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**The revised SEEA and the environmental
consequences of disposal of fixed capital**

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THE REVISED SEEA AND THE ENVIRONMENTAL CONSEQUENCES OF DISPOSAL OF FIXED CAPITAL

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Summary

1. Costs are often incurred in protecting or restoring the environment once economic production ceases. Terminal costs in particular may be very significant in size and importance—they include such things as decommissioning of nuclear power plants, oil drilling platforms and post-mining operation clean-up. The treatment of these costs is of great importance in environmental-economic accounting and this paper sets out possible treatment options and in particular examines whether the 2008 SNA treatment offers solutions that are both appropriate and complete for the revised SEEA (referred to as the ‘SEEA Rev’ throughout this note).

2. This paper commences with a general description of the SNA notion of consumption of fixed capital and its relation to asset value. It then describes briefly the SEEA-2003 position on environmental consequences of disposal of fixed capital before looking at the 2008 SNA treatment of terminal costs and of ownership transfer costs on disposal of fixed capital.

3. The treatment of ownership transfer costs on fixed capital has been a somewhat contentious area of national accounting over the past decade or so. The discussion of this issue during the recent revision of the SNA can guide our understanding of the whole area of environmental consequences of the disposal of fixed capital. Consequently, this paper revisits possible alternative treatments as raised in the most recent revision of the SNA.

4. A number of clarifications are suggested within the SEEA Rev, for example, the appropriate accounting treatments in those cases where terminal costs are anticipated, but are either not incurred (or only partially incurred), or are incurred by another party (typically government). The paper discusses the importance of providing guidance within the SEEA Rev on how to anticipate whether these costs will in fact be incurred.

5. Finally, the paper presents a summary of recommendations to alter or clarify accounting for the environmental consequences of disposal of fixed capital within the SEEA Rev.

Background

6. The treatment of terminal costs and ownership transfer costs on disposal of a fixed capital asset was subject to debate during the recent SNA revision. It was discussed at the Joint OECD/ESCAP Meeting on National Accounts in Bangkok (4-8 May 1998) where the Singapore Department of Statistics (SDOS) presented a paper¹ suggesting that a review of the 1993 SNA treatment was needed. The Inter Secretariat Working Group on National Accounts (ISWGNA) discussed the SDOS paper and decided that further discussion was warranted. The OECD established an Electronic Discussion Group (EDG) moderated by Mr Peter van de Ven. As part of the 1993 SNA review process, this issue was moderated by the Canberra II

¹ Dr Soon Teck Wong and Mr Benson Sim. *Costs of ownership transfer in existing non-financial assets*.

Expert Group on the Measurement of Non-financial Assets for the information and decision of the SNA Advisory Expert Group on National Accounts (AEG).

The problem

7. While there are a number of issues at play, the problem is essentially one of whether we consider terminal costs and ownership transfer costs on disposal of fixed capital to be an integral part of the value of the fixed capital asset, or whether we simply consider these costs to be intermediate consumption of the enterprise. If we decide to treat these costs as gross fixed capital formation, there are questions of whether we account for the decline in value of the asset as consumption of fixed capital or as 'other changes in the volume of assets'. If we decide to apply a consumption of fixed capital provision, there are a number of questions to address including the appropriate period of time over which to write down the value of the asset.

Consumption of fixed capital

8. The using up of produced capital is accounted for by means of an allowance for consumption of fixed capital which shows the decrease in the net present value (NPV) of the future income stream expected from continued use of the asset. In short, consumption of fixed capital represents the decline in value of the asset due to its use in production. This allowance should be deducted from income and converted to another form of capital if the capital base is to be preserved.

9. The economic assumption is that the cost of purchasing the asset, at any stage of its useful life, is equal to the NPV of the expected stream of income arising from the remaining use of the asset. If the asset costs more than this NPV, it represents a poor investment; if the NPV exceeds the asset price, the seller of the asset could seek a higher price.

