

Natural Resources

A Guide to Financial Reporting

Introduction

International Financial Reporting Standards (IFRS) provide the basis for financial reporting for the natural resources sector. One of the key 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, short on industry specific guidance. That and the increasing levels of regulation can make it difficult for management to be clear about what it needs to provide to auditors to support their decision making, and also to provide stakeholders with the clarity they require to make informed decisions.

Our Natural Resources Guide to Financial Reporting aims to simplify the complex and provide you with an understanding of the key sector-related accounting issues we see on a daily basis. We look at how these issues should be addressed, what your auditor will require, and what management will need to consider to ensure an effective audit.

The guide is not meant to be fully comprehensive, but to shed light on areas we, as natural resource experts, see as the core issues. We would encourage management to conduct additional research where necessary and to contact us for any further guidance they might require.



Joseph Archer
Partner & Head of Natural Resources
+44 (0)20 7516 2495
jarcher@pkf-l.com

Contents

Impairments under IFRS 6 4

Impairments under IAS 36 20

Accounting for asset retirement, decommissioning, and mine rehabilitation 36

Accounting for purchase price allocation following an acquisition 48

Depletion under the unit of production method 66

Transitioning categories from exploration to mine under construction through to production 78

About our Natural Resources team 92

Impairments under IFRS 6

01

Overview

01

The objective of IFRS 6 is to specify the financial reporting for the *exploration for and evaluation of mineral resources*.

Due to the significant estimates and judgements involved, the application of this Standard has proven challenging.

This Standard applies specifically to the treatment of expenditures incurred by entities in performing such activities during the exploration phase and only once the entity has the legal rights to explore an area. It does not cover expenditures incurred before such time, or expenditures after the technical feasibility and commercial viability of extracting a mineral resource are demonstrable.

The Standard requires entities recognising exploration and evaluation assets to assess such assets for impairment in accordance with IFRS 6 and to measure any impairment in accordance with IAS 36 Impairment of Assets. It also stipulates the required disclosures to identify and explain the amounts in the entity's financial statements arising from the exploration for, and evaluation of, mineral resources and help users of those financial statements understand the amount, timing and certainty of future cash flows from any exploration and evaluation assets recognised.

Due to the significant estimates and judgements involved, the application of this Standard has proven challenging. The flexibility permitted by IFRS 6 has resulted in entities developing diverse accounting policies to account for exploration and evaluation (E&E) expenditure, resulting in a lack of comparability between those entities' financial statements.

Common deficiencies

01

Some of the key application deficiencies that have commonly been identified across a wide range of natural resources businesses, including valuation and disclosure issues, are:

Many entities fail to maintain sufficiently detailed breakdowns of the costs capitalised on a granular level

A

Failure to segregate capitalised costs at a sufficiently granular level: Many entities fail to maintain sufficiently detailed breakdowns of the costs capitalised at a granular level, whether by geographic region, project, or individual license area. This results in the lack of a clear audit trail and therefore makes it very difficult for management to appropriately assess whether the impairment indicators under the Standard, or any other potential impairment indicators, are met in respect of a particular project. It also means it is difficult to ascertain the level of any potential impairment if the related costs cannot easily be identified.

B

Insufficiently detailed accounting policy: Entities are required to develop their own policies for the accounting treatment of expenditures incurred from E&E activities. The Standard allows a lot of flexibility in this regard and a common theme is therefore that accounting policies tend to be brief and often vague. This can leave users of the financial statements confused as to the appropriateness and consistency of the treatment of such costs, particularly where multiple projects exist at varying stages of advancement.

C

Insufficient detail disclosed of judgements made by management in applying the Standard: If management considers that there are no indicators of impairment, what are the key judgements they have made? For example, a project license has expired and is undergoing renewal as at the year-end. Management stipulates this does not trigger an impairment as they do not expect any issues with renewal, but have not disclosed the circumstances surrounding the ongoing renewal or why they do not consider this to be indicative of impairment.

Similarly, management have not included in their financial forecasts any further expenditure in the next 12 months on a given project, but again do not consider this to be a reason for impairment. What judgements have they made and why are they reasonable?

Conversely, there may be an impairment recorded in the year. Why is the level of impairment recorded considered to be reasonable? What are the judgements applied in reaching this conclusion? Is the conclusion contingent on other events occurring or not occurring?

Accounting treatment and key estimates

01

Under IFRS 6.18, exploration and evaluation assets are assessed for impairment when facts and circumstances suggest that the carrying amount of an exploration and evaluation asset may exceed its recoverable amount.

If impairment indicators exist, the entity shall test the asset for impairment in accordance with IAS 36.

When facts and circumstances suggest that the carrying amount exceeds the recoverable amount, an entity shall measure, present and disclose any resulting impairment loss in accordance with IAS 36.

The impairment indicators identified within IFRS 6.20 are as follows:

- the period for which the entity has the right to explore in the specific area has expired during the period or will expire in the near future, and is not expected to be renewed;
- substantive expenditure on further exploration for and evaluation of mineral resources in the specific area is neither budgeted nor planned;
- exploration for and evaluation of mineral resources in the specific area have not led to the discovery of commercially viable quantities of mineral resources and the entity has decided to discontinue such activities in the specific area; and/or
- sufficient data exists to indicate that, although a development in the specific area is likely to proceed, the carrying amount of the exploration and evaluation asset is unlikely to be recovered in full from successful development or by sale.

Other indicators to be considered include:

- a significant drop in mineral prices;
- significant deterioration in the availability of financing;
- a delay in exploration and evaluation activity in the licence specific area; and/or
- a significant drop in the share price of the entity.

If one or more of the above indicators is determined to exist (and the above is not an exhaustive list), the entity shall perform an impairment test in accordance with IAS 36. Any impairment loss is recognised as an expense in accordance with IAS 36.

Accounting treatment and key estimates

01

One of the key deficiencies noted in the application of IFRS 6 arises from determining the appropriate accounting policy for E&E expenditure and the existing diversity in the application of this Standard. This is primarily due to judgements being applied in determining the elements of cost to capitalise and the appropriate unit of account. Due to the uniqueness of the E&E assets, improving the level of detail contained within disclosures relating to E&E expenditure and activities will prove beneficial to users of the financial statements.

Another common deficiency is the lack of sufficiently detailed information about the level at which E&E assets are tested for impairment to enable users to understand the judgements made (and the rationale for those judgements) when testing for impairment. When applying the requirements of the Standard under IFRS 6.20, it is key to ensure sufficient support and information are considered and documented.

 In determining the costs to be capitalised, IFRS 6 provides little guidance surrounding the nature of appropriate expenditure.

In determining the costs to be capitalised, IFRS 6 provides little guidance surrounding the nature of expenditure that might be considered E&E expenditure and whether these expenditures should be capitalised. At present, IFRS 6 paragraph 9 lists only a few examples, such as trenching and sampling. Therefore, it is important that entities develop their own sufficiently detailed policies to provide further clarity on the capitalisation policy and the nature of expenditure classified as E&E.

Further, testing E&E assets for impairment has proven to be challenging in scenarios where the recoverable amount of the asset cannot be reliably determined. For example, when exploration is at the early stages, it is difficult to reliably calculate a value in use or fair value less costs of disposal, and therefore it is difficult to identify indicators of impairment for the E&E asset.

When considering the diversity regarding the unit of account applied to E&E expenditure and assets, testing for impairment of an E&E asset applying a large unit of account (such as by geographic region) would significantly differ from testing for the impairment of an E&E asset using a smaller unit of account. This uncertainty and risk often mean that entities need to make significant judgements when testing E&E assets for impairment, and these judgements necessarily reflect entity and project specific facts and circumstances. For this reason, the disclosure of such judgements is essential for users to understand all considerations made by management in reaching their conclusions.

Examples of recommended disclosure

01

IFRS 6 does not, at present, specifically require a reconciliation of E&E assets similar to that required by IAS 16 Property, Plant and Equipment. It is recommended that a reconciliation is disclosed, as this will allow users to understand the E&E expenditure capitalised, impairments recognised, and any other significant movements (for example, impact of foreign exchange movements) during the reporting period. In any case, where movements in the year are material, IAS 1 requires their separate disclosure and explanation in the financial statements.

Example

Intangible assets

Intangible assets relate to exploration and evaluation project costs capitalised as at 31 December 2022 and 2021, less impairment.

	2022 US\$'000	2021 US\$'000
As at 1 January	22,500	14,000
Additions	3,000	9,000
Impairment	(1,000)	(500)
As at 31 December	24,500	22,500

Additions to project costs during the years ended 31 December 2022 and 2021 were in the following geographical areas:

	2022 US\$'000	2021 US\$'000
Europe	1,000	1,500
Africa	2,000	7,500
Total additions to project costs	3,000	9,000

01

Impairment of project costs during the years ended 31 December 2022 and 2021 relate to the following terminated projects:

	2022 US\$'000	2021 US\$'000
Project A	250	-
Project B	275	-
Project C	475	-
Project D	-	250
Project E	-	250
Total impairment of project costs	1,000	500

Those development projects which were terminated were considered by the Board to be no longer prospective.

Project costs capitalised as at 31 December 2022

	2022 US\$'000	2021 US\$'000
Europe	5,500	4,000
Africa	19,000	18,500
As at 31 December	24,500	22,500



Examples of recommended disclosure

02

It is recommended that clear accounting policies around the treatment of E&E expenditure and activities are included, such as the accounting policy choice to determine when an E&E phase is deemed complete, and the judgements made when testing E&E assets for impairment.

Example Intangible assets

The Group has adopted the provisions of IFRS 6 Exploration for and Evaluation of Mineral Resources.

The Group capitalises expenditure as project costs, categorised as intangible assets, when it determines that those costs will be successful in finding specific mineral resources. Expenditure included in the initial measurement of project costs, and which are classified as intangible assets, relate to the acquisition of rights to explore, topographical, geological, geochemical, and geophysical studies, exploratory drilling, trenching, sampling, and activities to evaluate the technical feasibility and commercial viability of extracting a mineral resource.

