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International Accounting Standards Board

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These notes are based on the staff papers prepared for the IASB. Paragraph numbers correspond to paragraph numbers used in the IASB papers. However, because these notes are less detailed, some paragraph numbers are not used.

INFORMATION FOR OBSERVERS

Board Meeting: **16 October 2006, London**

Project: **Extractive Activities research project**

Subject: **Consideration of fair value measurement in other projects (Agenda Paper 4E)**

Purpose

1. The purpose of this paper is to:

   (a) identify the arguments for and against the use of fair value previously put forward when developing accounting requirements for reserves and resources and for other non-financial assets (e.g. agriculture and investment property); and

   (b) evaluate whether these arguments are still relevant in the context of minerals and oil & gas reserves and resources.

2. Agenda Paper 4D assessed the suitability of fair value as a measurement or disclosure objective for reserves and resources. This paper considers if the reasons for and against fair value presented in the Agenda Paper 4D are any different from those previously considered by standard-setters. Although previous decisions by standard-setters do not create a precedent that must be followed, their decisions and the reasons for their decisions may be influential.

The previous conclusions that are under review

3. This paper reviews the conclusions reached by standard-setters on the following standards that have addressed the same or similar issues regarding the fair value measurement of minerals and oil & gas reserves and resources:

   (a) FAS 19 *Financial Accounting and Reporting by Oil and Gas Producing Companies*;

   (b) FAS 69 *Disclosures about Oil and Gas Producing Activities*;

   (c) SEC Accounting Series Release 253 *Adoption of Requirements for Financial Accounting and Reporting Practices for Oil and Gas Producing Activities*;

   (d) IAS 41 *Agriculture*; and

   (e) IAS 40 *Investment Property*.

Outline of paper

4. This paper is structured as follows:

   (a) paragraphs 5-11 summarise the common themes present in the arguments for and against fair value measurement that have previously been considered and compare those arguments to the research project team's analysis in Agenda Paper 4D; and

   (b) paragraphs 12-23 provide background to the result of the standard setting activity for each of the standards mentioned above and outlines the individual arguments that were considered in reaching a conclusion on the measurement objective for those standards.

Summary of arguments for and against fair value measurement

Arguments for fair value measurement

5. The central arguments presented in support of fair value measurement when developing the standards mentioned in paragraph 3 were:

   (a) a fair value model emphasises that the principal asset for entities involved in extractive activities is the reserve and the most significant economic event is the discovery of those reserves;

(b) investment and lending decisions in the oil & gas industry rely heavily on the quantity and value of reserves and their expected cash flows; therefore fair value is considered to provide a better measurement model for indicating future net cash flows than historical cost models;

(c) a fair value model would effectively portray the economic resources and the earning process of oil & gas producers during periods of stable or declining prices as well as during periods of rising prices;[1] and

(d) there are weaknesses in the traditional accounting methods (i.e. historical cost models), namely:

(i) traditional accounting methods do not necessarily correlate the discovery of the reserves with the recognition of an asset or income, and consequently this does not provide a meaningful presentation of operating results or financial position;

(ii) the historical cost of exploration and evaluation bears no relationship to the value of mineral reserves and resources found; and

(iii) historical costs are a crude tool for any predictive analytical process because interests in proved oil & gas reserves have significantly different economic values because of their unique features such as location, qualitative properties development status and tax status. Furthermore, historical production trends, even if determinable, may differ significantly from management's future production plans.

6. These arguments presented in support of fair value measurement are consistent with the research project team's analysis that a fair value measurement of reserves and resources would provide relevant information to users of financial reports. In fact, these arguments presumably explain why fair value has been considered before for assets such as reserves and resources and why the research project team is considering the application of fair value again.

