. In some cases, the embedded derivatives may be designated as hedges and will be accounted for as described above.

*Extract from annual report and accounts 2011, Rio Tinto Plc, p. 146*

**Xstrata Plc**

The Group uses derivative financial instruments such as interest rate swaps, forward currency and commodity contracts to hedge its risks associated with interest rate, foreign currency and commodity price fluctuations. Such derivative financial instruments are initially recognised at fair value on the date on which a derivative contract is entered into and are subsequently remeasured at fair value. Derivatives are carried as assets when the fair value is positive and as liabilities when the fair value is negative.

Any gains or losses arising from changes in fair value on derivatives that do not qualify for hedge accounting are taken directly to profit or loss for the year.

The fair value of forward currency and commodity contracts is calculated by reference to current forward exchange rates and prices for contracts with similar maturity profiles. The fair value of interest rate swap contracts is determined by reference to market values for similar instruments.

For the purpose of hedge accounting, hedges are classified as:

- fair value hedges;
- cash flow hedges; or
- hedges of a net investment in a foreign operation.

At the inception of a hedge relationship, the Group formally designates and documents the hedge relationship to which the Group wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge. The documentation includes identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged and how the entity will assess the hedging instrument's effectiveness in offsetting the exposure to changes in the hedged item's fair value or cash flows attributable to the hedged risk. Hedges that are expected to be highly effective in achieving offsetting changes in fair value or cash flows are assessed on an ongoing basis to determine if they actually have been highly effective throughout the financial reporting periods for which they were designated.

Hedges which meet the strict criteria for hedge accounting are accounted for as follows:

#### **Fair value hedges**

Fair value hedges are hedges of the Group's exposure to changes in the fair value of a recognised asset or liability that could affect profit or loss. The carrying amount of the hedged item is adjusted for gains and losses attributable to the risk being hedged, the derivative is re-measured at fair value, and gains and losses from both are taken to profit or loss. For fair value hedges relating to items carried at amortised cost, the adjustment to carrying value is amortised through profit or loss over the remaining term to maturity. Any adjustment to the carrying amount of a hedged financial instrument for which the effective interest method is used is amortised to profit or loss. Amortisation begins when the hedged item ceases to be adjusted for changes in its fair value attributable to the risk being hedged. The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised, the hedge no longer meets the criteria for hedge accounting, or the Group revokes the designation.

#### **Cash flow hedges**

Cash flow hedges are hedges of an exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast transaction that could affect profit or loss. The effective portion of the gain or loss on the hedging instrument is recognised directly in equity, while the ineffective portion is recognised in profit or loss. Amounts taken to equity are transferred to the income statement when the hedged transaction affects profit or loss. Where the hedged item is the cost of a non-financial asset or liability, the amounts taken to equity are transferred to the initial carrying amount of the non-financial asset or liability.

If the forecast transaction is no longer expected to occur, amounts previously recognised in equity are transferred to profit or loss. If the hedging instrument expires or is sold, terminated or exercised without replacement or roll-over, or if its designation as a hedge is revoked, amounts previously recognised in equity remain in equity until the forecast transaction occurs. If the related transaction is not expected to occur, the amount is taken to profit or loss.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 130*

### **11.3 Hedge of net investment in foreign operations**

#### **Teck Resources Limited**

For hedges of net investments in foreign operations, any foreign exchange gains or losses on the hedging instrument relating to the effective portion of the hedge are initially recorded in other comprehensive income. Gains and losses are recognized in profit on the ineffective portion of the hedge, or when there is a disposal or partial disposal of a foreign operation being hedged.

*Extract from annual report and accounts 2011, Teck Resources Limited, p. 70*

#### **Xstrata Plc**

##### **Hedges of a net investment**

Hedges of a net investment in a foreign operation are accounted for in a way similar to cash flow hedges. Gains or losses on the hedging instrument relating to the effective portion of the hedge are recognised directly in equity while any gains or losses relating to the ineffective portion are recognised in profit or loss. On disposal of the foreign operation, the cumulative value of any such gains or losses recognised directly in equity is transferred to profit or loss.

*Extract from annual report and accounts 2011, Xstrata Plc, p. 130*

## **12 Empowerment transactions**

#### **AngloGold Ashanti Limited**

Where equity instruments are issued to a BEE party at less than fair value, these are accounted for as share-based payments. Any difference between the fair value of the equity instrument issued and the consideration received is accounted for as an expense in the income statement.

A restriction on the BEE party to transfer the equity instrument subsequent to its vesting is not treated as a vesting condition, but is factored into the fair value determination of the instrument.

*Extract from annual report and accounts 2011, AngloGold Ashanti Limited, p. 204*

**Impala Platinum Holdings Limited**

This accounting policy relates to transactions where the Group grants or sells equity instruments to people in context of empowerment in terms of the Broad-Based Black Empowerment Act No 53 of 2003. The difference between the fair value and the selling price of the equity instruments granted or sold is accounted for as a share-based compensation expense. Refer to note 1.16 for discussion of share-based payments.

The fair value of the equity instruments for non-listed entities is determined using the main assumptions as described in note 3 'Critical accounting estimates and judgements' for impairment of assets.

*Extract from annual report and accounts 2011, Impala Platinum Holdings Limited, p. 135*

# Acknowledgements

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