Capitalisation of pre-production expenditure ceases when the mining property is capable of commercial production. Project costs are recorded and held at cost. An annual review is undertaken of each area of interest to determine the appropriateness of continuing to capitalise and carry forward project costs in relation to that area of interest.

Accumulated capitalised project costs in relation to:

- (i) an expired permit
- (ii) an abandoned area of interest and / or
- (iii) a joint venture over an area of interest which is now ceased, will be written off in full as an impairment to profit or loss in the year in which
 - (i) the permit expired
 - (ii) the area of interest was abandoned and / or
 - (iii) the joint venture ceased.

Exploration and evaluation costs are assessed for impairment when facts and circumstances suggest that the carrying amount of an asset may exceed its recoverable amount.

01

03

Critical estimates and judgements

Example

Carrying value of intangible exploration and evaluation assets

In applying the Group's accounting policy for exploration and evaluation expenditure, judgement is required in order to determine whether future economic benefits are likely, whether through future mineral exploitation or subsequent sale. The ability to determine economic feasibility of a project will depend on its stage of development and whether activities are at a stage where a reasonable assessment of the existence of reserves is possible.

Where a project is not yet at this stage, management will consider whether indicators of impairment exist based on all available information including results of recent work programmes, technical reports, political climate and the potential impact of these factors on the ability to develop its projects. Management will also consider any commitments attached to licenses and the Group's ability to meet these, and results obtained from other projects in a similar area which may be indicative of recoverability. Estimates of recoverability can change year on year as new information becomes available.

If information becomes available to suggest the recovery of capitalised expenditure is unlikely, the related expenditure will be written off to the statement of comprehensive income at that time.



Key documentation for your auditors

01

- **Detailed working paper**, with support, to show how each one of the criteria under IFRS 6 paragraph 20 has been considered on a project by project basis.
- **Current list of licenses** held with details of key terms attached (e.g. minimum spend commitments, reporting to local ministry) including details of expiry and renewal terms.
- **Detailed breakdown** of costs capitalised, showing movements in the year (additions, impairments, foreign currency translation, other) on a sufficiently granular level.
- **Details** of the accounting policies being applied including any changes to those policies and the reasoning behind this.



Impairments under IAS 36

The objective of IAS 36 is to prescribe the procedures that an entity applies to ensure that its assets are carried at no more than its recoverable amount.



Despite the Standard having been in place for several years, the practical application of IAS 36 has proven to be challenging due to the complexity of the Standard.

An asset is carried at more than its recoverable amount if its carrying value exceeds the amount to be recovered through use or sale of the asset. When this occurs, the asset is described as impaired, and the Standard requires the entity to recognise an impairment loss. The Standard also specifies when an entity should reverse an impairment loss, and prescribes disclosures.

In the context of the natural resources industry, and in particular early stage exploration stage entities, exploration and evaluation assets do not generate cash flows. In addition to this, there is often insufficient data regarding the mineral resource within the licence area for an entity to make a reasonable estimate of the recoverable amount of these assets, as the exploration and evaluation work undertaken to date is rarely sufficient to estimate with sufficient clarity likely future cash flows available to the entity.

Without such information it is not possible to estimate either fair value less costs to sell or value in use - the two measures of recoverable amount in IAS 36. However, for more advanced projects which are in the exploration, construction/development, or production phases, this information should be available in order to perform an impairment assessment.

Despite the Standard having been in place for several years, the practical application of IAS 36 has proven to be challenging due to the complexity of the Standard.



Common deficiencies

02

Some of the key areas of application deficiencies that have commonly been identified across a wide range of businesses within the natural resources sector, including valuation and disclosure issues, are:

A

Insufficiently detailed impairment assessment under IAS 36: The Standard provides a list of internal and external indicators as guidance in determining impairment of an asset. However, it also stresses that this list is the minimum to be considered. Many entities fail to provide sufficiently detailed impairment assessments and fail to assess whether they have made sufficient disclosures. Management should seek to disclose their consideration of specific factors evaluated that could result in impairment in future periods for example, the facts around the non-renewal of a project licence.

B

Inappropriate discount rate being used in future cash flow workings: Entities are required to use discount rates which are reflective of the specific risks of an asset or cash-generating unit ('CGU') and the time value of money. However, discount rates are often not subject to sufficient scrutiny by management, or reassessed on an ongoing basis taking into account internal and external factors in the entity's environment. For example CGUs that are more exposed to climate-related risks have been or are discounted at a rate that would be applied to a CGU not exposed to such risks. Furthermore, discounted cash flow calculations based on approved budgets are not risk-adjusted, resulting in the present value of the asset not being accurate and an impairment not being recorded at the correct amount.

C

Unrealistic cash flow forecasts being used: Entities are required to base their cash flow forecast on their best estimate of the economic circumstances that will continue over the remaining life of the asset or CGU. Various assumptions are noted in cash flow forecasts that can not be supported with evidence. For example, a forecasted decline in operating costs of an entity operating in a highly volatile political environment with high inflation rates is not reasonable and cannot be supported. This can be misleading to users of the financial statements and leave them with a negative impression of the appropriateness of the treatment of such costs.



Accounting treatment and key estimates

01

IAS 36 provides a non-exhaustive list of both internal and external indicators of impairment which should be considered on an annual basis. Key estimates arise on the specific calculation of an impairment charge whether it be considering the fair value less cost to sell or its value in use.

When considering the impairment of key assets, it is common for an interim impairment assessment to be performed.

When dealing with exploration and evaluation assets accounted for in accordance with IFRS 6, the non-exhaustive indicators of impairment set out in the Standard should be considered in the first instance in assessing whether an impairment assessment is required to be performed in accordance with IAS 36. Once the mining related asset has moved to a more advanced stage, and therefore which no longer fall under the scope of IFRS 6, an entity shall consider, as a minimum, the various external and internal sources of information in accordance with IAS 36.12 when determining whether there is evidence of potential impairment.

If indicators are present, IAS 36 prescribes the procedures that an entity applies to ensure that its assets are carried at no more than their recoverable amount. If the carrying value is determined to be higher, the asset is determined to be impaired and the Standard requires the entity to recognise an appropriate impairment loss.

- The recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs of disposal and its value in use.

- Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. (Refer further to detailed guidance within IFRS 13 Fair Value Measurement).
- Value in use is the present value of the future cash flows expected to be derived from an asset or cash-generating unit.

Irrespective of whether there is any indication of impairment, an entity shall:

A. Annually test for impairment an intangible asset with an indefinite useful life or an intangible asset not yet available for use by comparing its carrying amount with its recoverable amount. This impairment test may be performed at any time during an annual period, provided it is performed at the same time every year. Different CGUs or groups of CGUs may be tested for impairment at different times.

B. Annually test goodwill acquired in a business combination for impairment in accordance with IAS 36.80–99.

When considering the impairment of key assets, it is common for an interim impairment assessment to be performed, especially during times of economic uncertainty and market volatility, such that goodwill may have to be tested for impairment at the year end and a subsequent interim reporting period.

Accounting treatment and key estimates

02

One common omission when undertaking an impairment assessment is the consideration of whether the carrying value of net assets of an entity exceeds the company market capitalisation, as part of the review of external sources of information. Market capitalisation refers to the total market value of a company's outstanding shares of stock. Therefore if the net assets are higher than that of its market capitalisation, this suggests that the entity is overvaluing its net assets.

While an entity may only consider the return on its assets, the market may take into accounts other factors present across the industry. For example, the economic climate has a significant influence on market prices which may be lower than anticipated and may not be a true reflection of an entity's position. Further, this analysis does not take into account any debt obligations of an entity, such that the cost involved in servicing the debt burden of an entity may not be considered.


IAS 36 defines the recoverable amount as the higher of an asset's or CGU's fair value less costs to sell and its value in use.

However, the Standard provides limited guidance on the various valuation issues faced when measuring the recoverable amount of an asset or CGU. For example, in measuring value in use, an entity shall base cash flow projections on the most recent financial budgets/ forecasts approved by management but shall exclude any estimated future cash inflows or outflows expected to arise from future restructurings or from improving or enhancing the asset's performance. However, improvements to enhance the efficiency of assets may be included and capital maintenance of assets must be reflected; therefore, the challenge arises when trying to differentiate the restructuring or improvement costs that must be excluded.

Future cash flows are estimated in the currency in which they will be generated and then discounted using a discount rate appropriate for that currency. The discount rate refers to the rate of interest that is applied to future cash flows of an investment to calculate its present value.

When determining an appropriate discount rate, it is important to consider whether this is truly reflective of the time value of money and the risks attributed to an asset or CGU.

The uniqueness of intangible assets means that a specific rate attributed to an asset or CGU is not readily available from the market, therefore alternative methods are utilised to derive this rate, weighted average cost of capital ('WACC') being the most common method. The WACC calculation is highly complex and involves various inputs requiring management judgement, such as the estimated cost of shareholder equity. With the recent financial crisis and economic downturn, there is much consideration around the potential increase in equity risk, so an expert's advice may be deemed necessary.

 The WACC calculation is highly complex and involves various inputs that involves management judgement.



Examples of recommended disclosure

01

Key assumptions used in the recoverability assessment made by management need to be disclosed as do the details of the valuation technique used as part of the recoverability testing:

Example

Oil and gas prices

For the purpose of PP&E impairment tests, management is required under IAS 36 to apply its current 'best estimate' of future oil and gas prices. We determined that the 'best estimate' assumptions are reasonable when compared to a range of third party forecasts and peer information that we identified as being appropriate for this purpose. In forming this view, we conclude each forecaster's 'base case', 'central case' or 'most likely' estimate.

02

Where an impairment is recognised, clear disclosure around the events and circumstances leading up to the recognition or reversal of an impairment loss needs to be present, along with the relevant amounts.

Example

Impairment of project costs during the years ended 31 December 2022 and 2021 relate to the following projects:

	2022 US\$'000	2021 US\$'000
Project A	250	-
Project B	275	-
Project C	475	-
Project D	-	250
Project E	-	250
Impairment of project costs	1,000	500

Net impairment charges of \$1m have arisen as a result of expected portfolio changes in production and operations, the annual review of price assumptions, changes to inflationary and discount rates of which all were considered within the value in use assessment undertaken.