7. These arguments are considered to have equal application today, as limited value-based information is provided by minerals or oil & gas companies. Oil &

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[1] This comment was made in ASR 253 and in relation to 'reserve recognition accounting'. However the comment is considered to have equal applicability to the usefulness of a fair value measurement.

gas companies that are SEC registrants are required by FAS 69 to prepare a standardised measure of proved oil & gas reserves. This provides users with some value-based information, but FAS 69 concedes that:

> If ascertainable, fair market value would be better than historical cost for indicating future net cash flows relating to oil and gas properties. It also would have been better than the standardized discounted future net cash flows approach required by this Statement because, among other factors, the fair market value of mineral interests in properties includes the "value" of all the various categories of reserves (proved, possible, and probable) as well as undeveloped acreage. (FAS 69, paragraph 72)

Arguments against fair value measurement

8. The central arguments presented against fair value measurement when developing those standards were:

   (a) availability of market-based information that can be used in estimating fair value is limited due to factors such as:

      (i) relatively few changes of oil & gas mineral interests take place;

      (ii) any interests that are exchanged tend to be smaller undeveloped properties;

      (iii) each oil & gas property has distinctly different geological characteristics; and

      (iv) the amount of information regarding sales prices and stratigraphic data is limited and may be considered confidential;

   (b) FAS 19 explained that valuing reserves with reasonable accuracy could be problematic because it would require estimates of:

      (i) the quantity of reserves;

      (ii) the amount and timing of costs to develop the reserves;

      (iii) the timing of production of the reserves;

      (iv) the production costs and income taxes;

      (v) selling prices; and

      (vi) appropriate discount rates that reflect both an interest element and a risk factor;

and the uncertainties in these estimates tend to make them subjective and relatively unreliable for the purpose of providing the underlying basis on which the financial statements are prepared;

(c) ASR 253 and FAS 69 were stronger in the concerns raised about the reliability of fair value estimates:

(i) ASR 253 explained that an acceptable level of reliability is necessary before data should be required in public reports and an even higher degree of reliability is necessary before it should be incorporated into the primary financial statements. Oil & gas reserves cannot be measured directly – they can only be estimated – and such estimates cannot achieve high precision in many cases. Furthermore, placing a valuation on estimated quantities of oil & gas reserves involves additional estimates that are also imprecise; and

(ii) FAS 69 explained that estimates of future costs and prices are highly subjective and estimates of future production are also subject to a wide range of error and selection of a discount rate is subjectively variable due to individual assessments of political, operating and general business risks. This combination of subjective estimating variables could not result in information with the necessary degree of verifiability and comparability required for financial reporting;

(d) applying historical cost accounting models to assets like reserves and resources is preferable because (noting that the following arguments were presented in relation to agriculture and investment properties):

(i) there is a superior reliability in cost measurement because historical cost is the result of arm's length transactions and therefore provides evidence of an open-market value at that point in time and is independently verifiable;

(ii) cost measurement provides more objective and consistent measurement;

(iii) fair value is sometimes not reliably measurable and users of financial statements may be misled by presentation of numbers that

are indicated as being fair value but are based on subjective and unverifiable assumptions;

(iv) measurement at fair value is too costly in relation to the benefits to users;

(v) measurement at fair value at each balance sheet date may be onerous; and

(vi) the historical cost convention is well established and commonly used; and

(e) the adoption of a fair value model (current value accounting) would require reconsideration of the accounting concept of earnings whereby revenue is normally recognised only when the earning process is complete or virtually complete (and then only after an exchange transaction has taken place).

9. Difficulties with verifying a fair value estimate of reserves and resources and the cost-benefit implications of preparing a fair value estimate are core themes from both previous standard-setters' conclusions on fair value measurement and the research project team's analysis presented in Agenda Paper 4D. Consequently, these arguments continue to have resonance today.

