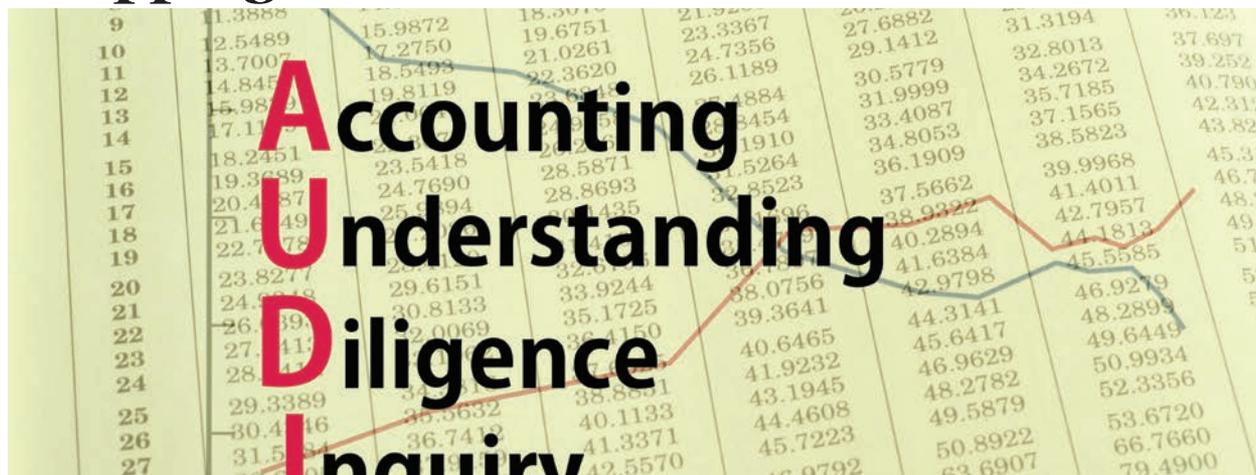


Understanding of Accounting for Production Stripping cost under Ind AS



Appendix B of Ind AS 16 'Property Plant and Equipment' deals with 'Stripping Costs in the Production Phase of a Surface Mine.' This Appendix B recognises that production mining activity will help in the production/mining activity in the future period and provides conditions subject to which such production costs could be capitalised. In Indian GAAP, no such guidance was available for treatment of such production costs and hence there existed diversity in practice in accounting for such production costs. Certain companies completely expense these costs while others were capitalizing such costs on some basis. There could possibly be very handful of mining companies that would be able to conclude that their current accounting policies in Indian GAAP were in line the guidance prescribed in the above Appendix B. This article summarises the key requirements of Appendix B of Ind AS 16 and how it will impact the financial statements of mining companies engaged in surface mining activity. Read on to know more...

Introduction:

Appendix B of Ind AS 16 'Property Plant and Equipment' deals with 'Stripping Costs in the Production Phase of a Surface Mine.' It does not apply to stripping costs incurred during development phase of the mine. Stripping costs incurred during production phase of Surface mine can be capitalised as 'Stripping Activity Assets' provided certain recognition conditions prescribed in Appendix B are satisfied. The stripping activity asset shall be depreciated or amortised on a systematic basis, over the expected useful life of the identified component of the Ore body that becomes more accessible



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as a result of the stripping activity. The units of production method shall be applied unless another method is more appropriate. Implementation of the requirement of Appendix B of Ind AS 16 would require large mining companies to upgrade its IT systems, processes and controls.

1. What are Stripping costs? :

In surface mining operations, entities may find it necessary to remove mine waste materials ('overburden') to gain access to mineral ore deposits. This waste removal activity is known as 'stripping' and the costs incurred in performing stripping activity is known as Stripping costs.