03

In relation to material classes of assets (including producing mines, construction in progress, or exploration and evaluation intangible assets), sensitivity analysis and stress testing should be performed by the entity in relation to the key assumptions being used in the valuation model. Any reasonably possible changes in these assumptions that could lead to the impairment of the asset should be explained and disclosed appropriately. It is important to explain why the particular sensitivities disclosed have been selected by management.

Example

A. Sensitivity analysis

After considering all key assumptions used in the discounted cash flow model supporting the mine asset, management considers that a reasonably possible change in the following assumptions would cause the carrying amount of this asset to materially exceed its recoverable amount.

B. Gold price

A change of -1% in the forecast gold price used in the base case valuation model would result in a reduction to the net present value of \$8m, which would represent a material impairment to the asset.

C. Production volumes

The forecast is highly sensitive to changes in ore production volumes, and a decrease in forecast volumes of 2% would lead to a material impairment to the asset of \$7m.

D. Discount rate

If the current discount rate of 12% (2021: 10%) was to be increased by 2%, this would lead to a material impairment of \$12m.



Examples of recommended disclosure

02

04

It is important that any judgements or sources of estimation used by management in the assessment of impairments in accordance with IAS 36 are adequately disclosed.

Example

Critical accounting judgements and key sources of estimation uncertainty

Carrying value of property, plant and equipment – oil and gas assets

As at 31 December 2022, the Group held oil and gas PP&E assets of \$150 million (2021: \$115 million). These assets are subject to an annual impairment assessment under IAS 36 Impairment of assets whereby management is first required to consider if there are any indicators of impairment, and if so, management is then required to estimate the asset's recoverable amounts.

The judgement over indicators of impairment considers several internal and external factors, including changes in estimated commercial reserves, changes in oil prices, and changes in expected future operating and capital expenditure, decommissioning expenditure, and increases in the cost of capital which may indicate a higher discount rate is likely required in assessing the asset's recoverable amount.

There is also judgement in defining the Group's cash-generating units, which is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or group of assets. The judgement arises as IAS 36 provides limited guidance to what should be allocated on a reasonable and consistent basis. Management need to assess the nature of the assets and aim to reflect to the extent which each CGU benefits from a corporate asset.

After considering the above, management has concluded that there were no indicators of impairment of oil and gas PP&E assets as at 31 December 2022.



It is important that any judgements or sources of estimation used by management in the assessment of impairments in accordance with IAS 36 are adequately disclosed.



Key documentation for your auditors

02

- **Detailed cash flow forecasts** with key assumptions and inputs clearly summarised and supported by third party or internal information.
- **Benchmark analysis** for a range of appropriate competitors comparing the key assumptions (discount rate, growth rates).
- **Justification** for the inclusion of any terminal value within the valuation model, if relevant.
- **Sensitivity analysis** detailing changes in key assumptions considered to be reasonably possible, for a range of appropriate scenarios.
- **Sufficient historic financial information** to support key trends in the forecasts.
- **Supporting documentation** for key contractual or committed income or expenditure within the forecasts.



Accounting for asset retirement, decommissioning, and mine rehabilitation

Overview

During the mining phase, extensive excavation and extraction processes are carried out to recover minerals.

When a mine reaches its end of life, it is likely that significant costs will need to be incurred in relation to decommissioning and rehabilitation of the mine site to its original state or a safe and stable condition, in compliance with environmental regulations and social responsibilities. A provision relating to these costs should be recognised at the point at which a future liability arises as a result of a present obligation, in accordance with IAS 37.

The key drivers of requirements of rehabilitation expenses are:

A

Depletion of mineral reserves: As mining progresses, the mineral deposits in the ore body are depleted, making further extraction uneconomical. When the available mineral reserves are exhausted or unprofitable to extract, mining operations reach their end-of-life, necessitating decommissioning and rehabilitation.

B

Compliance with legal and environmental regulations: Governments and regulatory bodies impose strict environmental regulations on mining operations to ensure responsible and sustainable practices. Mining companies are obligated to rehabilitate and restore the disturbed land to its original or a safe and stable condition as required by local laws and regulations.

C

Social and environmental responsibility: Responsible mine closure and proper rehabilitation demonstrate a commitment to environmental stewardship and community welfare.

D

Safety and public concerns: Abandoned or inactive mining sites can pose safety hazards and environmental risks. Proper decommissioning and rehabilitation help mitigate potential dangers and reduce environmental impacts, safeguarding nearby communities and ecosystems.

E

Land disturbances: During exploration activities, land may be disturbed through drilling, trenching, and other activities. In some cases, these disturbances may require remediation, such as land reclamation, to restore the site to its natural state.

These drivers can vary significantly based on the jurisdiction and specific circumstances of each mining operation. Some countries may have more stringent environmental and regulatory requirements, leading to higher expectations of rehabilitation efforts. Additionally, the scale and nature of mining operations can also influence the extent of rehabilitation needed.

They may also evolve over time as environmental laws and societal expectations change. Mining companies must remain vigilant in staying abreast of evolving regulations, and continuously reassess their provisions for decommissioning and rehabilitation to ensure compliance with the latest requirements.

IAS 16, Property, Plant and Equipment, requires companies to recognise a provision for the costs of dismantling and removing an asset, as well as restoring the site on its disposal, if it is probable that such costs will be incurred and can be reliably estimated. The value of the provision is determined using the present value of the expected costs, in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets.

Common deficiencies

03

Some of the key areas of application deficiencies that have commonly been identified across a wide range of businesses within the natural resources sector, including valuation and disclosure issues, are:



The complexity of these estimates presents challenges in accurately determining provisions.

A

Complexity of measurement and estimation:

The measurement of asset retirement, decommissioning and mine rehabilitation provisions involves a high degree of estimation and judgement. Key estimates include the timing of incurring costs, the extent of work required to meet environmental standards, and the associated costs. These estimates can be subject to volatility due to changes in technology, mine life, legislation, inflation and environmental risks. The complexity of these estimates presents challenges in accurately determining the provision amounts.

B

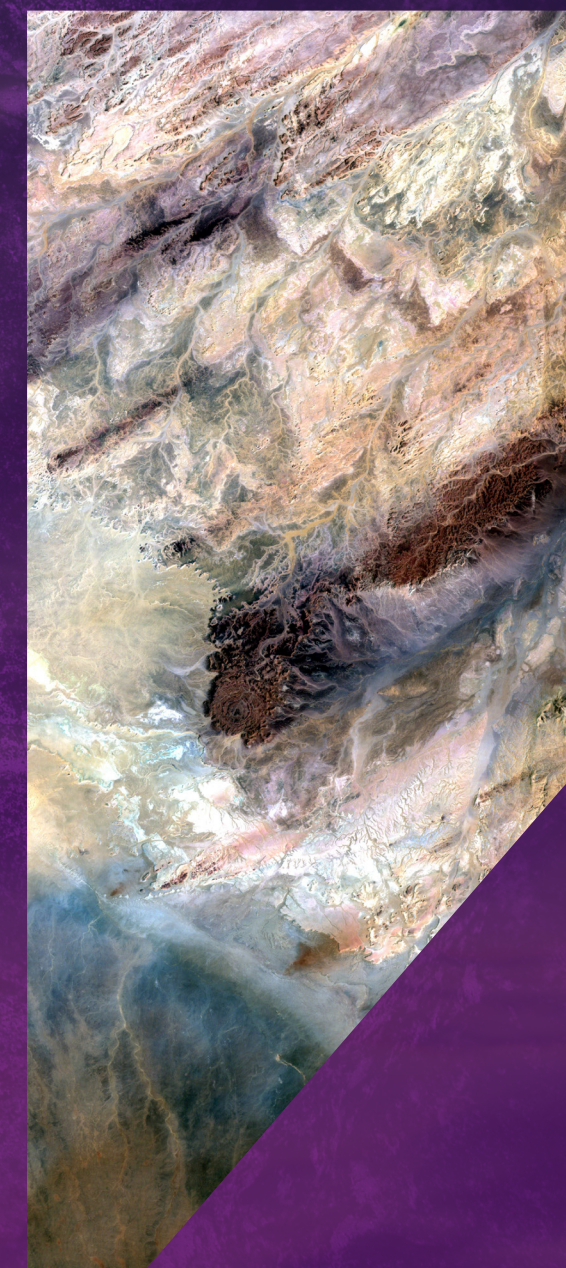
Lack of comprehensive disclosures:

Mining companies may not provide comprehensive disclosures regarding significant estimates, judgements, and accounting policies used in determining provisions. Transparent and detailed disclosures are crucial to enabling stakeholders to understand the assumptions and methodologies employed in provision measurements and assessing the reliability of the reported figures.

C

Inadequate consideration of environmental risks:

As environmental regulations and stakeholder expectations evolve, the estimated costs for rehabilitation and decommissioning can change significantly. Failure to adequately take account of these risks can lead to the underestimation of provision amounts, resulting in potential cost overruns and financial reporting inaccuracies.



Accounting treatment and key estimates

03

IAS 37 sets out the principles for recognising, measuring and disclosing provisions, including decommissioning provisions.

The accounting treatment for decommissioning provisions in mining companies involves several key aspects that must be carefully considered in order to accurately reflect accurate financial obligations. These aspects include:

- **Present obligation:** A present obligation for decommissioning and mine site rehabilitation arises when a fixed asset* is acquired, constructed or in the course of its use in mining activities. The obligation may arise due to regulatory requirements, contractual agreements or the company's constructive obligation resulting from past events.

These events can arise at different stages of mining operations and may vary depending on the type of mining activity and is an area of management judgement.

- **Variation in recognition timing:** Different practices may exist regarding when and how much of the expected liability should be recognised. Some entities recognise the entire decommissioning liability during the exploration phase, while others do it progressively as disturbances occur during mining operations. For instance, in open-cast mining, obligating events might arise over time as mineral reserves are extracted, and environmental disturbance occurs when topsoil is removed and mineral ore is extracted.