10. The research project team has not yet focused its analysis of fair value measurement by also considering income statement effects of period-to-period fair value measurements of reserves and resources. The research project team has focused its research only on assessing the suitability of fair value measurements of reserves and resources. The research project team expects that if fair value is to be the measurement objective, then there is a strong argument that the fair value model for reserves and resources should not be a unique model, but should be consistent with other fair value models in use in IFRSs. The research project team notes that there are currently three different fair value models in IFRS – fair value changes recognised directly in profit or loss (e.g. IAS 41), fair value changes recognised in equity with the fair value changes being "recycled" when the asset is sold or disposed of (e.g. IAS 39 *Financial Instruments: Recognition and Measurement* for available-for-sale financial assets), fair value changes recognised in equity with the fair value changes not being "recycled" when the asset is sold or disposed of (e.g. IAS 16 *Property,*

Plant and Equipment). Furthermore, the research project team notes that the performance reporting project may dictate how changes in fair value of reserves and resources are to be presented.

11. In addition, industry participants have advised the research project team that they do not believe the extractive industries should be a follower rather than a leader in any shift towards fair value measurements. This concern appears to be an echo of a concern raised during IAS 40 deliberations, which was that:

> IAS 39 does not require fair value measurement for all financial assets, even some that are realised more easily than investment property. It would be premature to consider extending the fair value model until the Joint Working Group on financial instruments has completed its work. (IAS 40, paragraph B46(b))

Background to FAS 19 deliberations

12. FAS 19 was issued in December 1977 to address the variety of accounting practices for financial statement disclosures that were being employed by oil & gas producing companies regarding their activities. FAS 19 prescribed the use of historical cost (although both discovery value and current value were considered when the standard was being developed) for oil & gas reserves and the decision not to use a 'value' based measurement model was deferred until there was a resolution of the broader issue of the general applicability of value accounting in the FASB's conceptual framework project. FAS 19 also required the disclosure of reserve quantities, cost incurred, and capitalised costs. FAS 19 was carried on a 4/3 vote, and two of the dissenting votes were attributed to the fact that use of historical cost did not adequately address the economic characteristics of the oil & gas industry.

13. The following table presents the arguments that were raised for and against the use of a fair value measurement model during the development of FAS 19. The table also provides the research project team's view as to whether those arguments are still relevant.

Arguments for fair value	**Argument still relevant?**
The historical cost of exploration and evaluation bears no relationship to the value of mineral reserves and resources found.	Yes.

The fair value model emphasises that for entities involved in extractive activities, the principal asset is the mineral reserve and the most significant economic event is the discovery of those reserves.	Yes.
The conceptual case for fair value is so strong that is should only be rejected if it was not feasible to acquire an acceptable standard of reliability.	Yes (broadly speaking). The research project team considers that fair value measurement would provide relevant information about reserves and resources. However in addition to concerns about the representational faithfulness of the fair value measurement, the research project team also considers that a cost-benefit analysis should also influence whether fair value measurement should be supported.
Research has indicated that investment and lending decisions in the oil & gas industry rely heavily on the quantity and value of mineral reserves and their expected cash flows, therefore useful values must be assigned to these reserves.	Yes.
Arguments against fair value	**Argument still relevant?**
Measuring reserves with reasonable accuracy could be problematic because it would require estimates of: i) the quantity of reserves; ii) the amount and timing of costs to develop the reserves; iii) the timing of production of the reserves; iv) the production costs and income taxes; v) selling prices; and vi) appropriate discount rates that reflect both an interest element and a risk factor. and the uncertainties in these estimates tend to make them subjective and relatively unreliable for the purpose of providing the underlying basis on which the financial statements are prepared	Yes (broadly speaking) The same challenges with estimating reserve and resource volumes and values remain. The research project team considers that reserve and resource estimates, and any valuation, remains heavily dependent on the estimator's judgement and the assumptions used. Although improved technology and techniques may allow for increased confidence in understanding of the geology of the minerals and oil & gas, the estimates are nevertheless still derived from limited drilling and sampling. Furthermore, improved technology is counter balanced by mining and oil & gas projects being undertaken in frontier areas.