2. Accounting of Stripping costs during Development phase of mine:

a) Company is required to incur certain expenditures for developing a mine prior to commencement of production/extraction of mineral resources from the related mine. Development expenditures are incurred to obtain access to the proven and probable

Stripping activities that relate to inventory produced are accounted for in accordance with IAS 2, 'Inventories'. Stripping costs that generate a benefit of improved access are required to be accounted as an addition to (or enhancement of) an existing asset.

reserves of the mine. Examples of costs incurred during development phase of mine include expenditures associated with drilling, removing over burden (waste rock), sinking shaft, driving tunnel, etc.

- b) Stripping expenditures incurred during the development phase of the mine are usually capitalised as part of the depreciable cost of building, developing and constructing the mine. Those capitalised costs are depreciated or amortised on a systematic basis, usually by using the units of production method, once production begins.

3. Accounting of Stripping costs during the Production phase of mine:

- a) A mining Company may continue to remove overburden and to incur stripping costs during the production phase of the mine.
- b) The material removed when stripping in the production phase will not necessarily be 100 per cent waste; often it will be a combination of ore and waste. The ratio of ore to waste can range from uneconomic low grade to profitable high grade. Removal of material with a low ratio of ore to waste may produce some usable material, which can be used to produce inventory. This removal might also provide access to deeper levels of material that have a higher ratio of ore to waste.

There can, therefore, be two benefits accruing to the entity from the stripping activity:

- i) usable ore that can be used to produce inventory and
- ii) improved access to further quantities of material that will be mined in future periods.

Appendix B to Ind AS 16 – 'Property Plant and Equipment' addresses accounting of above two benefits from stripping activity as well as how to measure these benefits initially and subsequently.

4. Initial recognition and measurement of

Stripping costs:

- a) As stated above, stripping activity results in two benefits accruing to the mining entity
 - i) usable ore to produce inventory and
 - ii) improved access to further quantities of material that will be mined in future periods.
- b) Stripping activities that relate to inventory produced are accounted for in accordance with IAS 2, 'Inventories'. Stripping costs that generate a benefit of improved access are required to be accounted as an addition to (or enhancement of) an existing asset. Some of the examples of the existing asset to which the stripping cost can be capitalised include the mine property (land), the mineral deposit itself and an intangible right to extract the ore. Capitalised costs are classified as tangible or intangible according to the nature of the existing underlying asset.
- c) The below diagram summarises the criteria for recognition of Stripping Activity Assets :

An entity recognises a Stripping Activity Assets if and only if all the following conditions are met:



It is probable that the future economic benefit (improved access to the ore body) associated with the stripping activity will flow to the entity.



The entity can identify the component of the ore body for which access has been improved.



The costs relating to the stripping activity associated with that component can be measured reliably.

If the cost for stripping activity and the inventory produced are separately identifiable, then the entity would measure the stripping cost and cost of inventory at the respective separate identifiable costs. However, generally the cost for stripping activity and inventory produced are not separately identifiable.

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After initial recognition, the stripping activity asset shall be carried at either its cost or its revalued amount less depreciation/amortisation and less impairment losses, if any, in the same way as the existing asset of which it is a part.

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- d) The stripping assets is initially measured at costs which represents directly attributable costs including allocation of directly allocable overheads costs like salary costs of mining supervisor overseeing the identifiable component of the mine, equipment hire charges for performing stripping activity, etc. Costs which are not directly attributable to the stripping activity are not included in measuring stripping assets. An example of such type of incidental operations would be building an access road in the area in which the stripping campaign is taking place.
- e) If the cost for stripping activity and the inventory produced are separately identifiable, then the entity would measure the stripping cost and cost of inventory at the respective separate identifiable costs. However, generally the cost for stripping activity and inventory produced are not separately identifiable. In such situation, the entity shall allocate the production stripping costs between the inventory produced and the stripping activity asset by using an allocation basis that is based on a relevant production measure. This production measure shall be calculated for the identified component of the ore body, and shall be used as a benchmark to identify the extent to which the additional activity of creating a future benefit has taken place. Examples of such measures include:
- Cost of inventory produced compared with expected cost;
 - Volume of waste extracted compared with expected volume, for a given volume of ore production; and
 - Mineral content of the ore extracted compared with expected mineral content to be extracted, for a given quantity of ore produced.
- f) Following examples will illustrate each of the above method:

1) **Cost of inventory produced compared with expected cost :**

Assumptions:

- Company's expected cost of producing 10,000 tons of ore is ₹18 per ton. This costs includes cost of extraction of normal quantity of waste along with ore.
- During the given period, Company extracted 10,000 tons of ore and incurred a cost of ₹280,000. Based on the production data, Management estimated that about 80% of higher cost of extraction was mainly due to blasting and drilling activity for removal of thicker layer of over burden.
- Management has evaluated that after removal of the above thicker layer of over burden, it has obtained access to separate component of ore body and management will be able to satisfy all the conditions stated at para 4(c) above.

Calculations:

Particulars	Amounts (₹)
Expected costs of extraction of 10,000 tons of Ore	₹180,000
Actual cost incurred for extraction of 10,000 tons of Ore	₹280,000
Additional cost incurred towards blasting and drilling activity for removal of thicker layer of overburden (80% of ₹100,000 – total additional costs)	₹80,000
Additional costs to be recognised as stripping cost assets	₹80,000
Balance amount of additional costs to be recognised as cost of producing inventory provided it can be treated as cost of producing inventory as per Ind AS 2	₹20,000
Total cost of producing inventory of 10,000 tons of Ore	₹200,000

2) **Volume of waste extracted compared with expected volume, for a given volume of ore production :**

Assumptions:

- As per mining plan of the Company

submitted for a particular ore body for period of 5 years, Company would extract 20,000 tons of Ore and would generate 60,000 tons of waste. Accordingly the expected Ore to waste ratio is expected to be 1:3.

- b) The direct and indirect overhead costs is ₹15,000,000 during the year ended March 31, 2016
- c) Actual volume of Ore and waste extracted during the year ended March 31, 2016 is 850 tons and 3800 tons of waste respectively.

Calculations:

Particulars	
Expected volume of waste extracted for 850 tons of Ore (850 tons of Ore actually produced * 3)	2550 tons
Actual volume of waste produced	3800 tons
Excess of actual waste produced over estimated waste produced (3,800 tons – 2,550 tons)	1,250 tons
Ratio of excess waste produced over total of Ore and waste extracted [1,250/(3,800+850)]	26.88%
Amount of Stripping cost assets to be recognised (₹150 lacs *26.88%)	₹40.32 lacs
Balance Amount to be allocated to cost of producing Inventory (₹150 lacs – 40.32 lacs)	₹109.68 lacs

3) Mineral content of the Ore extracted compared to expected mineral content to be extracted, for a given quantity of Ore produced

Assumptions:

- a) As per mining plan of the Company submitted for a particular Ore body for period of 5 years, Company would extract 100,000 tons of Ore and the expected mineral content of the Ore is 30,000 tons. Accordingly the expected mineral content of the Ore is 30%.
- b) The direct and indirect overhead costs is ₹10,000,000 during the year ended March 31, 2016.
- c) Actual volume of Ore extracted during

the year ended March 31, 2016 is 1500 tons which include 250 tons of mineral content.

Calculations:

Particulars	
Expected volume of mineral content for given quantity of Ore produced (30% of 1500 tons)	450 tons
Expected volume of non-mineral content	1050 tons
Actual mineral content in 1500 tons of Ore	250 tons
Actual non-mineral content in 1500 tons of Ore	1250 tons
Excess of non-mineral content in 1500 tons of Ore over expected volume of non-mineral content (1250 tons – 1050 tons)	200 tons
Ratio of excess of non-mineral content of Ore over total of Ore extracted [200 tons/1500 tons]	13.33%
Amount of Stripping cost assets to be recognised (₹100 lacs *13.33%)	13.33 lacs
Balance Amount to be allocated to cost of producing Inventory (₹100 lacs – 13.33 lacs)	86.67 lacs

- g) It is to be noted that Appendix B to Ind AS 16, prohibits use of basis of production measure that is based on sales values as the same is not closely linked to the mining activity.