Determining the future costs associated with decommissioning and mine site rehabilitation is a complex task. These cost estimates are subject to uncertainties influenced by factors such as evolving regulations, technological changes, inflation rates and currency fluctuations. It is crucial for mining companies to effectively identify obligating events, which trigger the recognition of rehabilitation obligations.

* fixed assets include mining equipment, plant and machinery, infrastructure, land, mineral rights, buildings, oil and gas properties and other physical assets essential for the extraction, processing, and transportation of minerals.

- **Capitalisation of estimated costs:** Upon initial recognition, the present value of estimated costs is capitalised by increasing the carrying amount of related mining assets, reflecting future mine development or construction costs incurred for rehabilitation. The capitalised costs are inflated to reflect the expected future costs of rehabilitation, and then discounted back to the present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the liability. The periodic unwinding of the discount is recognised in the statement of profit or loss and other comprehensive income as part of finance costs.

- **Subsequent recognition and adjustments:** As mining operations progress and disturbances occur, additional rehabilitation work may or may not be required. These subsequent disturbances are recognised as additions or charges to the corresponding assets and rehabilitation liability.
- **Significant estimates and assumptions:** These relate to rehabilitation costs, technological changes, regulatory developments, inflation rates and discount rates.

In addition to the above, the key areas of judgements and estimates include:

- **Estimation of future rehabilitation costs:** Complex tasks involving estimating costs for dismantling assets and restoring the mining site.
- **Timing of obligating events:** Identifying events triggering recognition of rehabilitation obligations, which can vary depending on the mining activity and are essential for appropriate provision recognition.
- **Treatment of contingent liabilities:** Distinguishing recognised provisions from contingent liabilities, which require disclosure unless the possibility of an outflow is remote.
- **Impairment considerations:** Assessing whether changes in rehabilitation obligations indicate potential impairment of related assets and conducting impairment tests as required.
- **Disclosure of assumptions and sensitivity analysis:** Transparently disclosing key assumptions and sensitivity analysis to help stakeholders understand potential risks and uncertainties involved.
- **Involvement of experts:** Engaging external expertise in environmental rehabilitation and compliance to enhance the accuracy of cost estimates.

Example of recommended disclosure

01. Accounting policy

The Group incurs mine rehabilitation costs during mining operations or at the end of the operating life of the facilities and mine properties. At each reporting date, the Group assesses its rehabilitation provision, recognising it when there is a legal and constructive obligation due to past events, and it is probable that resources will be required to settle the obligation. The nature of restoration activities includes dismantling and removing structures, rehabilitating mines and tailings dams, closing plant and waste sites, and restoring affected areas. The obligation generally arises during asset installation or ground/ environmental disturbances at the mining operation's location.

Upon initial recognition, the present value of estimated costs is capitalised, increasing the carrying amount of related mining assets for development/construction-related obligations. Rehabilitation obligations arising from inventory production are recognised as part of related inventory items.

Additional disturbances during further mine development/ construction are recognised as additions or charges to corresponding assets and rehabilitation liability. Costs for restoring site damage during production are recognised based on net present values in profit or loss as extraction progresses.

Changes in estimated timing or future costs are recognised prospectively, adjusting rehabilitation liability and corresponding assets. Any reduction in rehabilitation liability must not exceed the carrying amount of related assets, with any excess charged to profit or loss. If an increase in rehabilitation liability and asset carrying amount suggests impairment of mature mines, impairment tests are performed. The discounted liability is adjusted over time based on current market assessments and liability-specific risks, and the unwinding of discount is recognised in profit or loss. Changes in estimated costs for closed sites are recognised immediately in profit or loss. Following the adoption of IAS 12 amendments (effective 1 January 2023) a deferred tax asset should be recognised to the extent that it is probable that future taxable profit will be available which the temporary difference can be utilised, and a deferred tax liability for all deductible and taxable temporary difference. The adjustment is effective from the beginning of the earliest comparative period presented, which would impact opening retained earnings and require relevant disclosure. Full retrospective action is not required.

Additional disturbances during further mine development/construction are recognised as additions or charges to corresponding assets and rehabilitation liability.

02. Significant estimates and assumptions

Ultimate rehabilitation costs are uncertain and vary due to factors such as the extent and costs of rehabilitation activities, technological changes, regulatory developments, inflation rates (5% (2022: 5%)), and discount rates (9.5% (2022: 8%)). These uncertainties may result in future actual expenditure differing from current provisions, necessitating significant estimates in determining the mine rehabilitation provision. As a result, adjustments to provisions may affect future financial results, and the provision represents management's best estimate of future rehabilitation costs at the reporting date.

03. Financial statement note

(Provisions notes are much more detailed. The below is an example of the Provision specific table in the note and reference should also be made to the significant estimates and assumptions as per the above example).

	Rehabilitation US\$'000
At 1 January 2022	100
Arising during the year	10
Write-back of unused provisions	(20)
Unwinding of discount	5
Utilisation	(25)
At 31 December 2022	70

Note: The impairment testing of mine properties, including any capitalised rehabilitation obligation is covered in our guide on Impairment of mine properties and property, plant and equipment.



Key documentation for your auditors

03

- **Agreement/operating licenses** issued by the government (local or national), their agencies, the owner of the land, or mineral rights. These documents confirm the existence of an obligation to decommission and rehabilitate the mine site, as mandated by regulatory authorities or the landowner, if not owned by the operator.
- **Calculation of provision measurement:** Provide detailed support for the underlying calculation used to measure the decommissioning provision. This should include information on the estimated costs of dismantling, removing fixed assets, and restoring the site, as well as the discount rate and inflation rate used.
- **Explanation of management's estimation methodology:** Include a comprehensive paper detailing considerations when determining the best estimate measurement of the provision. This should address factors such as the timing of rehabilitation activities, costs, discount rates, inflation rates and any other inputs used.
- **Reports from management experts:** If external experts were involved in the provision estimation, provide relevant valuation reports to support the accuracy and reasonableness of the provision amount.
- **The inflation rate and discount rate:** applied to determine the present value of the decommissioning provision and the subsequent unwinding of the provision, along with an explanation of the reasons for selecting the rates applied.



Accounting for Purchase Price Allocation following an acquisition

04

Overview

04

A Purchase Price Allocation (PPA) allocates the cost of an acquisition to the individual assets and liabilities acquired and is governed by IFRS 3 Business Combinations

IFRS 3 defines a business as “an integrated set of activities and assets that is capable of providing a return to investors through the sale of goods or services, or other forms of revenue”. If the acquisition meets the definition of a business, then the PPA process is used to allocate the cost of the acquisition to the individual assets and liabilities acquired, including goodwill. Goodwill is defined as the excess of the fair value of the consideration paid over the fair value of the net assets acquired.

Acquisitions that do not meet the definition of a business fall outside the scope of IFRS 3. These acquisitions are typically asset acquisitions, where the acquirer acquires only a specific asset or group of assets, such as a mineral reserve or a mining lease.

In asset acquisitions, the acquirer recognises the individual identifiable assets acquired and liabilities assumed at their fair values at the date of acquisition. goodwill is not recognised in asset acquisitions.

PPA in the mining sector is governed principally by International Accounting Standards such as IFRS 3, IAS 38 and IFRS 13.

The five steps to completing a PPA

01

Determining the fair value of the consideration paid

02

Identifying the book value of net identifiable assets

03

Fair valuing tangible and intangible assets using business valuation

04

Allocating fair value of the consideration paid to net assets acquired and liabilities assumed

05

Recognising the excess paid of the acquired company's fair value of net assets less liabilities as goodwill; or recognising the gain on bargain purchases where the consideration paid is less than the fair value of acquiree's net assets.



Common deficiencies

Some of the key areas of application deficiencies that have commonly been identified across a wide range of businesses within the natural resources sector, including valuation and disclosure issues, are:

A

Failure to distinguish between a business combination vs an asset acquisition:

Inaccurately assessing whether an acquisition meets the definition of a business under IFRS 3 can occur if the acquirer focuses on the legal form of the transaction rather than its substance. For example, a mining operation in the production phase is typically considered a business, as it has all the necessary inputs, outputs and processes to generate revenue. An entity in the mine development phase may also be defined as a business if it has a clear path to production and the potential to generate revenue. However, the acquisition of an entity that holds an exercisable option to obtain such a license, is more likely to be treated as an asset acquisition.

B

Inappropriate judgements surrounding the valuation of intangible assets: Mining and mineral development companies hold intangible and other assets such as exploration potential, mineral properties and contractual rights which need to be fairly valued. The valuer is required to make a number of assumptions and exercise judgement in arriving at an appropriate fair value. Assigning fair value to undeveloped properties, particularly those in exploration phases without established reserves, requires consideration of recent market transactions, resource estimates, and expected commodity prices.



Failure to adequately complete a PPA can lead to significant impacts on the statement of comprehensive income and statement of financial position.

C

Ignoring related tax issues: Mining acquisitions often include tax amortisation benefit (TAB), which reflects the present value of future income tax deductions. TAB must be considered as part of fair value calculations. Distinguishing between tax and accounting rules is crucial, as treatment varies for intangibles and goodwill. Failure to sufficiently consider the tax impact of any fair value adjustments may result in misstatement. This will only arise on business combinations, rather than asset acquisitions.

D

Inappropriate allocation between goodwill and separately identifiable assets: Goodwill arises as the residual difference between consideration transferred, and net identifiable assets and liabilities acquired. The value over and above what was paid for the net assets acquired is then required to be assessed further, in order to separately identify any 'intangible' elements of the acquisition, such as customer lists, relationships and expertise, with the resulting impact against the balancing goodwill figure. Within this industry, the norm would usually be to allocate the remaining goodwill balance to the licence area or asset acquired.

Accounting treatment and key estimates

04


Acquirers are granted a 'measurement period' extending either until information needs are met, or up to twelve months post-acquisition.