The adoption of a fair value model (current value accounting) would require reconsideration of the accounting concept of earnings whereby revenue is normally recognised only when the earning process is complete or virtually complete (and then only after an exchange transaction has taken place).	No, as other IFRS require the recognition of revenue before it has crystallised, such as IAS 41 *Agriculture*.

Background to FAS 69 deliberations

14. FAS 69 was issued in November 1982, and amended FAS 19. It is a disclosure standard, and includes a requirement for oil & gas entities to prepare a standardised measure of discounted future net cash flows relating to proved oil & gas reserve quantities. The purpose of the standardised measure is to provide some information about future net cash flows. Fair value and entity-specific discounted cash flows were identified as possible alternatives to the standardised measure. FAS 69.17 explains that:

> The Board finally settled on a standardised measure of discounted net cash flows to achieve some of the characteristics of a fair market value measure without the extreme subjectivity inherent in either direct estimation of market value or entity-specific discounted net cash flows. Although it cannot be considered an estimate of fair market value, the standardised measure of discounted net cash flows should be responsive to some of the key variables that affect fair market value, namely, changes in reserve quantities, selling prices, production costs, and tax rates.

15. The following table presents the arguments that were raised for and against the use of a fair value during the development of FAS 69. The table also provides the research project team's view as to whether those arguments are still relevant.

Arguments for fair value	**Argument still relevant?**
Historical costs are a crude tool for any predictive analytical process because mineral interests in proved oil & gas reserves have significantly different economic values because of their unique features such as location, qualitative properties development status and tax status. Furthermore, historical production trends, even if determinable, may differ significantly from management's future production plans.	Yes, although users have confirmed that they do use historical cost information in their analysis.

Predictive quality of information is an important characteristic and historical cost based financial statements for oil & gas producing entities have limited predictive value.	Yes.
Fair market value would be better than historical cost for indicating future net cash flows relating to oil & gas properties and would also be better than the standardised discounted future net cash flows approach because, among other factors, the fair market value of mineral interests in properties includes the "value" of all the various categories of reserves (proved, possible, and probable) as well as undeveloped acreage.	Yes.
Arguments against fair value	**Argument still relevant?**
Relatively few changes in oil & gas mineral interests take place, and any interests that are exchanged tend to be small undeveloped properties.	The research project team has not tested this assertion, although some Advisory Panel members commented that they believe this argument is still valid. However, fair value can be estimated using the income approach, and the income approach does not necessarily require the use of transaction data.
Each oil & gas property has distinctly different geological characteristics.	Yes.
The amount of information regarding sales prices and stratigraphic data is limited and may be considered confidential.	Yes. A valuer commented that "Our industries have not collected the necessary transaction data (or made it accessible) to allow such valuation work to be performed efficiently at reasonable cost".
Estimates of future costs and prices are highly subjective and estimates of future production are also subject to a wide range of error and selection of a discount rate is subjectively variable due to individual assessments of political, operating and general business risks. This combination of subjective estimates of variables could not result in information with the necessary degree of verifiability and comparability required for financial reporting.	Yes.

Background to Accounting Series Release 253 *Adoption of Requirements for Financial Accounting and Reporting Practices for Oil and Gas Producing Activities*

16. In August 1978, before FAS 19 became effective, the US Securities and Exchange Commission (SEC) issued ASR 253 *Adoption of Requirements for Financial Accounting and Reporting Practices for Oil and Gas Producing Activities*. ASR 253 adopted the form of successful efforts accounting as prescribed by FAS 19, indicated an intention to adopt a form of full cost accounting method (which was subsequently done) and permitted the use of either of these two methods for SEC reporting purposes. ASR 253 also required disclosure of certain financial and operating information beyond that required in FAS 19. The SEC required this because it believed that neither of the two methods provided sufficient information on the financial position and operating results of oil & gas producing enterprises. The SEC envisaged that a new method of accounting based on valuations of proved oil & gas reserves would replace both the successful efforts and full cost methods and initiated the development of a new accounting method which it referred to as Reserve Recognition Accounting (RRA).

