



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS



System of
Environmental
Economic
Accounting

System of Environmental-Economic Accounting 2012 – Experimental Ecosystem Accounting Revision

First Global Consultation on:

Chapter 3: Spatial units for Ecosystem Accounting

Chapter 4: Accounting for Ecosystem Extent

Chapter 5: Accounting for Ecosystem Condition

Comments Form

Deadline for responses: 30 April 2020

Send responses to: seea@un.org

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The comment form has been designed to facilitate the analysis of comments. There are nine guiding questions in the form, please respond to the questions in the indicated boxes below. To submit responses please save this document and send it as an attachment to the following e-mail address: seea@un.org.

All documents can be also found on the SEEA EEA Revision website at:
<https://seea.un.org/content/seea-experimental-ecosystem-accounting-revision>

In case you have any questions or have issues with accessing the documents, please contact us at seea@un.org

Question 1: Do you have any comments on the definition and description of ecosystem assets and ecosystem accounting areas and the associated measurement boundaries and treatments?

The principal weakness is the near-complete lack of a description of the relation between units. The main missing element is that there is no description of imports or exports between the areas. That would be useful, however, for later text on intermediate services. The parallel to economic units is nicely presented but then ecosystem units are described as if they were simply independent assets.

Take para 3.21: it speaks about relationships but the text is solely about the hierarchical relation. Or para 3.22 which refers to relationships again, claiming intra-unit relationships are much stronger than inter-unit relationships. That fits the idea that the units are assets but is that really true?

We think overall the presentation is appropriate and clear. In particular, the clarification that “ecosystem assets are considered assets on the basis of their biophysical existence and hence are not dependent on establishing flows of benefits or ownership” is helpful. The treatment of linear features is much clearer now and is appropriately located immediately after the “principles” for delineating EAs. The example showing different possible treatments depending on the width of a linear feature is a valuable addition. Presumably, if only raster data are available this implies that linear features will only be recorded where this is possible in 2D, hence no 1D features recorded? In which case, it might be worth specifying a preference for vector data where feasible.

We have some concerns about the proposal not to identify separately features that are “ecologically linked to the surrounding ecosystem” in the sense that all features will be so linked to some extent, the question is how much – how “separate” do they have to be in order to warrant separate recording as for rivers and streams? Hedgerows could be a borderline case, but not counting them separately does seem acceptable provided they are included as condition features, as stated in 3.31, and we strongly suggest strengthening this requirement (“should always” or “must” rather than “should”?)

There is another possible complication where there could be a choice to make regarding which EA a linear feature should be considered as belonging within. For example, buffer strips between agricultural land and rivers have important roles in regulating the interactions between the land and the river. Should those strips be considered a part of the agricultural EA or as a part of the river? In terms of asset ownership, most likely to be part of the agricultural land - though not necessarily - and providing service to agriculture (cleaning pollution). But in terms of ecological impact, these are more closely associated with quality of the river.

The clarification on treatment of vertically “stacked” systems (marine, subterranean) is welcome. We would suggest strengthening complementary accounts “can” be compiled to “should” be compiled where feasible.

On para 3.40, the suggestion that existing national ecosystem classification schemes should be prioritized seems appropriate. However, 3.41 requires using the SEEA Ecosystem type reference classification for international reporting and comparison. Yet,

it is unclear how feasible this is in practice. It would be useful to develop a mapping/comparison of the national systems with the SEEA Ecosystem type reference classification. A cross-reference to para 3.48 might help since the suggestion there is that international reporting could be at a more aggregated level (GET level 2 / biome) and this alone might well be enough to iron out any inconsistencies across classifications.

I am worried about the statement in 3.8 about economic ownership of ecosystem assets. I have not seen chapter 11 so I do not know yet

Question 2. Do you have any comments on the use of the IUCN Global Ecosystem Typology as the SEEA Ecosystem Type Reference Classification?

The proposals seem appropriate and the exposition is clearer than in previous drafts.

Question 3. Do you have any comments on the recording of changes in ecosystem extent and ecosystem condition, including the recording of ecosystem conversions, as described in chapters 4 and 5?

We agree in general with the approach taken in Chapter 4. The additional clarifications in section 4.2.2 are very useful. Similarly the additional information on recording and comparing changes over time is helpful, in particular regarding the option of not recording ET change where occasional natural disturbances can be seen as part of normal patterns.