During this timeframe, acquirers (or, often, their appointed external experts) will consider the fair value of assets and liabilities based on available information. The initial business combination accounting uses these provisional values to record any goodwill or gain on bargain purchase, both of which are common in the natural resource industry. Any adjustments within the measurement period will amend the initial business combination accounting. Any further adjustments outside of this window are factored into the statement of comprehensive income as changes to estimates.

IFRS 13 sets out the framework for measuring fair value through a fair value hierarchy. IAS 38 sets out the criteria for recognising and measuring intangible assets. The purpose of the PPA exercise is to evaluate whether the fair value of all assets and liabilities at the acquisition date is different from their book value. Fair value adjustments to the following are common: mineral properties; mining licenses and rights; machinery and equipment; and inventory/ore.

The acquired entity may also have assets and liabilities that did not meet the criteria for recognition under relevant reporting standards, but are now recognised as part of the business combination in accordance with IFRS. For example, mining rights, mineral reserves and resources that are able to be reliably valued are often used as the basis for estimates of fair value to be used in purchase price allocations in a business combination. When this company is acquired, the buyer will certainly have considered the reserves and resources in the purchase price they were willing to pay, and therefore it may be appropriate to assign a value to such assets on acquisition.

Any remaining excess consideration, once all fair values and previously unrecorded assets and liabilities are recorded, is goodwill. Impairment of goodwill is subsequently assessed annually in accordance with IAS 36. However, as previously mentioned, any remaining goodwill balance will usually be allocated to the licence area or asset acquired, and will be assessed for impairment under that relevant standard.

 Fair value adjustments to the following are common: mineral properties; mining licenses and rights; machinery and equipment; and inventory/ore.

When a business is acquired, the acquirer needs to recognise and measure any deferred tax assets or liabilities that arise from the assets acquired and liabilities assumed.

This is done in accordance with IAS 12 Income Taxes. The acquirer needs to consider the potential tax effects of temporary differences and carry forwards of the acquired company that exist at the acquisition date or arise as a result of the acquisition.

In an asset acquisition that falls outside the scope of IFRS 3, the acquirer recognises the individual identifiable assets acquired and liabilities assumed at their fair value at the date of acquisition. However, there are some key differences in the accounting treatment for asset acquisitions compared to business combinations:

- In an asset acquisition, goodwill is not recognised because the acquirer does not obtain control of the target company
- Recognition of any deferred tax impact on acquisition, in light of the recent amendments to IAS 12 (effective 1 January 2023) which includes additional exclusions to the "initial recognition exemption" criteria
- The measurement period for asset acquisitions is shorter than for business combinations. In an asset acquisition, the measurement period is typically six months
- Transaction costs are generally capitalised in an asset acquisition because they are considered to be part of the cost of acquiring the assets
- Asset purchases settled by the issue of shares are within the scope of IFRS 2 Share-Based Payments because the acquirer is effectively exchanging shares for assets.

Accounting treatment and key estimates

04

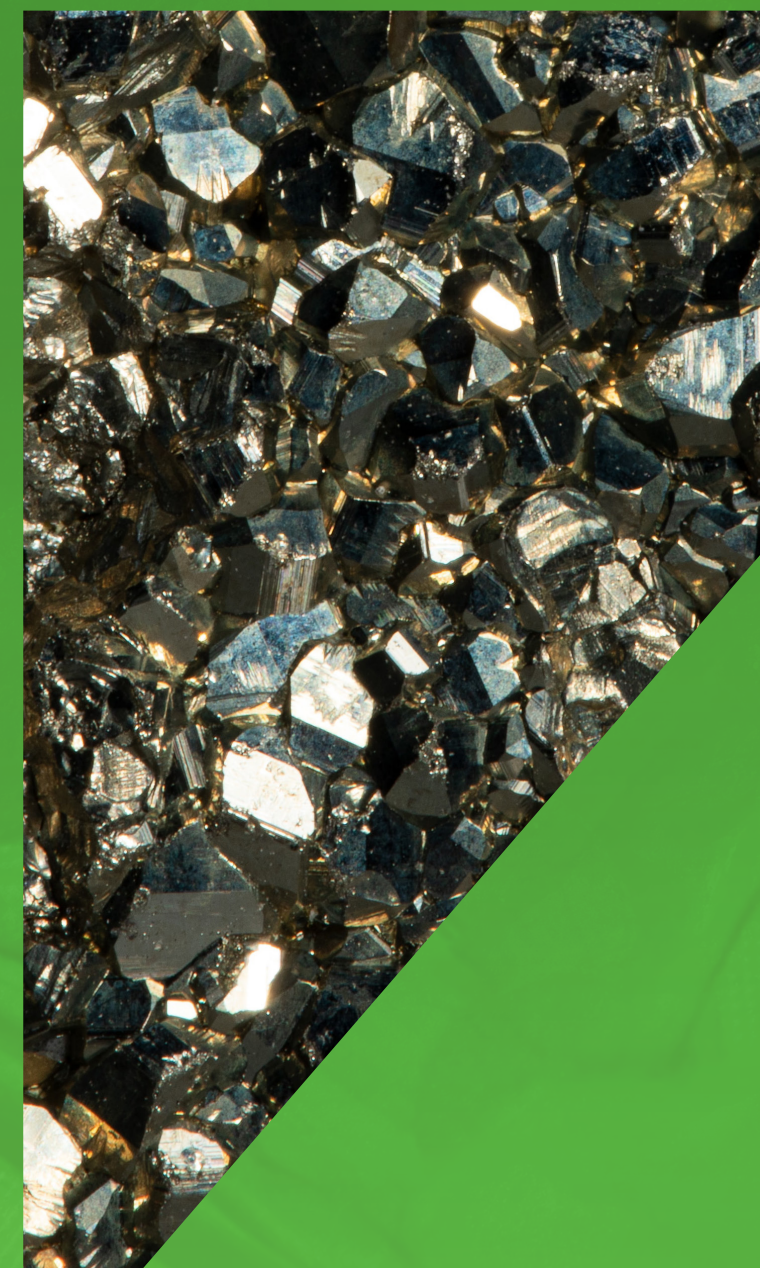
In addition to the above, the key areas of judgement and estimation include:

- **Intangible asset recognition and tax impact:** Identifying geological, geotechnical data, mineral properties, and exploration potential needs careful assessment for tax implications. This includes looking closely at each asset's value allocation, useful lifespan, and impact on post-acquisition profits.
- **Closure and rehabilitation liabilities:** Closure and rehabilitation provisions must be recorded where a future liability is considered to exist as a result of a present obligation. There are several judgements and sources of estimation involved in determining whether an obligation exists and, if so, ensuring the completeness and accuracy of the costs included. This will involve consideration of local mining and environmental regulations, conditions stipulated within relevant licenses, the term over which these costs are to be recognised and unwound, and determination of an appropriate discount rate. Often, a third party expert will be involved in the valuation process.
- **Contract fair value:** Acquirers should consider whether any value should be assigned to pre-existing contracts between the acquiree and third parties (i.e. customer contracts). This will require consideration of the future economic benefit of those contracts, as well as industry benchmarking, market conditions, and consideration of useful life in accordance with contract terms and other external/internal factors.
- **Ongoing royalties and contingent consideration:** Royalties, payments and equity transfers with future conditions need to be valued precisely and reflect their potential worth at the acquisition date.



The acquirer must allocate the purchase price to assets acquired in a reasonable and consistent manner.

- **Additional Consideration:** The effect of commodity prices on assets, reliability of mineral reserve estimates, and regulatory changes that influence asset and liability values needs to be assessed.
- **Valuation of mineral properties and exploration assets:** The valuation of these assets is complex and requires significant judgement. The acquirer must carefully consider the factors that will affect the future economic benefits of the assets, such as the location of the assets, the quality of the mineral reserves, and the prevailing commodity prices.
- **Allocation of purchase price to individual assets:** The acquirer must allocate the purchase price to the individual assets acquired in a reasonable and consistent manner, and must consider the fair values of the individual assets, the relative fair values of the assets, and the acquirer's intended use of those assets.



Examples of recommended disclosure

01

Accounting policy

Business combinations are accounted for using the acquisition method as prescribed by IFRS 3. The acquirer is identified as the entity gaining control over one or more mining businesses, assessed based on control indicators specified in IFRS 10. The acquisition date signifies the point at which control is secured, irrespective of the formal transaction closure date.

The consideration transferred in a business combination is valued at fair value. This comprises cash, cash equivalents, fair value of assets transferred, liabilities incurred, equity instruments issued, and fair value of contingent considerations. Transaction costs are excluded and treated as separate expenses. Assets acquired and liabilities assumed, including contingent ones, are recognised at their fair value on the acquisition date. Separate recognition of intangible assets arising from contractual or legal rights is done if they meet criteria. Additionally, previously unrecorded assets and liabilities may necessitate recognition.

Goodwill is determined as the surplus of transferred consideration, non-controlling interests, and fair value of previously held equity interest (if any), over the net of acquisition date amounts of acquired assets and assumed liabilities. Any excess remaining is promptly recognised as income in the statement of comprehensive income. After initial recognition, goodwill is measured at its cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each of the Group's cash-generating units (CGUs) that are expected to benefit from the combination, regardless of whether other assets or liabilities of the acquiree are assigned to those units.

After initial recognition, goodwill is assessed annual for impairment in accordance with IAS 36.