17. RRA was to reflect:

    (a) proved oil & gas reserves as assets in the balance sheet;

    (b) additions to proved reserves and changes in valuations of proved reserves in the income statement; and

    (c) all costs associated with finding and developing additions to proved reserves, together with all costs determined to be non-productive during the current period, in the income statement.

    Therefore RRA was to be a hybrid of current value accounting.

18. In 1981, the SEC issued ASR 289 *Financial Reporting by Oil and Gas Producers.* In this pronouncement the SEC stated that it no longer considered RRA to be a potential method of accounting.

19. Although RRA is not a fair value measurement model, the arguments for and against the use of RRA which were put forward during RRA's development process may nevertheless be a relevant consideration for assessing the suitability of the fair value measurement of reserves and resources. The arguments are

presented in the table below, together with the research project team's view as to whether those arguments may be relevant to the fair value measurement of reserves and resources.

Arguments for fair value	**Argument still relevant?**
The discovery of oil & gas is the most significant event in exploration, development and production activities and traditional accounting methods do not provide for recognition of this event in recording the assets or earnings of companies engaged in this industry and as a result do not provide for a meaningful presentation of operating results or financial position.	Yes, although there are differing views as to whether the fair value of discovered minerals or oil & gas should be reflected in the financial statements.
The cost of exploring for and developing oil & gas reserves has no necessary relationship to the value of the reserves.	Yes.
The operations and economic environment of oil & gas companies are sufficiently different from that of other industries to manifest the need for a departure from traditional concepts embodied in generally accepted accounting principles.	No – contemporary standard setting focuses on developing activity-based rather than sector-specific standards
RRA would effectively portray the economic resources and the earning process of oil & gas producers during periods of stable or declining prices as well as during periods of rising prices.	Yes.
Arguments against fair value	**Argument still relevant?**
There is an inherent imprecision of estimates of proved oil & gas reserves and there is a need to establish a standard of valuations of these reserves in order to achieve an acceptable degree of reliability	Yes – challenges associated with verifying estimates of reserve and resource volumes and values were discussed in Agenda Paper 4D.

An acceptable level of reliability is necessary before data should be required in public reports and an even higher degree of reliability is necessary before it should be incorporated into the primary financial statements. Oil & gas reserves cannot be measured directly – they can only be estimated – and such estimates cannot achieve high precision in many cases. Furthermore, placing a valuation on estimated quantities of oil & gas reserves involves additional estimates that are also imprecise.	The general principle under the current *Framework* is that only assets that satisfy the recognition criteria can be recognised in the financial statements. That is, an asset is recognised if: • it is probable that the future economic benefits will flow to the entity; and • the asset has a cost or value that can be measured reliably.

Background to IAS 41 *Agriculture*

20. IAS 41 *Agriculture* requires an entity to measure its biological assets related to agricultural activity using a fair value approach unless the fair value cannot be reliably measured on initial recognition.

21. Arguments for and against the use of fair value measurement of biological assets are shown in the following table. The table also provides the research project team's view as to whether those arguments can also be applied to the fair value measurement of minerals and oil & gas reserves and resources.

Arguments for fair value	**Argument relevant for reserves and resources?**
The change in fair value of a biological asset is likely to have a direct relationship to changes in expectations of future economic benefits for the entity.	Yes.
The transaction entered into to effect the biological transformation will often have a weak relationship with the biological transformation itself and thus a more distant relationship to expected future benefits.	Yes. This is similar to the argument that the historical cost of exploration and evaluation bears no relationship to the value of reserves and resources found.
Fair value was also considered to have greater relevance, reliability, comparability, and understandability as a measurement of future economic benefits.	A fair value estimate of reserves and resources is considered to provide more relevant information than historical cost measurement. However there are concerns with, in particular, the representational faithfulness and comparability of fair value estimates of reserves and resources, as discussed in Agenda Paper 4D.

