The members of the London Group are asked to express their opinion on the preliminary conclusions of the chapter 5 sub-group and on the issues raised below.

Introduction

The chapter 5 focuses on valuation so as to provide guidance for compilers. Chapter 5 is very intimately linked to most other chapters. In particular, links and overlaps exist with chapters 2 (depletion of natural assets) and 6 (applications). It is also clear that chapters 2, 3 and 4 can provide essential inputs for valuation (e.g. emission accounts but also accounts for quality of e.g. land or water). However, this latter aspect (the contribution of physical accounts to facilitating valuation) has not yet been explored in full by the chapter 5 sub-group.

There have been discussions on the need for a chapter on valuation, beyond valuation of natural assets as covered by chapter 2, and separate from the applications of the accounts as described in chapter 6. Conclusion was that the chapter is necessary as a response to interest expressed by users, to reflect the activities of some statistical agencies in this field and in order to optimise the other chapters with regard to inputs needed for valuation.

Chapter 5 is controversial. The views of chapter 5 sub-group members on what the chapter 5 should describe - and, even more so, recommend - are divided to some extent. There is general agreement that a chapter on valuation is clearly needed but that the current draft is too long, 'talkative' and uneven in its treatment of many issues, there is less agreement on exactly which parts should be further developed and which parts should be abandoned or shortened.

Therefore, the chapter co-ordinators are in a rather awkward situation. Their interim conclusion is that - to reflect the above diversity of interests - the current chapter 5 draft still includes rather lengthy ('philosophical') discussions of the various aims of valuation, the basic principles of valuation, the questions that should be answered, and the different approaches available. Obviously, description of basic principles and categories of approaches will be shortened as the chapter 5 sub-group progressively converges towards a common understanding.

A substantial amount of time and effort went into this chapter. In spite of this, the current chapter 5 draft is not in a satisfactory state and weak when it comes to practical recommendations. A key question will therefore be how the work on this chapter can be continued.

The chapter 5 sub-group discussed valuation methods for large-scale valuation of (non-market) environmental assets, functions and services and their deterioration or improvement in some detail. Large-scale valuation is understood as an attempt to place money values on essential environmental assets and services such as clean air/air pollution, global climate stability/global warming, the nation's water cycle, recreational and protective functions of a nation's forests and other landscapes or biodiversity/loss of genetic pools.

Summary conclusions on large-scale valuation

The conclusions - shared by many but not all sub-group members - are as follows.

At present (in the short term)

1. valuing economic natural assets (sub-soil assets, timber-supply function of forests, fisheries) and their changes poses few problems and seems to be widely accepted in principle (but this is seen as a task for chapter 2)
2. Many members of the sub-group felt that approaches for comprehensive and large-scale valuation of environmental assets and their degradation/improvement should be described in chapter 5and further research and experimental accounting in this area suggested, but prescription of internationally agreed standard procedures does not seem feasible at the moment.

3. As opposed to valuation at the level of specific sites or projects, reliable and comprehensive valuation of environmental assets at a national or global geographic scale is still in its infancy. The regional dimension is important though and it is possible in principle to aggregate local/regional values to national ones.

4. Partial estimates are more feasible at present (e.g. the costs of avoiding air emissions, and health damages due to air pollution). This could gradually be extended as physical descriptions and valuation results for more kinds of pollution become available. While such partial estimates are undoubtedly useful, the chapter 5 sub-group's views remained divided as to whether such partial estimates should give rise to environmentally adjusted national accounts aggregates (an 'air pollution adjusted GDP'?).

5. Reviewing practical experience in large-scale valuation to date the sub-group felt that - compared to other chapters - not so much has happened in statistics since the 1993 SEEA was published. Some of the experimental accounts made by statistics providing agencies will not be repeated in the near future due to the high resource requirements and the limited usefulness of the results.

6. Nonetheless, a useful body of practical experience exists, in particular on two main approaches: cost-based methods and damage estimates based on dose-response methods.