10. If the asset remains with a single owner throughout its life, the cumulated value of the consumption of fixed capital will equal the original purchase price of the asset (in the absence of inflation). However, the original purchaser will not necessarily benefit from the entire NPV of the expected income stream, for example, hire cars are typically sold after only a few years of service. In such cases, the original purchasers keep their capital intact by allowing for the decline in value only between the point of acquisition and expected time of disposal of the asset. If the decline were estimated at the full value of the asset, this would overstate the required deduction from income and correspondingly understate National Domestic Product (NDP).

Position of the SEEA-2003

11. The SEEA-2003 considers both terminal costs and remedial costs as environmental consequences of the disposal of fixed capital. Terminal costs are defined as those costs incurred to prevent environmental problems when production ceases—such as decommissioning of nuclear power plants, final storage of nuclear waste, sealing of landfills and so on (SEEA-2003, para. 6.59). Remedial costs are defined as costs occurring when production has already ceased and where no provision has been made while production was in progress for remedial action to be taken. Examples are the rehabilitation of sites contaminated by past activities; for example, storage of fuels, former landfill and mining sites (SEEA-2003, paras 6.59 and 6.82).

12. Remedial costs and terminal costs have similarities. The key distinction relates to timing of the cost payments and who makes these payments. The SEEA-2003 (para 6.82) states that remedial costs are incurred after a landfill site has been closed and the

original operator has left. In contrast, terminal costs are incurred by the enterprise who owns the associated asset (oil rig, nuclear power plant etc.). Terminal costs are part of the link between the value of the asset to the enterprise and the value of services rendered by the asset over its life. Remedial costs do not form part of this link—they are incurred by another party, after the asset has been disposed of by the enterprise.

13. In the SEEA-2003, terminal costs are considered for two typical scenarios—those where environmental protection costs are overwhelmingly incurred at the end of the asset's useful life ('power plants and oilrigs'); and those where such costs typically occur throughout the life of the asset, as well as at the end ('landfill sites'). The SEEA-2003 states that:

“The value of an asset at any point in time should be determined by discounting the income to come in future years. If instead of income, there are costs to be incurred in future, these also should be built into the value of the asset, discounted as for income. Any potential buyer of the asset would have to factor the disposal costs as well as the earning potential of the asset into his decision regarding whether to buy and, if so, then the price to offer.” (SEEA-2003, para 6.67)

14. It looks intuitively clear that the prospect of significant terminal costs materially affects the value of the asset throughout its life.

15. Under the solution recommended by the SEEA-2003, consumption of fixed capital is still calculated as the change in the value of the asset between the start and the end of the accounting period but it must take specific account of terminal costs and disposal costs on ownership transfer, as well as the income earning capacity of the asset. As a consequence, immediately before the end of its life, the asset will have a negative value showing that it actually represents a liability to the enterprise about to incur the terminal costs. Further, these costs should be recorded as capital formation when actually incurred but the deduction of these costs from income via consumption of fixed capital will have been made progressively over the life of the asset. That is, consumption of fixed capital is charged against income *before* the disposal/terminal costs are incurred (or fully known).

16. For costs of a remedial nature, the SEEA-2003 notes that these costs are often incurred long after a landfill site has been closed and the original operator has left. The SEEA-2003 provides guidance in paragraphs 6.79 and 6.80, reproduced below.

17. In the case of managed landfill sites, the SEEA-2003 notes two possibilities. In the first case:

“The operation of some landfill sites may be such that environmental damage is either inhibited or reduced on a continuing basis during the time the site is being used for dumping waste. If so, the associated costs should be identified as environmental protection directly.” (SEEA-2003, para 6.79)

18. In other words, as intermediate consumption and specifically as a form of environmental protection expenditure. And under the second possibility:

“When land reclamation is the motivation behind the operation of a landfill site, part of the output of the activity represents fixed capital formation as land improvement. The value of the output will be represented by the increase in the market value put on the resulting reclaimed land.” (SEEA-2003, para 6.80)

Position of the 2008 SNA

19. The 2008 SNA deals with disposal of fixed capital primarily within its Chapter 10—in sections relating to gross fixed capital formation and to consumption of fixed capital. In dealing with the disposal of fixed capital, the 2008 SNA focuses on the appropriate economic treatment of costs of ownership transfer and terminal costs.