04

Key accounting estimates and judgements involved in business combination and PPA process are:

- **The date of acquisition:** This is the date on which the acquirer obtains control of the acquiree. Control is defined as the power to direct the activities of an entity so as to obtain benefits from its activities. The date of acquisition is a matter of judgement, and the acquirer must consider all relevant facts and circumstances in making this determination.
- **The fair value of the acquiree's assets and liabilities:** Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's-length transaction. The fair value of an asset or liability is not always readily determinable, and is based on estimates made in order to determine the fair value of the acquiree's assets and liabilities.
- **The allocation of the purchase price to the individual assets and liabilities of the acquiree:** The purchase price is allocated to the individual assets and liabilities of the acquiree based on their fair values. However, there may be some assets or liabilities that are not readily valued, such as goodwill. In these cases, the acquirer may need to make an estimate of the fair value of these assets or liabilities, and whether it is appropriate to allocate remaining goodwill to the cost of the licence area or asset acquired.
- **The measurement period:** The measurement period is the period of time after the acquisition date during which the acquirer is allowed to make adjustments to the purchase price allocation. The measurement period is intended to provide the acquirer with sufficient time to obtain all relevant information about the acquiree and to make adjustments to the purchase price allocation as necessary.
- **The impact of future events:** The acquirer must make assumptions about the impact of future events on the fair values of the assets and liabilities of the acquiree. These assumptions may include assumptions about future interest rates, commodity prices, or economic conditions. The acquirer must carefully consider these assumptions and make sure that they are reasonable.
- **The determination of contingent considerations:** This involves estimating the amount of any contingent consideration that is payable to the seller(s) of the acquiree. Contingent consideration is typically payable if certain events occur, such as the acquiree achieving certain financial or operational targets, such as after 10,000 ounces of gold mined, completion of a feasibility study etc.

Examples of recommended disclosure

02 Financial Statement Note

(Please note, Business combination notes are much more detailed. The below is an example of the PPA specific table in the note).

	31 December 2022 US\$'000
Total consideration	50,000
Assets	
Mining properties	30,000
Inventories	5,000
Cash and cash equivalents	5,000
Liabilities	
Decommissioning provisions	(6,000)
Deferred tax liability	(4,000)
Goodwill arising on acquisition	20,000
Total	50,000

Note: This line item is for illustration purposes only. Within this industry, we would expect any excess goodwill to be allocated to the "mining properties" line within this example table.

Note: The above values are fair values on the date of acquisition and goodwill is a balancing figure. As per requirements of IFRS 3, the note has to be followed by details of the transaction, valuation model used, key estimates and assumptions; and the rationale for recognising goodwill. The above examples assumes that the acquisition date and measurement period fall under the same accounting period.

Where the measurement period falls after the end of the accounting period, the acquirer shall disclose the above Purchase Price Allocation as provisional in the year of acquisition. In the following year, when the fair value and cost allocation exercise is complete, a retrospective adjustment is made to the recognised goodwill or gain on bargain purchase with a detailed description of the events resulting in change in fair value.

On 31 July 2021, the Group completed the acquisition of Exploration Plc, although it was not able to begin the process of integration and fair value accounting until March 2022. The provisional fair values of the assets and liabilities acquired have been reconsidered in the hindsight period under IFRS 3 and changes to fair values have been made to the extent that these reflect facts and circumstances which existed at the point of acquisition.

The provisional and final fair values of the consideration paid and the consolidated net assets acquired, together with the goodwill arising in respect of this acquisition are set out below:

	31 December 2021 US\$'000	31 December 2022 US\$'000	
	Provisional fair value on acquisition	Measurement period adjustment	Final fair value on acquisition
Total consideration	50,000		50,000
Assets			
Mining properties	30,000	(2,000)	28,000
Inventories	5,000	(1,000)	4,000
Cash and cash equivalents	5,000	-	5,000
Liabilities			
Decommissioning provisions	6,000	-	(6,000)
Deferred tax liability	4,000	-	(4,000)
Goodwill arising on acquisition	20,000	3,000	23,000
Total	50,000		50,000

Reassessment of the fair values during the period resulted in an increase of \$3m in the value of goodwill arising. Read the significant change as follows:

- the Group commissioned a third-party report on the discount rate applicable to the Exploration Plc acquisition as a standalone business. Application of this more accurate discount rate leads to a reduction in the value of owned mining properties and inventories.

Examples of recommended disclosure

03 Accounting policy

Acquisitions which are considered outside the scope of IFRS 3 are recognised at fair value. When an acquisition is of an entity whose only significant assets are its exploration asset and/or rights to explore, management consider that the fair value of the exploration assets is equal to the consideration. Transaction costs incurred in the acquisition are recognised as part of the cost of acquired assets.

Purchase price consideration	US\$'000
Equity instruments in issue (10,000 ordinary shares of \$10 each)	100,000
Total consideration	100,000
Recognise amounts of identifiable assets acquired and liabilities assumed	
Trade and other receivables	(10,000)
Trade and other payables	(5,000)
Total identified net assets	5,000
Total	105,000

Note: Where a bargain purchases arises on acquisition, this gain is recorded directly in the statement of comprehensive income and shown on the face of the primary statement.

04 Financial statement note

Acquisition of Exploration and Evaluation asset

During the year, the Company acquired Exploration Plc ("the Acquisition") a company whose principal activity is the exploration for natural resources in the United Kingdom. The consideration for the Acquisition was satisfied by issue of 10,000 ordinary shares at a price of \$10 per share.

Under IFRS 3, a business must have three elements: inputs, processes and outputs. Exploration Plc had no mineral reserves and no plan to develop a mine. It did have title to mineral properties but these could not be considered inputs because of their early stage of development. Exploration Plc had not completed a feasibility study or a preliminary economic assessment on any of its properties and had no infrastructure or assets that could produce outputs. Therefore, management's conclusion was that the transaction was an asset acquisition and not a business combination. The fair value adjustment to intangible assets of \$105,000,000 represents the excess of the purchase consideration of \$100,000,000 over the excess of the net assets acquired of nil and trade and other liabilities of \$5,000,000.

The amount of loss of Exploration Plc since the acquisition date included in the Group Statement of Comprehensive Income is \$2,000,000.

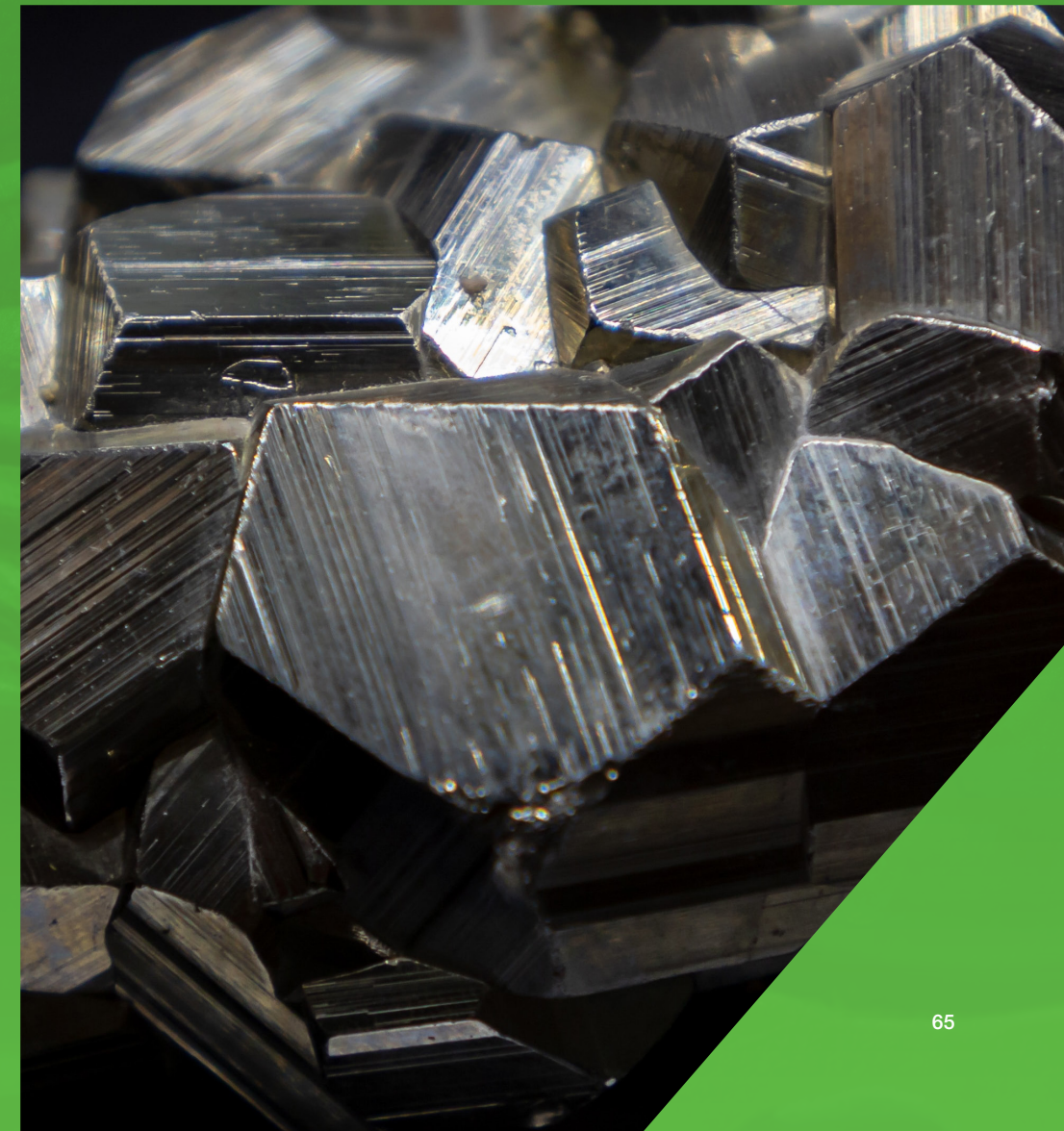
Note: Prior to the adoption of IFRS, many mining companies accounted for goodwill, only if the fair value of the acquiree's identifiable net assets (excluding mineral reserves and resources) was less than the consideration transferred. However, IFRS requires goodwill to be recognised when the consideration transferred exceeds the fair value of the acquiree's identifiable net assets, regardless of whether there is an overpayment. This is because goodwill can also arise from other factors, such as synergies between the acquirer and acquiree.

Mineral reserves and resources are not included in the calculation of goodwill because they are not considered identifiable net assets under IFRS. Instead, they are valued separately. Any excess of the consideration transferred over the fair value of the acquiree's identifiable net assets, including mineral reserves and resources, is allocated to goodwill. Goodwill is not amortised under IFRS. Instead, it is tested for impairment at least annually. An impairment loss is recognised if the fair value of goodwill is less than its carrying amount.