7. Many conceptual difficulties still exist - however the sub-group felt that further research and consensus could overcome most of these difficulties. Hence, while this process is likely to be time consuming, the methodological difficulties are not prohibitive.

8. While an array of valuation methods exists, many are only applicable to very specific issues. There exists a 'valuation possibility frontier' (see separate note by O'Connor/Steurer): the bigger the issues, the fewer methods can be applied, and the reliability of applicable methods declines. Basically, for a large part of the area only two approaches are available: maintenance costing for the cost-of-provision side and dose-response-based approaches for the benefits (lost) side. Current applications of the dose-response approach rely on contingent valuation to a considerable extent (but other methods closer to market prices are progressively being used).

9. The sub-group felt that contingent valuation methods have many deficiencies when it comes to 'large' phenomena and values are difficult to convert into those used in a national accounts context.

10. Maintenance costing was considered a rather useful approach overall. However, maintenance costing requires modelling already in the compilation phase to be really meaningful.

11. Several members felt that maintenance costing is particularly meaningful and policy-relevant when tailored towards macro-economic modelling of (future) 'sustainable national income (scenarios)'. This modelling process should be described in the SEEA Rev. 1 although it was felt that often statistics agencies would not perform the modelling themselves but rather co-operate with research institutes.

12. This led to recognition that valuation in particular is an interdisciplinary and inter-institutional process. Issues of co-operation should be underlined and focus put on optimising the interface between compilation of the accounts and their uses. Where exactly the interface or borderline between the environmental accounts and their application and use by others should be is not to be an issue for major discussion. Likely, the precise location of this borderline will be different across statistics compiling institution. It must be noted though, that many institutions have decided to take a very restricted view on this borderline.

13. Valuation studies and databases (which may provide cost or benefits data or both) form the primary input for large-scale valuation. At present there are too few studies, many of which focus on too small a scale and results often lack comparability. This lack of detailed basic data makes regular compilation (and the derivation of reliable rates of change) difficult at present.

14. Results of valuation studies will generally need to be transformed into values that are consistent with national accounts principles of 'exchange value'. However, rather little is available on methods to do this, in particular for the demand (benefits/damages) side when based on contingent valuation.

15. There is a choice between indicators that can be compiled with relatively limited resources (EDP, genuine savings or welfare indicators) and full-scale and detailed valuation methods that are extremely costly due in part to the lack of primary data - not just of valuation studies but also e.g. of physical accounts describing the quality of environmental assets.

16. This choice is then also between results that - some feel - may be partial and unreliable and thus might not stand methodological scrutiny and testing by practical use; and results that are likely to be more useful for analysis and policy but very costly to generate.

17. There is a middle way. If large-scale monetary valuation cannot be put in practice in the short run a step-wise approach should be recommended with compilation of physical (e.g. quality) accounts as a very important component. Comprehensive physical accounts reflecting changes in environmental assets can offer politicians useful information derived from physical data and serve as an input to valuation studies.

In the longer term

1. The above suggests that this short-term trade-off situation can only be overcome in a satisfactory way in the longer term.
2. Expectations are that in the longer term (e.g. the next 5 years) there will be important developments both on methods and on primary data that will pave the way towards larger-scale valuation. This includes:
3. The extensive body of environmental valuation studies and research is slowly developing from very narrow subjects (site and project-specific) to larger scales. This will reduce methodological difficulties and will also improve the usefulness of these studies for large-scale valuation.
4. The method of benefits transfer (i.e. a data base with existing valuation studies that have been analysed according to a set of characteristics so that transfer of results to other sites or projects is facilitated) is expected to: improve the comparability of valuation studies, reduce the costs per study and elicit research on the best methods for transferring results. The latter point is particularly relevant for large-scale valuation in a national accounts context.
5. Also for dose-response functions knowledge is expanding. In the natural sciences, research on critical loads and dose-response functions is a growing area and can be expected to provide more input to this kind of valuation.
6. On the maintenance cost (avoidance cost) side there are attempts to set up databases (e.g. at EU level) for use by environmental administrators in the process of permitting. There is also a development towards improved and extended cost-benefit analyses in the context of preparing environmental legislation. These two developments together are likely to reduce the costs of obtaining cost-side data in future.
7. There is a growing awareness that a major benefit from detailed valuation studies is not as a model that should be generalised to all domains of environmental statistics, but rather as a pedagogic process. The work of designing, carrying out and discussing results of detailed valuation and modelling studies, when carried out as a "learning process", is extremely powerful for building understanding on the part of researchers, modellers, and the policy community. This understanding relates to the complexities of environmental information, the changes of environmentally sustainable development (including roles for technical change, dynamic adjustment prospects, etc.) and effective ways of organising information in support of policy debates and evaluation.