20. Ownership transfer costs are comprehensively defined in paragraph 10.51 of the 2008 SNA—though broadly, they encompass relevant commissions, fees, and taxes incurred in transferring ownership of fixed capital. The 2008 SNA and the SEEA-2003 use identical definitions of terminal costs and remedial costs.

21. The treatment of terminal costs and ownership transfer costs on disposal of fixed capital as integral to the value of the associated asset is consistent with the System of National Accounts (SNA) principle of valuation at purchasers' price or acquisition price. For example, when purchasing an item of clothing the price recorded as private final consumption expenditure includes all taxes, such as sales tax, that may be inherent in the price paid by the customer. The valuation of use of products at purchasers' prices is an important principle in the SNA (2008 SNA, para 3.144).

22. Treatment of terminal costs and ownership transfer costs on disposal of fixed capital asset share some commonalities under the 2008 SNA. In both cases, an estimate of the expected costs is made on acquiring the asset and this cost forms part of the value of the asset. In both cases, this estimate of expected costs supports an estimate of consumption of fixed capital.

23. However, in the 2008 SNA there is a difference in treatment of terminal costs compared to ownership transfer costs on disposal of fixed capital. It relates to the time period over which the consumption of fixed capital charge is applied. Ownership transfer costs on disposal of the fixed capital asset are calculated only over the period that the owner expects to hold the asset. Terminal costs are written off over the entire life of the asset, regardless of how many owners the asset may have during this time. This is because termination costs occur once only—at the end of the life of the fixed capital asset—and are unaffected by the number of owners the asset may have had. On the other hand, the quantum of disposal costs relating to a fixed capital asset will tend to increase with the number of times the asset is sold or otherwise disposed of.

24. The 2008 SNA (para 20.57) pointedly cautions against ignoring terminal costs throughout the life of the asset. It argues that this could result in these large costs being treated as intermediate costs at a time when there is no longer any income being generated from production and could therefore lead to large negative value added.

“In principle, the value of consumption of fixed capital cumulated over the life of an asset, once price changes are taken into account, should be equal to the difference between the acquisition and disposal values. In the case of assets with actual costs at the time of disposal, this means that consumption of fixed capital should cover anticipated terminal costs. Terminal costs should therefore be written off over the whole life of the asset, regardless of the number of owners during the life of the asset. Immediately before the disposal, the value of the asset will have a negative value which is reduced to zero when the terminal costs incurred are treated as gross fixed capital formation. The apparent oddity of an asset with negative value reflects the fact that the owner not only could not sell it but would have to pay another unit to take over responsibility for the asset.” (2008 SNA para 10.161)

25. Attachment 1 to this paper provides a simple numeric example illustrating how the 2008 SNA treatment works in practice over the life of a fictitious oil rig asset. It sets out the treatment for costs of ownership transfer (on both acquisition and disposal of the asset) as well as terminal costs.

26. Under the 2008 SNA approach, terminal costs must be estimated before being incurred and so the 2008 SNA describes how to deal with the situation in which the terminal costs ultimately incurred exceed the cumulated consumption of fixed capital allowance put in place.