Key documentation for your auditors

04

- **Assessment** of whether the acquisition meets the definition of a business in accordance with IFRS 3, supported by rationale.
- **Business Acquisition** agreement confirming purchase price terms and date of acquisition.
- **Any business valuation** studies/reserve reports where the fair value of assets and liabilities are determined.
- **Fair value adjustment** workings and supporting evidence for the consideration paid and for the tangible and intangible assets.
- **Any relevant valuation** reports from management experts used in the resource/reserve estimation.
- **PPA and calculation** of goodwill, gain on bargain purchase and deferred tax.



Depletion under the unit of production method

05

Overview

05

Depletion refers to the process of amortising assets, such as mining properties or developed oil and gas properties, on the basis of actual extraction volumes during the reporting period.

The unit of production “(UoP)” method is an appropriate and widely accepted approach for estimating and recording the depletion of mine or oil and gas-related properties. It focuses on matching the depletion expense to the actual extraction and sale of the natural resource, providing a more accurate representation of the depletion process.

Common deficiencies

05

Some of the key areas of application deficiencies that have commonly been identified across a wide range of businesses within the natural resources sector, including valuation and disclosure issues, are:



In practice, some common deficiencies are observed in the accounting treatment of depletion under the unit of production method. These deficiencies include:

01

Inadequate documentation of the depletion calculation and the underlying assumptions used;

02

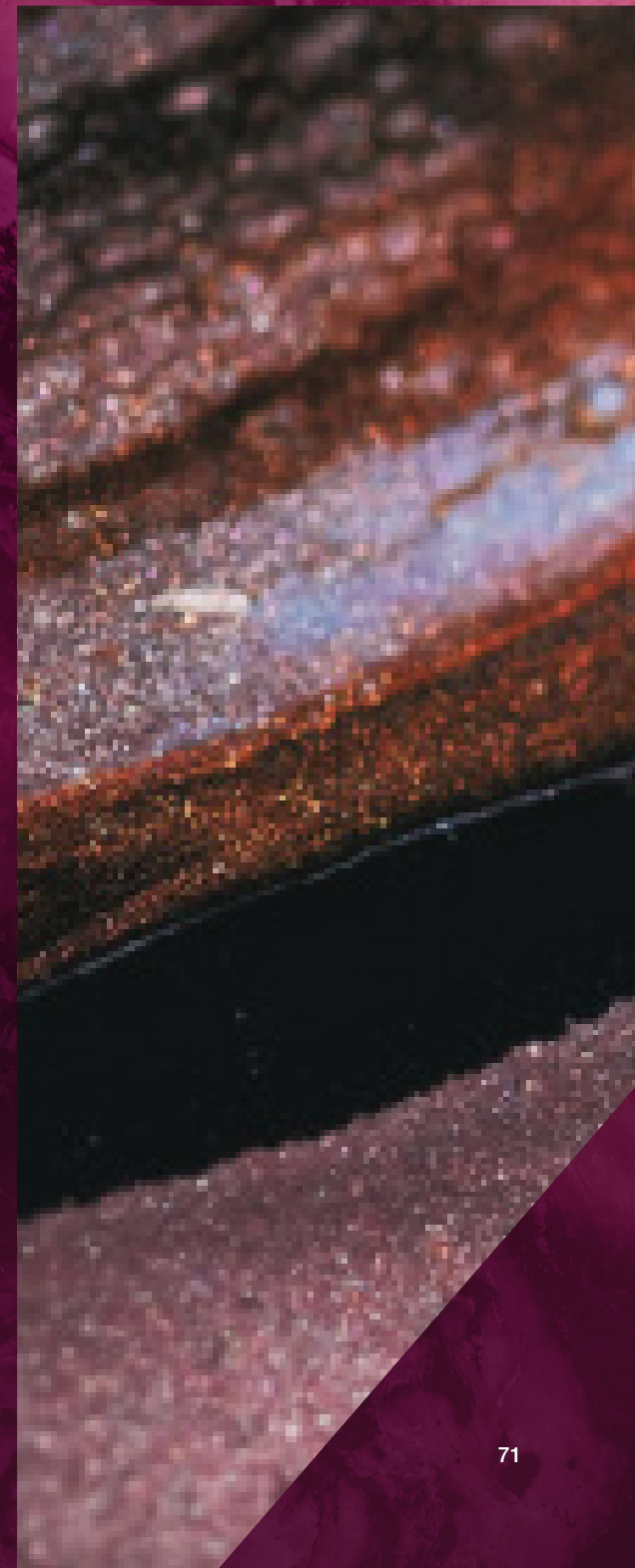
Failure to update the depletion rate based on changes in reserves or estimated production;

03

Incorrect allocation of costs to depletion, such as including non-depletable costs;

04

Lack of proper disclosure regarding depletion methods and significant assumptions.



Accounting treatment and key estimates

05

Under the unit of production method, the initial and subsequent measurement of depletion should account for the reduction in the quantity of a natural resource as it is extracted or used.



The useful lives and residual values of material assets and categories of assets are reviewed annually

IAS 16 requires recognition of the depletion expense using an appropriate method. For the purposes of the assets discussed here, we would normally expect this to be carried out under the UoP method. When such assets are initially acquired or developed, the depletion cost is typically based on the total estimated recoverable units of the resource. The initial measurement of depletion expense is determined by dividing the cost of acquiring or developing the resource by the estimated total recoverable units.

Depletion is recorded annually on this basis according to the production volume in a given reporting period. This method helps allocate the cost of the natural resource over its useful life and reflects the ongoing depletion of the resource. The carrying value amount of the natural resource asset is reduced by the amount of depletion recognised.

The useful lives and residual values of material assets and categories of assets are reviewed annually and changes are reflected prospectively as a change in estimate under IAS 8.



Accounting treatment and key estimates

05

Management judgement and estimation are required in depletion accounting, particularly surrounding:

- **Estimation of recoverable units:** Management must estimate the total quantity of the natural resource that can be economically recovered.
- **Determination of depletion cost per unit:** Management need to determine how the cost allocation of each unit extracted or sold and how this is allocated to specific asset classes and licence areas. The depletion cost per unit will be assessed annually as it is subject to change based on actual production.
- **Revision of estimates:** If there are changes in level of reserves or estimates of production volumes due to factors such as new geological information or changes in the extraction process, management must revise the UoP depletion calculation accordingly.

The following challenges are presented when accounting for depletion under UoP method:

01

Gathering reliable data on reserves, production volumes, and costs.

02

Consistently applying depletion policies and methods; and/or

03

Assessing the impact of external factors such as changes in commodity prices or extraction technologies on the estimation of recoverable units and depletion cost per unit.



Examples of recommended disclosure

01

Accounting policy

The Group uses the UoP basis when amortising mine-specific assets which results in an amortisation charge proportional to the depletion of the anticipated production over the remaining life of mine production. Each item's economic life, which is assessed annually, has regard to both its physical life limitations and to present assessments of economically recoverable reserves of the mine property at which it is located. These calculations require the use of estimates and assumptions. Any changes in these estimates and assumptions are accounted for prospectively.

02

Accounting estimates and assumptions - Ore reserves and mineral resources

The Group estimates its mineral resources and ore reserves annually. The estimated quantities of economically recoverable reserves are based upon interpretations of geological models and require assumptions to be made regarding estimates of factors such as estimates of short and long-term exchange rates, estimates of short and long-term commodity prices, future capital requirements and future operating performance. Changes in reported reserves estimates can impact the carrying value of property, plant and equipment (including exploration and evaluation assets), the provision for rehabilitation obligations, the recognition of deferred tax assets, as well as the amount of depreciation charged to the statement of comprehensive income.

This would also be referred to any Competent Person report in place.

Key documentation for your auditors

- **Depletion policy:** outline the accounting principles and methods used for calculating depletion including the unit of production method.
- **Mineral or natural resource reserves report:** prepared by independent experts, this estimates the reserves of mineral or natural resources held by the company.
- **Production reports:** such as production volumes, quantities extracted and relevant data specific to the resource being depleted to determine the depletion rate.
- **Depreciation schedules:** demonstrate the consistency of the treatment of depletion expenses and related assets.
- **Contracts and agreements:** related to the acquisition, exploration development or extraction of the resource.
- **Management estimates and assumptions:** provide documentation to support the reasonableness of management's estimates and assumptions used in determining depletion, such as the useful life of the resource and production volumes.



The specific requirements may vary depending on the company's industry, size and internal control environment.

**Transitioning
categories from
exploration to mine
under construction
through to production**

Moving between categories from exploration, to mine under construction, to production in the mining industry is complex.

Management judgement and estimation are necessary in appropriately accounting for the transition between these asset categories. Here we provide an overview of the significant accounting considerations and requirements, highlight some common deficiencies, and outline the recommended disclosures as well as documentation that management will need to provide to their auditors.

Common deficiencies

06

Some of the key areas of application deficiencies that have commonly been identified across a wide range of businesses within the natural resources sector, including valuation and disclosure issues, are:

01

inadequate justification for categorisation changes;

02

lack of detailed assessment and disclosure of key assumptions and judgements surrounding the point of recognition, impairment assessments and determination of the lifecycle;

03

insufficient documentation supporting the economic viability of the mine;

04

failure to appropriately recognise and disclose impairment losses;

05

inadequate disclosure of the risks and uncertainties associated with the transition process.

Accounting treatments and key estimates

06

Moving between categories involves specific recognition requirements at each stage.

01

Exploration phase to mine development

A. Recognition of exploration and evaluation assets

Entities may design their own accounting policies in line with the principles of IFRS 6 Exploration for and Evaluation of Mineral Resources which provides examples of relevant spend which meets capitalisation criteria. Entities may make their own assumption as to when the capitalisation criteria are met, such as at the point of acquisition of the licence, or at the point at which commercial and technical feasibility has been determined. Once the policy has been adopted, it must be applied consistently and disclosed appropriately.

Once capitalised, exploration and evaluation (E&E) assets are not amortised, but assessed for impairment on an annual basis.