We wonder if the layouts of tables in chp 4 (extent accounts) and chp 5 (condition accounts) can be harmonise somehow. Currently they are completely different and they do not give the impression of extent and condition accounts being parts of the same ensemble (accounting framework).

Section 4.2.2 structure extent accounts. I wonder if the text may state that additional rows may be possible or may be added in case of relevance or need. For instance, if one year there is a big natural disaster, say flood or a big forest fire, it may be appropriate to disclose in separate rows the reductions in ecosystems extent (managed or not) due to such disaster. This is not visible with the current structure. I understand a reappraisal is not about that, about natural disasters.

After 4.8 and before 4.9 I would have one standalone paragraph stating that the extent account records, inter alia, changes over an accounting period. this accounting period is typically one year, but it may be longer or shorter, depending on data available, rate of

change of ecosystems, available resources to produce the accounts, user information needs, etc. It may be possible e.g. to compile it every year years for a 3-year period. It is not advisable to use different periods for different parts of the accounts, e.g. the columns. After 4.9 there are other paragraphs about the duration of the accounting period, e.g. section 4.2.3 and para 4.21

Para 4.9 'the row headings' should be 'the column headings'

Table 4.1 I wonder if the extent account is this, i.e. a table, or it is an information system from which this table is derived, but you can also derive other products such as maps.

If the extent account is this table, which aggregates other underlying information, which is the relation with maps? Are the maps derived from the table, or is it the other way around? Paragraph 4.19 is hanging out because of this reason. Idem for the ecosystem change type matrix in para 4.24

Note to the reviewers under 4.1. I wonder if there is a risk that different consolidation recording may lead to different results. In that case there should be guidance in the chapter about recording consolidated or not consolidated. I mean, depending on how you aggregate the EA, say region by region or not, you could get an outcome of say 35 additions and 29 reductions or 30 additions and 24 reductions. Just the difference between additions and reductions would be the same with the two recording conventions. You find such situations in national accounts, e.g. if you record or not transactions between economic units in the same institutional sector (typically in the government sector)

Para 4.11 reads as if compilers have full freedom to use any classification in the columns. I understand it means compilers have freedom to add extra detail or aggregate the reference classification in SEEA

Para 4.13 Terminology: is there a difference between 'reduction ' and 'regression' (resp 'addition' and 'expansion'? I note the category 'reductions' is subdivided in two sub-categories called 'regression'

Para 4.13, def reappraisals. I do not understand this definition very well. It looks like a statistical revision, a change due to data vintages. I think a reappraisal is something else. I think you mean that whenever the opening stock and closing stock are estimated with different data sources, or different resolution data, etc. a part of the discrepancy may be attributed to the data sources. Another reappraisal case is given in 4.15

I would swap the order of 4.14 and 4.15, as to make it clear that the situation described in 4.14 could also be a reappraisal.

Para 4.20 'Conversions'. Are the reappraisals included here?

Para 4.21, length of the accounting period is one year. I would have said it earlier, see my proposals above.

Ch. 5

Over years or decades, ecosystem type may change multiple times. Forest → grassland → urban park, or Grassland → agriculture → grassland → forest. At what point does the reference condition 'reset', is there a fluctuating (perhaps dependent on former/latter ecosystem type) time limit for 'permanent change'?

Needs more examples of how to aggregate at ET level, different areas will have different condition, these can be presented separately, but trying to state the 'overall' condition of the ET from these will be problematic (average? Lowest condition? etc.).

Para 5.7 'The precise structure of ecosystem condition accounts will depend on the selected characteristics, data availability, uses of the accounts and policy applications.' Ideally, the structure of (ecosystem condition) accounts is established in the standard (SEEA) and the level of detail as well as the approach to compile the account depends on characteristics, data availability, etc.

Section 5.3 'Structure of condition accounts' and sub-sections. I miss guidance about maps: can or should maps be produced for each of the stages 1 to 3, in parallel to the tables described? How to interpret the maps for each stage (is it recommended to produce maps only to, say, stage 1)? Can maps be useful in the process of aggregation or weighting the tables? There is no dedicated section with focus to maps or graphs.