“In practice, it may be difficult to predict terminal costs accurately. In that case, cumulated consumption of fixed capital may not cover all the terminal costs. However, the full costs are still treated as gross fixed capital formation and any amount not already covered by consumption of fixed capital during the life of the asset is written off at the time the costs are incurred as consumption of fixed capital. This is a pragmatic recommendation and will lead to NDP being over-stated over the time the asset is in use and under-stated in the year when the remaining costs are incurred.”
(2008 SNA para 10.162)

Boundary issues: environmental protection costs as intermediate consumption and termination costs as gross fixed capital formation

27. Depending on the nature of the activity and the expenditure, environmental protection expenditure can be treated either as: consumption expenditure (intermediate consumption, government final consumption or household final consumption); or as gross fixed capital formation.

28. The 2008 SNA is careful to describe the potential difficulties in distinguishing between expenditure of a capital nature and intermediate consumption (see 2008 SNA, para 1.53)

29. The earlier description of remedial costs, for example, hints at these difficulties. The SEEA-2003 states that remedial costs incurred to inhibit or reduce environmental damage on a continuing basis during the time the site is being used for dumping waste, is to be treated as intermediate consumption (SEEA-2003, para 6.79). But where land reclamation is the motivation behind the operation of a landfill site, part of the output of the activity represents fixed capital formation as ‘land improvement’ (SEEA-2003, para 6.80).

30. It is important that transactions are treated either as current expenditure or as gross fixed capital formation but not both. For example, Environmental Protection Expenditure (EPE) accounts should clearly distinguish between those expenditures of current and capital natures. That is, if a business incurs terminal costs related to say mining site rehabilitation, it is inappropriate for EPE accounts within the SEEA to show this spending as intermediate consumption if terminal costs are elsewhere in the SEEA treated as gross fixed capital formation.

Other possible options—treating terminal costs and ownership transfer costs as an expense

31. One possible solution is to simply treat terminal costs and ownership transfer costs related to the disposal of a capital asset as an expense at the time they are incurred.

32. This solution is contrary to the recommended treatment of the 2008 SNA (para 10.52) which quite explicitly states that ownership transfer costs related to the disposal of fixed capital are to be treated as gross fixed capital formation and not as intermediate consumption. Nevertheless, the 2008 SNA treatment is very much a borderline call. The general distinction between intermediate consumption and gross fixed capital formation is described in the 2008 SNA as depending on:

“whether the goods and services involved are completely used up in the accounting period or not. If they are, the use of them is a current transaction recorded as intermediate consumption; if not it is an accumulation transaction recorded in the capital account.” (2008 SNA, para 1.52)

33. Many of these disposal costs do relate to goods and completely used up in the accounting period, for example, trade and transport costs, taxes payable and professional charges and commissions can, in the ordinary course of business, be considered as intermediate consumption.

34. It is worth illustrating the notion of costs of ownership transfer with a numeric example. Suppose a resident producer decides to sell an existing produced fixed asset, purchased in an earlier accounting period, to another resident producer in the present accounting period. Assume the relevant values are as follows:

| | |
|--|------------------|
| Resale of existing asset | |
| Price paid by buyer to seller | = 100 |
| Costs of ownership transfer incurred by seller | = 10 |
| Seller's disposal value | = 100-10 = 90 |
| Costs of ownership transfer incurred by buyer | = 12 |
| Buyer's acquisition value | = 100 + 12 = 112 |

35. The disposal value of the asset to the seller in the current accounting period is 90, representing the negative value of gross fixed capital formation incurred by the seller. On the other hand, the acquisition value of the asset by the buyer in the same period is 112, that is, the price paid by them plus the costs of ownership transfer which they incur. Thus, at the aggregate level, the total gross fixed capital formation undertaken by both parties is 22 or 112 less 90. This amount is entirely attributable to costs of ownership transfer incurred by the two parties to the transaction.

36. While the above example is given for the case of a produced fixed asset, it is equally applicable to a non-financial non-produced asset such as land or mineral and energy resources.

37. Some potential problems arise from the above treatment. First, at the aggregate economy level, it is difficult to identify or visualise the ‘asset’ which has been formed (or produced) since, as shown, the net value of gross fixed capital formation is nothing more than the costs of ownership transfer. This is especially so for non-produced non-financial assets (such as land), where only the costs of ownership transfer, but not the acquisition and disposal values of these assets, are classified as gross fixed capital formation.