Questions

1. Overall conclusions

Overall, the sub-group felt that:

1. a valuation chapter is necessary
2. lack of primary data, standardised methods, classifications and experience as well as human resource requirements make it difficult to prescribe particular methods at present
3. Large-scale valuation and derivation of national accounts type 'green' aggregates in the SEEA Rev. 1 therefore remains experimental, although much clarification at a conceptual level has been achieved.
4. Two approaches seem to be applicable: Maintenance costing for the cost-of-provision side (linked to 'sustainable national income(s)') and valuation based on dose-response functions for the benefits (lost) side.
5. The maintenance cost approach is closely linked to modelling. In this context, modelling is seen as an integral part of valuation.
6. need for the other SEEA accounts (e.g. physical accounts for water quality etc.) to contribute to facilitating valuation
7. The longer term perspective is encouraging and it is likely that within the next 5-10 years major progress can be achieved, including more, and more standardised, primary data for valuation.

Are these (rather conservative?) overall conclusions justified?

2. Principle of flexibility

Compared to other chapters there is a wide range of views held on practical feasibility and theoretical soundness of large-scale valuation. Also, there are overlaps with chapters 2 and 6, which may require ad hoc solutions.

Do you support a relatively comprehensive description in chapter 5?

3. Coverage of Chapter 5

As a minimum, the chapter should

- review existing valuation methods

- review practical experience available at present and their usefulness in a national accounts context (as opposed to special studies at lower scales)

- describe calculation of some indicators of the 'adjustment' type (EDP, genuine saving, etc.) as well as modelling of 'sustainable national income'

- discuss the data requirements and the feasibility of constructing the components needed for these indicators

- a focus should be on the interface between statistics and policy analysis/research

- consider suggestions for directions for future statistics-related research and experimental accounts

- recommend the development of physical (and other) accounts and data sets that are of particular use for valuation as part of a stepwise approach.

Do you agree to this? Which would be additional key elements?

4. Lack of classifications

The sub-group found that no satisfactory classification of environmental assets, functions and services exists. Also the body of current research reviewed (e.g. at EU level) suggests that researcher are still struggling to develop such a classification. However, a classification of environmental assets and functions is indispensable for large-scale valuation.

How could such a classification be developed/identified?

5. Lack of detailed accounting rules

Naturally, given the problems listed above (lack of basic data, classifications, standardised valuation methods as well as unresolved methodological issues) not much effort went into developing precise rules for running the results of valuation through the sequence of accounts. The experience with the discussion on the treatment of depletion suggests that agreement on the precise accounting treatment could be time-consuming.

The sub-group has not discussed the details of the accounting treatment.

6. Terminology

In the current chapter 5 draft basic terms such as 'costs' or 'benefits' are used in a rather fuzzy way. In principle, the terms should, for the purposes of the SEEA, have meanings that are close to concepts of the SNA. For example, 'cost' could be close to cost of production as defined in the SNA, and 'benefits' close to (final) consumption expenditure. It is likely though that very detailed examination of the different meanings and connotations is required to arrive at clearly defined concepts. Currently, many terms are used with different meanings by different authors.