Table 5.3 'ecosystem condition variable account'. I wonder if it is possible to harmonise somehow the layout of the ecosystem condition account with the ecosystem extent account in chp 4. For instance, I note in the extent account the opening value and closing value were in rows, here they are in columns. Also, in the extent account the changes were reported in between (the row for) the opening and the closing, here the changes are reported after the closing. In the extent account the ecosystem type was reported in the columns, here in 'layers' (i.e. a different table for each type), etc. I do not have the answers, I just note the layout looks completely unrelated and does not favour a sense of being part of the same framework. Moreover, a harmonised layout may also be useful for compilation purposes, e.g. in case of incomplete information to fill all the cells in the ecosystem condition account, in certain cases and under certain conditions the change of 'the same cell' in the extent account may be a proxy for the change of the condition. See for instance para 5.77 about overexploitation and para 5.86 about conversion.

Question 4. Do you have any comments on the three-stage approach to accounting for ecosystem condition, including the aggregation of condition variables and indicators?

Re: para 5.8, description of the three stage approach. I am not sure I understand the description here and I am not sure it is consistent with the explanations in paras 5.48-5.71. In particular, I understand the normalisation is done in stage 2 (see para 5.55), instead para 5.8 says it is done in stage 3. Instead stage 3 looks to me is rather about aggregation, based on my understanding of section 5.2.5. In short, I understand

- stage 1 is about compilation and organisation of basic info
- stage 2 is about normalisation
- stage 3 is about aggregation

Re: para 5.12, how do we know what will be stable and dynamic in the future?

Re: ecosystem characteristics, the normativity criteria in Table 5.2 is dangerous, as it is subjective and context dependent.

Re: para 5.63: How will this happen? Within an ecosystem type you can compare %, but that implicitly weights each indicator equally, which may not be the right approach.

Comparing %s across ETs will only be as useful as the reference conditions are comparable, which given the variability in their definition described in 5.2 seems risky.

Re: further work under 5.4.2: I hope this will include sensitivity analysis in relation to the definition of reference conditions.

The last sentence of 5.73 doesn't make sense. More importantly, it can often be the case that the pressure is known (E.g. soil erosion rate) but the stock (e.g. soil depth) is not known. An important example is the depth of peat soils.

Re: 5.79: The basis for the designation should contain some data that can be used as a condition indicator, unless designation is made on basis of modelling and a precautionary approach (Which can be the case for MPAs).

The value of aggregated indices is not completely apparent, they may appear to make comparison possible and easy for policy purposes, but in fact may actually distort or hide most of the useful information contained in the variables/indices themselves. What does a aggregate index actually tell us that the component indicators don't already tell us better? For example, it tells us less of overall risk of crossing thresholds than individual indicators do and may hide the inherent risk presented in those individual indicators.

The three-stage approach, is there an implied hierarchy of value towards stage 3, or actually is Stage one (condition variables) good enough in most cases (especially if ecological threshold for the ecosystem are known)? This still allows measurement of change year on year (rather than against a reference condition), changes in rate of change year on year, and tracking of movement towards/away from threshold levels. This is all useful evidence for policy making.

Question 5. Do you have any comments on the description and application of the concept of reference condition and the use of both natural and anthropogenic reference conditions in accounting for ecosystem condition?

There are major concerns about the use of the concept of reference conditions.

It is a subjective and impractical concept in most of the world. Many habitats have a very long history of human influence such that choosing a point in time to go back to for 'reference' is a cultural loaded decision, and one that different stakeholders will disagree on. For example, a far higher % of the UK seabed was once covered in mussel beds, but the exact extent isn't known. Should the suitable seabed have its reference condition as mussel beds?

On para 5.33: 'Anthropocentric reference conditions' creates a dangerous opportunity for Governments to manipulate data and for industries to influence them to do so? Over what time period is 'stable' defined? You could say that farming peatland is 'stable' as it can persist for centuries, but it is unsustainable because the eventually the peat will run out. What is the reference condition for this? Another opportunity for industrial capture.

On para 5.36, this suggests t some confusion about what reference conditions are for. It would be useful to state their purpose clearly here. Furthermore, I am unconvinced that the effort to define and measure against reference conditions is worth it. A better approach is to measure ecosystem condition in the way that best helps understand values to people and externalities (i.e. supports the purpose described in the cover note). Para 5.42 describes a purpose, but makes no reference to past change and therefore any need for 'reference conditions'. Why not just measure change compared to the year before?

Linked to this, it would be useful to explain why Table 5.4 is more useful than Table 5.3?

The list of 'weaknesses' in the Table of Annex 5.5 show how there are no methods without significant problems.