38. The 2008 SNA defines an asset as a

“store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.” (2008 SNA, para 3.30)

39. However, it isn't immediately clear how the payment of taxes to government, or the payment of fees and commissions to lawyers, valuers or estate agents, for example, creates a store of value or an entity that can be held over time to provide benefits to its holder. In addition, unlike other assets, there also appears to be no possibility of this ‘asset’ being subsequently on-sold.

40. Second, the recommended treatment of capitalising these transfer costs differs to that recommended for transfer costs associated with transactions in financial assets in the 2008 SNA:

“Financial claims should be assigned the same value in the balance sheets whether they appear as assets or liabilities. The prices should exclude service charges, fees, commissions and similar payments for services provided in carrying out the transactions.” (2008 SNA, para 13.54)

41. Transfer costs arising from transactions in financial assets, for example, commissions and fees paid to stockbrokers, are therefore expensed in the SNA. Thus, unlike ownership transfer costs associated with transactions in existing non-financial assets, they do not appear in the accumulation accounts. This means that if a business were to purchase emission permits through a secondary trades market (assuming these permits are treated as financial assets), the resultant commissions and other related fees incurred are classified as intermediate consumption expenditure.

42. While it can be argued that the differences between non-financial and financial assets merit this asymmetric treatment, it does not alter the fact that, at the broadest level, both types of assets fall within the 2008 SNA asset boundary.

43. Since a significant proportion of these ownership transfer costs arise from real estate or property resale transactions, the 2008 SNA treatment will result in estimates of gross fixed capital formation and savings being subject to the vicissitudes of the property market. A property boom with its attendant increase in levels of speculative activity and volume of resale transactions will increase the value of ownership transfer costs and therefore gross fixed capital formation. The implication is that savings in the short-term will be increased correspondingly, but as a result of speculative, non-productive activities. That is, to some extent we ‘keep capital intact’ simply by selling it to others. Our productivity measures are also affected since an increase in property transfers will increase the size of the underlying capital asset without necessarily raising productive output.

Other possible options—treat terminal costs and ownership transfer costs as gross fixed capital formation as expenditure occurs, then write off immediately as other changes in volume of assets

44. One proposal raised during the 1993 SNA revision is that terminal costs and ownership transfer costs on disposal of fixed capital be recorded as capital formation but instead of these costs being recovered from value added (through a consumption of fixed capital charge) these costs are simply written off in the other changes in the volume of assets account. That is, the impact of terminal costs and ownership transfer costs on the disposal of fixed capital is not felt in the production and income accounts, rather, these effects are confined to the accumulation accounts and the balance sheet.

45. The 2008 SNA (paras 12.8-12.10) describes three broad justifications for ‘other volume changes’, namely: to allow certain assets to enter and leave the SNA other than by transactions; to record the effects of exceptional, unanticipated events (such as war and natural catastrophes) that affect the economic benefits derivable from assets; and to record changes in classifications of institutional units and assets and in the structure of institutional units. None of these categories appears to describe terminal costs and ownership transfer costs on disposal of fixed capital. Firstly, these costs are directly associated with economic transactions (taxes, commissions, fees, etc.). Secondly, they are not totally unexpected and in fact typically relate to entirely predictable events. And they do not relate to classification changes or to changes in the structure of institutional units.

46. This option therefore appears to capture the worst of all treatments by allowing these costs to affect the balance sheet and accumulation accounts but to by-pass the production and income accounts. It therefore omits from the macro-economic aggregates a legitimate business cost and so overstates NDP over a period of years.

Other possible options—treat terminal costs and ownership transfer costs as gross fixed capital formation as expenditure occurs, then write off immediately as consumption of fixed capital.