An attempt was made to change the names of the basic categories of valuation methods and results in the 1993 SEEA

(i.e. the costs caused and costs borne). The current chapter 5 draft offers 'supply side' and 'demand side' methods. However, not all sub-group members are happy with this terminology. Alternatives would be:

- costs caused and costs borne

- damage caused and damage borne

- costs and benefits

- supply and demand

- cost-based and damage-based methods

The basic ideas are very similar with 'costs caused/costs/supply' being the (cost of) the provision, restoration or substitution of environmental services; and 'costs borne/benefits (lost)/damage/demand' being the revealed or perceived need for/use of such services. However, there is a feeling in the sub-group that others (e.g. standard economics or cost-benefit analysis) already occupy some terms.

Which pair would appear most acceptable?

7. Principle of symmetry

Neutrality of terms and symmetry of concepts was a key issue. It was felt that comprehensive valuation approaches should be neutral - e.g. changes in environmental assets (deterioration/improvement) rather than 'deterioration'. However, in practice, the symmetry requirement adds further difficulties due to the need to capture more changes in physical and monetary terms (e.g. the need to value both deterioration and improvements).

Should symmetry be a key principle?

8. Principles of adjustment

Most aggregate methods tend to interpret the loss of environmental services as a cost or dis-benefit. However, the initial level of environmental services provided is not normally taken into account. I.e. no positive value is attached to environmental services as long as they are provided in sufficient quantity and quality - the argument being that they are not economically scarce (and it would be much more difficult to value the free services rather than their loss).

Should the principle rather be to 'add' to the national accounts the values of environmental services provided (as e.g. in the case of household work) rather than 'deduct' their loss?

9. Accounting versus modelling

A rather substantial question during discussions was the extent to which modelling should, can or must be used in valuation. Views were divided. Some held that (hard) modelling cannot be the task of a statistics agency, others held that in order to have any meaning and use the results can only be generated using modelling and that modelling is an integral part of large-scale valuation. Further distinctions could be made here, e.g. the ex post modelling of an economy versus the modelling of future scenarios.

On a more general note most statistics agencies do not have a tradition in modelling but some do have. Also, in the context of physical accounting some types of (already rather hard) modelling are becoming the standard (e.g. the allocation of emissions to final demand categories with the help of input-output tables).

Ignoring the question whether statistics agencies should or should not themselves do the modelling - is the description of modelling of 'sustainable national income(s)' and other kinds of modelling (rather than policy analysis!) to be part of

10. Descriptive ('EDP') versus 'optimising ('SNI')' aggregates a main category?

The distinction between 'descriptive (type 'EDP')' and 'optimising (type 'SNI')' measures is a possible starting point of the chapter 5. This distinction provides for two basic categories of 'environmental' aggregates: dose-response based approaches and cost-based approaches.

Do you think these two categories are useful as a primary basis for chapter 5?

11. Sustainability standards scientifically or politically set?

There was discussion inside and outside the sub-group whether, and to what extent, sustainability standards (and 'safe absorption' or 'carrying capacity' levels) should be set primarily based on scientific knowledge or based on political decisions and international agreements (assuming that the latter represent social preferences as a the result of a moderation and negotiation process that includes scientific results).

Is this an issue the chapter 5 should address in some detail?

12. Resource requirements - the costs and benefits of valuation

The investigations by the sub-group and experience of group members suggest that large-scale valuation tends to be labour intensive. Therefore, the sub-group feels that the chapter 5 conclusions will need some care as to the costs and benefits of valuation, especially when it is suggested to invest time and money into further developing of valuation and related datasets at various levels.

Advancing the chapter 5 much further (i.e. beyond the overall conclusions as reported in this paper) would require a **major input of time and money** to develop classifications and accounting rules and to investigate in more detail the advantages and disadvantages of different methods to generate 'green' aggregate measures.

Would such an investment into chapter 5 be justified and how could this be arranged?