Arguments against fair value	Argument relevant for reserves and resources?
There is a superior reliability in cost measurement because historical cost is the result of arm's length transactions and therefore provides evidence of an open-market value at that point in time and is independently verifiable.	Yes
Fair value is sometimes not reliably measurable and that users of financial statements may be misled by presentation of numbers that are indicated as being fair value but are based on subjective and unverifiable assumptions.	Yes, concerns have been raised that a fair value estimate of reserves and resources may not always be reliably measurable and that users might be misled by reported fair values.
It may be onerous to require fair valuation at each balance sheet date.	Yes.
The historical cost convention is well established and commonly used.	Yes, although some recent accounting standards do not use a historical cost measurement basis.
Cost measurement provides more objective and consistent measurement.	Cost measurement may provide a more objective measurement. However there are differing views regarding the consistency of both fair value and historical cost measurements. With fair value, consistency may be adversely affected by the quantum of subjective assumptions used in the estimate. With historical cost, consistency may be adversely affected because historical costs depend on the timing of finding and developing a reserve and resource.
Active markets may not exist for some biological assets in some countries.	Yes.
Fair value measurements results in recognition of unrealised gains and losses and contradicts principles in International Accounting Standards on recognition of revenue.	No. Other IFRSs require the recognition of unrealised gains and losses.

Background to IAS 40 *Investment Property*

22. IAS 40 *Investment Property* allows the use of a fair value measurement model, and preparers can elect to continue to use a cost model. A change between measurement methods is only permitted if it is believed that the new method

will provide a higher quality of information. Therefore, it is not envisaged that an entity would be allowed to move from a fair value measurement model to a cost model although the reverse would be permitted.

23. Arguments for and against the use of fair value measurement of investment properties are shown in the following table. The table also provides the research project team's view as to whether those arguments can also be applied to the fair value measurement of minerals and oil & gas reserves and resources.

Arguments for fair value	**Argument relevant for reserves and resources?**
Fair value give users of financial statements more useful information than other measures, such as depreciated cost because rental income and changes in fair value are inextricably linked as integral components of the financial performance of an investment property and measurement at fair value is necessary if that financial performance is to be reported in a meaningful way. An investment property generates cash flows largely independently of the other assets held by an entity. The generation of independent cash flows through rental or capital appreciation distinguishes investment property from owner-occupied property. The production or supply of goods or services (or the use of property for administrative purposes) generates cash flows that are attributable not merely to property, but also to other assets used in the production or supply process. Proponents of the fair value model for investment property argue that this distinction makes a fair value model more appropriate for investment property than for owner-occupied property.	A similar analogy may be able to be made for reserves and resources, but in the case of investment properties, the intention, by definition, is generally to hold the asset for capital appreciation.

Arguments against fair value	**Argument relevant for reserves and resources?**
There is often no active market for investment property (unlike for many financial instruments). Real estate transactions are not frequent and not homogeneous. Each investment property is unique and each sale is subject to significant negotiations. As a result, fair value measurement will not enhance comparability because fair values are not determinable on a reliable basis, especially in countries where the valuation profession is less well established. A depreciated cost measurement provides a more consistent, less volatile, and less subjective measurement.	Yes.
Measurement at fair value is too costly in relation to the benefits to users.	Yes, Advisory Panel members have identified this as a significant concern.
A cost basis is used for "shorter term" assets such as inventories) for which fair value is, arguably, more relevant than for "held for investment" assets.	No. This argument is not supported by the Board's conclusions in IAS 40 and IAS 41.
IAS 39 does not require fair value measurement for all financial assets, even some that are realised more easily than investment property. It would be premature to consider extending the fair value model until the Joint Working Group on financial instruments has completed its work.	No. This argument is not supported by the Board's conclusions in IAS 40 and IAS 41.