47. This option constitutes ‘sitting on the fence’—we are capitalising expenditure on disposal costs and on terminal costs but, by depreciating the costs entirely in the period of purchase, we are effectively saying that these costs are being expensed. We are saying that a capital asset has been created but that this asset does not provide a ‘service’ beyond the immediate year. In effect, the level of disposal costs (or terminal costs) in a particular period would be taken as equalling the relevant consumption of fixed capital in that period. The use of this approach means that disposal costs and terminal costs do not appear on the balance sheet. It therefore allows use of the purchasers’ price principle and it is consistent with the capitalisation of these costs in business accounting. And it removes some of the conceptual problems associated with treating an expense as a form of capital formation. It also implies no change to the level of GDP.

Further clarifying the SEEA Rev

Clarifying treatment of remedial costs in the SEEA Rev

48. As described in paragraphs 17 and 18 above, the SEEA-2003 outlines two distinct classes of remedial costs: (1) the restoration of land to allow its use for some other purpose; or (2) to ensure no harmful emissions from waste deposits created by past activity are able to leach into surroundings and cause environmental damage (SEEA-2003, para 6.82). However, the SEEA-2003 describes the recommended treatment only for the first of these categories. That is, that remedial costs incurred to enable use of a ‘green fields’ site for some other purpose should be treated as gross fixed capital formation (‘land improvement’ asset, aggregated with the value of the underlying land). Depending on the nature of this land improvement, there need not be an accompanying consumption of fixed capital to consider (which is consistent with the 2008 SNA treatment).

49. The SEEA Rev needs to recommend a treatment for the second category of remedial cost: that is, where remedial costs relate to efforts to prevent emissions from past waste deposits leaching into surroundings, causing environmental damage. At first glance, it might be possible to view these costs as building a protective barrier of some sort and therefore giving rise to some type of asset. However, the case is weak. These costs do not create anything representing a store of value, they cannot be used in production, they do not derive benefits in the form of property income and they cannot be sold independently. The 2008 SNA defines intermediate consumption as consisting of:

“the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital.”
(2008 SNA, para 6.213)

50. This appears to appropriately describe this second category of remedial costs and it is recommended that they be treated as intermediate consumption in the SEEA Rev.

Clarifying treatment of terminal costs in the SEEA Rev

51. The SEEA-2003 (para 6.90) notes that where no estimates of terminal costs have been made during the life of the asset they can be recorded when they occur either as: capital formation (accompanied by an instant write-off via consumption of fixed capital); or as intermediate consumption. While both of these treatments provide workable solutions, the SEEA Rev needs to provide a singular recommended treatment. It is recommended that the SEEA Rev adopt the 2008 SNA treatment, which is to treat these costs as gross fixed capital formation and to immediately write them off as consumption of fixed capital. The relevant paragraph (10.162) of the 2008 SNA appears earlier in this paper in the section *Position of the 2008 SNA*. Note that this recommendation applies where terminal costs are incurred by the enterprise owning the asset and who is therefore responsible for decommissioning or environmental clean-up. If these costs are incurred after the landfill site has closed and the original operator has left, they are treated as remedial costs and subject to the treatment proposed in paras 48 to 50.

52. There is another possible scenario not explicitly considered by the 2008 SNA or the SEEA-2003—terminal costs are anticipated and a consumption of fixed capital allowance is put in place but the terminal costs are never actually incurred by the enterprise. The appropriate treatment needs to be spelt out, not only for completeness but because the case of an enterprise avoiding its environmental clean-up obligations is a significant real-world event². And the accounting solution needs to maintain the link between the value of the asset to the enterprise and the value of services rendered by the asset throughout its life. If an enterprise avoids an obligation to carry out decommissioning activities, it has effectively secured a larger asset (measured as the NPV of expected benefits). Further, there needs to be consideration of how to account for the situation for those cases where the government is forced to take responsibility for the termination costs avoided by the enterprise.

