



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

**SEEA Revision
Issue 13
Cover Note**

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Issue #13 – Recording of depletion for non-renewable resources

Outcome paper for global consultation

Outcome Paper Issue #13: Recording of depletion for non-renewable resources

Issue description

The SEEA-2003 provides multiple options for the measurement and recording of depletion. All these options need to be translated into unambiguous accounting recommendations. It is expected that these will together lead to clear cut recommendations on the compilation of depletion adjusted national accounts aggregates (product, income and saving). Aspects that need consideration include (i) the identification of the income and depletion elements of resource rent, (ii) the recording of mineral exploration and mineral and energy resources, (iii) the recording of additions and subtractions from resource stocks as well as revaluation; (iv) the recording of asset ownership; and (v) the recording of depletion.

Background

The desire to understand and measure the using up or depletion of natural resources for which no explicit cost is recognised in the core economic accounts has been a driving force behind much environment accounting work. With broad acceptance of the need for measurement of depletion, particularly of non-renewable natural resources, the issue confronting the revision of the System of Environmental and Economic Accounts (SEEA) is to determine clear guidance on how depletion should be accounted for given that a number of approaches with differing underlying assumptions were outlined in SEEA-2003.

Discussion at the London Group on this issue occurred early in the SEEA revision process and a paper was presented to the UNCEEA meeting in July 2007 indicating that key outcomes had been agreed by the London Group on the matters of identifying the income element of resource rent and how to record mineral exploration and mineral and energy resources. This covered the first two of the five aspects noted above in the issue description. The outcome for the third aspect noted above is implied from the discussion of the second aspect in terms of the treatment of mineral and energy resources. The outcomes for the fourth and fifth aspects are dealt with under a separate issue #15a – Recording the Ownership of Mineral Related Assets and findings on this issue have also been released for global consultation at this time.

It is noted that these five aspects are all reflected in Chapter 10 of SEEA 2003. The relevant outcome papers seek to make choices between the various options presented in SEEA 2003, namely, Options A1- A3, Options B1 – B3, Options C1-C3, Options D1- D2 and Options E1 – E4 (SEEA 2003, Chapter 10, pp 418-437).

An issue that emerged subsequently concerned the treatment of a more specific scenario – namely how to record the income element in the case of no extraction of the underlying resource. This issue is also discussed in this paper.

Summary of outcomes

At a broad level the return to the units that extract non-renewable natural resources will include an element known as resource rent. This can be defined as the gross operating surplus of the unit less the depreciation of its produced assets less a return on produced assets. The question that arises is whether the resource rent should be treated as all being income to the extracting unit (i.e. there is no depletion recorded), whether it should be treated as entirely depletion (i.e. there is no income recorded) or whether the resource rent will be part income and part depletion. The outcome paper explains that the third alternative was considered by the London Group to be the correct approach – i.e. SEEA 2003 Option A3.

The estimation of depletion for a non-renewable natural resource requires assumptions to be made about the life of the resource. In the case of an individual mineral and energy resource assumptions are needed regarding the rate of extraction, the size of the deposit, the future output prices and extraction costs among other things. Generally, these forward looking assumptions are based on the continuance of past trends – eg that future rates of extraction are similar to current extraction rates. Placing all of this information into the NPV formula will generally generate a smooth time series of depletion, income and valuation estimates.

The question was raised as to what interpretation should be adopted if the actual extraction in a particular period turned out to be zero. It can be shown that if one period there is a zero value for extraction, counter-intuitive results for income and depletion occur with negative depletion and positive income being calculated. The proposed resolution is to recognise that NPV is an accounting tool to estimate various accounting concepts. Thus where significant breaks in time series due to real events require the underlying assumptions to be adjusted then new calculations should be undertaken. While alternative interpretations and associated treatments of the “abnormal” NPV outcomes can be developed the accounting implications of these interpretations were not broadly endorsed by the London Group.

Unlike assets such as buildings and machines, natural resources are not generally considered to be produced. However, discussion raised the possibility that mineral and energy resources might be considered produced given that the way they are identified is via mineral exploration which itself a process of production. This treatment would therefore see discoveries of new mineral and energy resources to be the output of the mineral exploration process. This view was rejected by the London Group. Nonetheless, it was considered that in estimating the value of a mineral deposit the cost of mineral exploration needed to be taken into account. In this case SEEA 2003 Option B3 was rejected and the final outcome was a combination of Options B1 and B2.

Three options for recording additions and subtractions from natural resources have been proposed. The choice of option relies in the first instance on the nature of the natural resource in particular whether it is non-renewable or renewable. The issues concerning renewable natural resources are dealt with under the outcome paper for Issue #14 – Recording Depletion for Renewable Resources. In relation to non-renewable resources the rejection of mineral and energy resources as being produced and hence the rejection of the discovery of mineral and energy resources as being output implies that neither option C2 or C3 from SEEA 2003 can be supported. The outcome is that option C1 is proposed where the depletion of non-renewable resources is recorded in an extended generation of income account leading to the derivation of a depletion adjusted operating surplus. It is noted that this proposed outcome is a deviation from the 2008 SNA where depletion is recorded in the other change in volume of assets account (2008 SNA paragraphs 10.180 & 12.26).

Questions

1. Do you agree that the income and depletion elements of resource rent be treated in line with SEEA-2003 Option A3 whereby part of the resource rent represents a decline in the value of the natural resources and part is income?

2. Do you agree that, in the absence of market valuation, NPV approaches be considered the best way to measure the value of natural resources and the associated income and depletion; noting that care should be taken in the application of NPV approaches such that the estimates that emerge from the model reflect the underlying observed extraction patterns?
3. Do you agree that the value of mineral exploration be based on either market prices or costs depending on whether it is carried out by a contractor or on own account and that the value of mineral and energy resources should be based on observed market value or, where this is unavailable, on the net present value of the resource rent. Further, the value of mineral and energy resources should be calculated to exclude the value of any associated mineral exploration?
4. Do you agree that the additions to and subtractions from non-renewable natural resources be treated in line with SEEA-2003 Option C1 whereby the depletion of natural resources is recorded in an extended generation of income account leading to a depletion-adjusted operating surplus, and the increases in non-renewable natural resources due to discoveries are shown in the other changes in assets account?
5. Any other comments?

To submit responses to these questions please complete the accompanying comment form available on the website.

Deadline for comments: 28 October 2010

Supporting papers

Outcome Paper: Treatment of Depletion in the Updated SEEA, Paper prepared by ABS and presented to the 2nd meeting of UNCEEA, July 2007

Draft outcomes papers: (A) Depletion of Renewable Natural Resources & Recording Changes to the Stocks of Natural Resources (B) Recording the Ownership of Mineral-Related Assets, Paper prepared by ABS and presented to the 3rd meeting of UNCEEA, June 2008

'Time Passing' and the measurement of depletion, Peter Comisari, ABS, Paper presented to the 13th London Group meeting, October 2008

Accounting for the Value of Time Passing and the Depletion of National Resources, Presentation by Ole Gravgard Pedersen to the 13th London Group meeting, October 2008

Measurement of Depletion: Recording the Income Element in the Case of No Extraction, Peter Comisari, Interim Editor SEEA, February 2010