When an exploration project is determined to be economically viable and moves into the mine development stage, E&E assets related to the specific mine should be reclassified from exploration assets to mine development, and capitalised in accordance with IAS 16.

B. Determining mine development stage

To determine when an exploration project moves into the mine development stage, it is essential to assess the feasibility and commercial viability of extracting mineral reserves. Factors to consider include the completion of technical studies, the acquisition of necessary permits and licenses, the availability of financing, and the commencement of substantial construction activities.

The common point at which the transition occurs is on development of the plant. However, this not the defining factor and will involve management's assessment. Once costs are incurred which relate to the 'development' of mineral resources, this can no longer be capitalised as E&E assets.

C. Measurement and capitalisation of mine development assets

Mine development assets represent the costs incurred to bring the mine to a state where production can commence. These costs include, but are not limited to:

- costs of developing access roads, infrastructure and facilities;
- costs of construction and installation of mining equipment;
- costs of environmental remediation and reclamation; and/or
- borrowing costs that qualify for capitalisation.

Mine development assets should be measured initially at cost, which includes all directly attributable costs and any borrowing costs capitalised during the construction period. Subsequently, these assets should be depreciated over their useful lives using an appropriate depreciation method.

02

Mine development phase to production phase

A. Trial production

Often there is a prolonged period of mine commissioning (which can often exceed twelve months), during which production is gradually increased towards its capacity levels. During this period, revenue is likely to be generated from production.

Under IAS 16, this revenue should be recognised as such within the statement of comprehensive income, rather than offset against the cost of the asset. Management judgement is required to assess whether the conditions of IAS 16 - relating to costs directly attributable to bringing the asset into the condition necessary for use - are met. This assessment will decide whether the cost relates only to the commencement of production, or to achieving a specified level of production.

B. Commencement of production

The transition from the mine development phase to the production phase occurs when mining activities have reached a point where saleable quantities of mineral reserves are being extracted. This phase is typically associated with the commercial production of minerals and revenue generation.

C. Transitioning mine development assets to

Accounting treatments and key estimates

06

Property, Plant, and Equipment (PPE)

Upon commencement of production, mine development assets should be reclassified as property, plant, and equipment (PPE) in accordance with the relevant accounting standards under IAS 16. The carrying value of the mine development assets at the transition date becomes the cost of PPE.

D. Depreciation and amortisation of PPE

PPE, including mine development assets, should be depleted over its estimated useful life. The appropriate depletion method should be selected based on the nature of the assets and industry practice, which in the majority of circumstances will be under the unit of production method. The estimated useful lives and residual values of PPE should be reviewed regularly and adjusted if necessary. Any adjustment to the useful life assessment is treated as a change in accounting estimate under IAS 8, and adjusted for prospectively.

E. Impairment

Assets should be periodically assessed for impairment. If there is an indication of impairment, the carrying amount of the mining assets should be compared to the recoverable amount. If the carrying amount exceeds the recoverable amount (being the higher of the fair value less costs to sell and the value in use), an impairment loss is recognised. Key internal and external indicators of impairment are listed in IAS 36 and include; changes in interest rates / discount rates, the carrying value of net assets exceeding the entity's market cap; evidence of obsolescence or damage, future business plans having an adverse effect on the asset, evidence that internal reporting is worse than expected.

Where an indication of impairment exists, the carrying amount of mining assets should be assessed against the recoverable amount.

03

Key areas of management judgement and estimation as well as accounting challenges and considerations

Moving from exploration, through to mine under construction and eventually to production, involves several key areas of management judgement and estimation, as well as accounting challenges and considerations. The key areas are:

- determining and estimating economically viable reserves;
- assessing the recoverable amount of capitalised assets;
- estimating the useful life of assets, including the mine;
- evaluating impairment indicators and performing impairment tests;
- estimating future commodity prices and exchange rates when challenged with market volatility that can impact the financial viability of a mining project;
- assessing the appropriateness of the cost allocation methods used;
- careful consideration of permits and licences as regulatory and environmental requirements change while moving through the different stages;
- making judgements on the technical feasibility of developing a mine when transitioning from exploration to mine construction, which involves evaluating the potential mining methods, infrastructure requirements, environmental impact assessments and geo-technical considerations; and/or
- completion of a bankable feasibility study to ensure the project can be financed.



Examples of recommended disclosure

01

Accounting policy

A. Exploration assets

Please see example accounting policy for E&E expenditure on page 16.

B. Mine development

Mine development represents costs incurred from confirming the profitability of a mine, which is usually supported by a feasibility study undertaken from a Competent Person, and also includes costs incurred to date relating to previously capitalised E&E costs.

Mine development is stated at historical cost less impairment losses, if any. Historical cost includes expenditure that is directly attributable to the acquisition of the items and costs incurred in bringing the asset into use.

Subsequent costs are included in the asset's carrying amount, or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is de-recognised. All other repairs and maintenance costs are recognised in the statement of comprehensive income as incurred.

An item of mine development is de-recognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on de-recognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the statement of comprehensive income when the asset is derecognised.

C. Producing mines (plant and equipment)

Plant and equipment is carried at cost less accumulated depreciation and any accumulated impairment losses. The initial cost of an asset comprises its purchase price or construction cost, and any costs directly attributable to bringing the asset into operation, the initial estimate of the rehabilitation obligation, and for qualifying assets (where relevant), borrowing costs. The purchase price or construction cost is the aggregate amount paid and the fair value of any other consideration given to acquire the asset. Construction costs includes expenditure in respect of exploration, evaluation and feasibility, previously accumulated and carried forward in relation to areas of interest in which development or construction is underway.

Notes to the accounts

Intangible assets

Exploration and Evaluation asset	
Cost as at 1 January 2022	1,000,000
Additions	200,000
Transferred to mine development	(1,200,000)
Cost as at 31 December 2022	-

Property, plant and equipment

	Mine development	Producing mines
Cost as at 1 January 2022	-	-
Transferred from exploration and evaluation assets	1,200,000	
Additions	300,000	
Transferred between categories	(1,500,000)	1,500,000
Additions		500,000
Cost as at 31 December 2022	-	2,000,000

*Depletion and impairment have not been shown here

Key documentation for your auditors

06

- **Exploration expenditure reports:** records of exploration expenditures incurred, including costs related to drilling activities, sampling and other exploration related expenses. These records help verify the capitalisation of appropriate exploration costs.
- **Exploration and evaluation assets:** demonstrating how the method for determining whether the assets meet the criteria for recognition, and measuring their value in accordance with accounting standards.
- **Mine development plans:** including technical reports, banking studies and engineering studies to understand the progression from exploration to mine development. These plans help determine whether expenditures are appropriately classified as development costs.
- **Capital expenditure records:** incurred during the mine development phase. This includes costs related to land acquisition, construction of infrastructure, machinery, equipment and other expenses directly attributable to bringing the mine into production.
- **Project budgets and cost estimates:** to demonstrate the reasonableness of projected costs during the construction and development phases, and the assumptions and data supporting them.
- **Contracts and agreements:** relating to mine development activities such as construction contracts, lease agreements and equipment purchase agreements and service contracts.
- **Project milestone assessments:** documenting the key stages in the mine development process. These assessments should show evidence of progress and support the appropriate transition of costs from one category to another.



About our natural resources team

We are specialists in the natural resources sector. Understanding such global, technically complex businesses has become a specialism of ours, and we are auditors to over 100 businesses in the sector from private companies to large listed multinational groups.

In the listed market we are ranked 1st as auditors of LSE Basic Materials companies and 2nd to LSE Energy clients.

We foster long term relationships with companies across the sector from initial stages of exploration through to production, and from IPO to growth and expansion. Our natural resources team are all sector specialists, supporting clients that operate across all continents,

Our knowledge of the sector includes numerous oil and gas, mineral and energy projects including gold/silver; precious metals; copper, nickel, iron and both the base metals, agricultural minerals, lithium; uranium, diamonds and other precious gemstones; and coal.

Contact us



Joseph Archer
Partner & Head of Natural Resources
☎ +44 (0)20 7516 2495
✉ jarcher@pkf-l.com



Dominic Roberts
Partner
☎ +44 (0)20 7516 2200
✉ droberts@pkf-l.com



Imogen Massey
Partner
☎ +44 (0)20 7516 2363
✉ imassey@pkf-l.com



Mark Ling
Partner
☎ +44 (0)20 7516 2208
✉ mling@pkf-l.com



Nick Joel
Partner
☎ +44 (0)20 7516 2373
✉ njoel@pkf-l.com



Joe Baulf
Partner
☎ +44 (0)20 7516 2216
✉ jbaulf@pkf-l.com



Zahir Khaki
Partner
☎ +44 (0)20 7516 2394
✉ zkhaki@pkf-l.com



Adam Humphreys
Partner
☎ +44 (0)20 7516 2393
✉ ahumphreys@pkf-l.com



Dave Thompson
Partner
☎ +44 (0)20 7516 2293
✉ dthompson@pkf-l.com



Cheryl Court
Partner
☎ +44 (0)20 7516 2279
✉ ccourt@pkf-l.com



Wendy Liang
Director
☎ +44 (0)20 7516 2312
✉ wliang@pkf-l.com

PKF Littlejohn LLP

London
15 Westferry Circus
Canary Warf
London E14 4HD
+44 (0)20 7516 2200

Leeds
Third Floor, One Park Row
Leeds, Yorkshire, LS1 5HN
+44 (0)113 244 5141

Manchester
11 York Street
Manchester, M2 2AW
+44 (0)161 552 4220

www.pkf-l.com

This document is prepared as a general guide.

No responsibility for loss occasioned to any person acting or refraining from action as a result of any material in this publication can be accepted by the author or publisher.
PKF Littlejohn LLP, Chartered Accountants.

A list of members' names is available at the above address.
PKF Littlejohn LLP is a limited liability partnership registered in England and Wales No. 0C342572. Registered office as opposite.

PKF Littlejohn LLP is a member of PKF Global, the network of member firms of PKF International Limited, each of which is a separate and independent legal entity and does not accept any responsibility or liability for the actions or inactions of any individual member or correspondent firm(s).