53. It is recommended that where an estimate for terminal costs is made, but where terminal costs do not eventuate, the full amount of cumulated consumption of fixed capital must be reversed when it is clear that the enterprise will not undertake the decommissioning activity. That is, at this point, a negative consumption of fixed capital estimate is put in place exactly equal to the cumulated consumption of fixed capital. Again, this is a pragmatic recommendation and will lead to NDP being under-stated over the time the asset is in use and over-stated in the year when it becomes clear that the terminal costs have been avoided. Similarly, if terminal costs are overestimated through the cumulated consumption of fixed capital (compared to actual terminal costs subsequently incurred), this overestimate is corrected by a negative consumption of fixed capital at the time the final terminal cost becomes clear.

54. Where an enterprise avoids its responsibility to meet terminal costs, the government might be expected to assume responsibility for the decommissioning action. Although the expected terminal cost was considered a component of the related asset value while the asset (i.e. the oil rig etc.) was in operation, if and when the government takes on the decommissioning activity there is no longer an associated asset. This expenditure undertaken by the government falls into the category of remedial costs and is treated accordingly (see paragraphs 48 to 50 above)

Anticipating the terminal costs?

55. SNA requires that an estimate of terminal costs and ownership transfer costs on disposal of fixed capital be made. Paragraph 10.161 of the 2008 SNA talks about the treatment of *anticipated* terminal costs, so SNA is implicitly asking that we estimate not only the extent of these costs, but also their likelihood. For ownership transfer costs on disposal it

² For example, Diamond (2005) reports that taxpayers in the USA currently face some US\$12billion in liabilities related to mine decommissioning costs avoided by mining companies.

should be expected that costs will occur and that their extent can reasonably be estimated. However, terminal costs present a dual problem—it is often difficult to anticipate their final size, and businesses may seek to avoid responsibility for these costs either through: suggesting a surety/bond based on vastly understated terminal costs; declaring bankruptcy when terminal activity is imminent; or ceasing business in the country in which operations have taken place. And it is certainly not only third world countries where these tactics are used.

56. There are a number of indications that terminal costs can reasonably be expected: if an upfront bond (or some other form of surety) has been provided; if the enterprise is required to progressively put in place contributions to fund the final decommissioning activities; the past record of the enterprise; and the strength and commitment of the government of the country in which operations are taking place.

57. It is recommended that the SEEA Rev provide a little more guidance on anticipating terminal costs. This may be more an issue for the compilation guide, rather than the SEEA standard itself. However, the implications are important because if neither business nor government intends to meet terminal costs, then no costs, provisions or assets need to be recorded.

58. In the SEEA, depletion adjustments are applied to both production/income accounts and the balance sheet. In the SNA these adjustments are applied only in the balance sheet. Therefore, the attribution of ownership of depletable natural resources is important in the SEEA—because depletion adjustments are applied to the operating surplus of the owner of the depletable asset. (The SNA for example places ownership of subsoil assets with government by default.) The presence of a surety/bond or an ongoing provision to undertake terminal costs at completion of operations provides a strong indication of an enterprise taking on responsibilities (costs) of asset ownership and therefore suggests that the associated depletable resource be allocated to the enterprise.

Summary of recommendations:

59. The 2008 SNA position on the treatment of terminal costs and ownership transfer costs on disposal of fixed capital was reached after lengthy and widespread discussion within a number of forums. While the final treatment adopted by the 2008 SNA raises some concerns, all other proposed treatments also raise concerns and we are most probably faced with choosing the ‘least bad’ option. The 2008 SNA provides a workable and defensible solution to the treatment of these costs. Given this background, it does not seem sensible to adopt differing treatments within the 2008 SNA and the SEEA Rev as this would serve only to confuse users without providing any great gains for the SEEA. It is recommended that the SEEA Rev follow the 2008 SNA on the treatment of terminal costs and ownership transfer costs on disposal of fixed capital.