5. Subsequent measurement of the Stripping Activity Asset:

- a) After initial recognition, the stripping activity asset shall be carried at either its cost or its revalued amount less depreciation/amortisation and less impairment losses, if any, in the same way as the existing asset of which it is a part.
- b) The stripping activity asset shall be depreciated or amortised on a systematic basis, over the expected useful life of the identified component of the Ore body that becomes more accessible as a result of the stripping activity. The units of production method shall be applied unless another method is more appropriate.
- c) Appendix B to Ind AS 16 states that the expected

useful life of the identified component of the Ore body that is used to depreciate or amortise the stripping activity asset will differ from the expected useful life that is used to depreciate or amortise the mine itself and the related life of mine assets. The standard provides that in very limited circumstances, the stripping activity would provide improved access to the whole of the remaining Ore body. For example, this might occur towards the end of a mine's useful life when the identified component represents the final part of the Ore body to be extracted. However, this situation is expected to be very rare.

6. Other important considerations for Accounting of Stripping Costs :

a) Stripping assets for period prior to date of transitioning to Ind AS :

- 1) As per para D32 of Ind AS 101 – 'First-time Adoption of Indian Accounting Standards', first time adopter entity has an option to apply Appendix B of Ind AS 16 relating to Stripping costs in the production phase of a surface mine, from the data of transition to Ind AS.
- 2) In situations, where the first time adopter entity chooses to apply the Appendix B retrospectively, it would need to determine the stripping activity assets in accordance with Appendix B of Ind AS 16 for the identifiable component of Ore body for which the production phase is still in progress at the date of transition to Ind AS.
- 3) If the first time adopter chooses to apply the option as provided under para D32 above, then at the date of transition to Ind ASs, any previously recognised asset balance that resulted from stripping activity undertaken during the production phase ('predecessor stripping asset') shall be reclassified as a part of an existing asset to which the stripping activity related, to the extent that there remains an identifiable component of the Ore body with which the predecessor stripping asset can be associated. Such balances shall be depreciated or amortised over the remaining expected useful life of the identified component of the Ore body to which each predecessor stripping asset balance relates. If there is no identifiable component of the Ore

body to which that predecessor stripping asset relates, it shall be recognised in opening retained earnings at the transition date to Ind ASs.

b) Impairment of Stripping Assets:

As stated above, the stripping assets would be carried at cost/revalued amount less depreciation/amortisation and less impairment losses if any. While generally, the stripping asset would be added to the cost to primary mining assets and accordingly, the underlying mining assets (along with stripping asset) would be tested for impairment stripping assets rather the mining assets on standalone basis. However, there could be situations like physical damage to the ore body, which indicates that Company may not be able to derive future economic benefit from its improved access to the component of Ore body and in such a situation, company would need to determine the amount of impairment charge in respect of stripping assets.

c) Accounting Policies:

Company would need to include suitable accounting policy for recognition and measurement of stripping costs in its financial statements.

d) Information Technology (IT) Infrastructure :

Large mining companies having multiple mines and complex surface mining operations may be required to upgrade its IT systems, processes and controls to capture the data points for recognition and measurement of stripping costs in its financial statements as the financial impact arising on account of deferred stripping costs could be significant in such companies.

Conclusion:

Mining companies which are required to prepare their financial statements according to Ind AS would require to undertake detailed review of their mining operations, their mining plan and the requirements of Appendix B of Ind AS 16 to evaluate the accounting impact arising on account of accounting for stripping costs during the production phase of the mine. Such assessment will depend upon the specific facts and circumstances of each mine. ■