60. Within the SEEA Rev, EPE accounts should identify those expenditures of a capital nature, for example, terminal costs.

61. The SEEA Rev should follow the 2008 SNA recommendation to write off terminal costs over the entire life of the asset.

62. The SEEA Rev needs to recommend a treatment for the second category of remedial cost described in SEEA-2003 paragraph 6.82: that is, where remedial costs relate to efforts to prevent emissions from past waste deposits leaching into surroundings, causing environmental damage. It is recommended that these remedial costs be treated as intermediate consumption in the SEEA Rev.

63. For the situation where the estimated terminal costs are less than the final costs actually incurred, the SEEA Rev should adopt the 2008 SNA position which is to treat the shortfall in costs as gross fixed capital formation and to immediately write them off as consumption of fixed capital. This singular treatment replaces the two possible treatments described in the SEEA-2003 paragraph 6.90.

64. The SEEA Rev needs to describe the appropriate accounting treatment where terminal costs are anticipated and a consumption of fixed capital allowance is put in place but the terminal costs are never actually incurred by the enterprise. It is recommended that where an estimate for terminal costs is made, but where terminal costs do not eventuate, the full amount of cumulated consumption of fixed capital must be reversed when it is clear that the enterprise will not undertake the decommissioning activity. That is, at this point, a negative consumption of fixed capital estimate is put in place exactly equal to the cumulated consumption of fixed capital.

65. When the government assumes responsibility for decommissioning action avoided by an enterprise, the government will incur remedial costs. Depending on the nature of the activities undertaken, these costs may be treated as intermediate consumption or as gross fixed capital formation (for example, as 'land improvement').

66. It is recommended that the SEEA Rev provide a little more guidance on how to judge whether terminal costs will actually be met by the enterprise. This is more an issue for the SEEA compilation guide, rather than Volume 1 of the SEEA Rev.

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Attachment 1 – Numeric example of application of the 2008 SNA treatment of costs of acquisition and disposal of a fixed asset

| Constant prices | Estimate prior to event | EOY Year 1 | Year 2 | Year 3 | Seller Year 4 | Buyer Year 4 | Year 5 | Year 6 | Post- asset life |
|---|-------------------------------|---------------|--------|--------|------------------|-----------------|--------|--------|------------------------|
| Purchase / sale Oil Rig | | 100 | | | | | | | |
| Terminal costs | 90 | | | | | | | | |
| Transfer costs - purchase 1 | | 12 | | | | | | | |
| Transfer costs – disposal | 6 | | | | 6 | | | | |
| Transfer costs - purchase 2 | | | | | | 8 | | | |
| Gross fixed capital formation (GFCF) | | | | | | | | | |
| GFCF Oil rig | | 118 | | | | | | | |
| GFCF Terminal costs | | | | | | | | | 90 |
| GFCF Transfer costs | | | | | | | | | |
| Consumption of fixed capital (COFC) | | | | | | | | | |
| COFC Oil rig | | | 20 | 20 | 20 | | 20 | 20 | |
| COFC Terminal costs | | | 18 | 18 | 18 | | 18 | 18 | |
| COFC Transfer costs purchase 1 | | | 4 | 4 | 4 | | | | |
| COFC Transfer costs on sale | | | 2 | 2 | 2 | | | | |
| COFC Transfer costs purchase 2 | | | | | | | 4 | 4 | |
| COFC for Capital Account | | | 44 | 44 | 44 | | 42 | 42 | |
| Asset Value - Oil Rig | | 100 | 80 | 60 | 40 | | 20 | 0 | 0 |
| Asset Value - terminal cost | | 0 | -18 | -36 | -54 | | -72 | -90 | 0 |
| Asset Value - transfer costs | | 18 | 12 | 6 | 0 | 8 | 4 | 0 | 0 |
| Asset Value for Balance Sheet | | 118 | 74 | 30 | -14 | | -48 | -90 | 0 |