- For method 1, do you define 'long-term' re: ecosystem change or re: economic timescales, and how is 'optimum' defined? It will clearly be within a habitat type, but that ignores inappropriate land uses (e.g. cropping on steep slopes), which is less optimum than alternative ETs. Furthermore, optimum is different for different stakeholders (in above example, for farmer vs for society downstream affected by soil erosion and flooding).
- The historical method (5) is a very subjective choice of time-point open to political interference.

The paper states that "threshold levels are science-based estimations for values at which a significant change in ecosystem functioning occurs. These values should not be used as reference levels" but doesn't explain why Threshold levels, or something similar, couldn't in principle be used to derive a reference condition. This would be a ecologically evidenced / science-backed way to determine a reference case, and give a meaningful baseline against which to measure change (i.e. in regard to ecosystem service provision, it matters how close an ecosystem is to collapse, it doesn't matter that much how close an ecosystem is to pristine, and it matters even less how close it is to '1750'). A scientifically (/consensus) determined threshold state between collapse and sustainable

self-sufficiency / ecological stability could be a reference condition. There would be challenges determining this level, but that is the case with all of the proposed reference conditions, and being scientifically backed means it is less arbitrary or influenced by specific political/historical context (so could be applied consistently across countries and regions where a specific ecosystem exists).

The paper states “For SEEA purposes, it is likely that countries or regions will measure ecosystem condition using a national or regionally agreed set of reference conditions” and then later “Globally agreed reference conditions may also be used to support global comparisons” – in the former case you would end up in a situation where different countries measure the same thing differently, which could have potential implications for international agreements, treaties on protected areas, funding regimes, etc., in the latter case you could have situations where the same ecosystem is measured against two separate reference conditions, a global one and a national or regionally set one, giving two different normalised condition indices, which would be odd.

Question 6. Do you have any comments on Ecosystem Condition Typology for organising characteristics, data and indicators about ecosystem condition?

There seems to be a hierarchy to the ECT classes which is not explicitly discussed in detail. This matters for combined indices and aggregate measures of condition. It would vary by ecosystem, but in regard to measuring the provision of ecosystem services (i.e. the purpose of accounting) it would for example seem that ‘functional state characteristics’ would generally be predominant. This may have implications for how the indices are structured, therefore, would it be more valuable to have multiple indicators of functional state at the expense of skipping indicators from some of the other ECTs? Potentially yes, given limited resources, but the paper states that 1 indicator from each ECT should be used, why? Does not seem to be justified, at least not in all cases (i.e. across ecosystems). At the very least they should be weighted differently. The relationship or importance is not 1:1 between different ECT and aggregation to composite indices of condition that does not use weighting would give a false reading of condition.

We suggest to place the ECT in an annex to SEEA EEA, as classifications as placed in SNA and SEEACF, rather than an annex to a chapter.

Question 7. Do you have any other comments on Chapter 3?

General comments to chps 3-5 (there is no place in this form to make them):

I am quite unconvinced about having annexes to each chapter. I think they are a bad sign. Most of the material in those annexes is stuff which did not find its place in the chapter texts, I take it as a sign that the chapter texts need more work. A statistical standard cannot afford that. I would move to the chapters everything that is relevant and drop the rest. Some of the annexes show the wealth of analysis and discussion that took place but I think it is not necessary to prove it. There is even one annex about something that the chapter says is not relevant for SEEA. Instead, I think it is OK to have one or several annexes for the whole SEEA EEA, in particular with classifications, as SNA and SEEA CF do. The only case of annex to a chapter I personally found OK is whenever the chapter says something like 'the SEEA principles to produce the accounts are such and such but they must be adapted to national circumstances'. In such case, an annex to the chapter could give examples of a couple of national applications, in particular for non-trivial stuff such as the selection of ecosystem condition variables or indicators relevant for the country.

I would advice to avoid repetition of explanations, even more so to avoid explain things twice with different text and a different angle. I advice to explain it once in full and in the most appropriate place, and then cross-reference as many times as necessary

I would avoid acronyms such as ET, EA, EAA, etc.

Comments to chp 3:

The clarifications brought to section 3.4 are very welcome. Specific comments:

In headings please write out acronyms

3.37 "excluded from scope" -> scope of what?

3.46 please add an example

Para 3.50 and 3.51 give the feeling of underdeveloped explanations. They are OK for an experimental handbook but I wonder if they are for a standard. I would suggest to develop them further or remove them.

Para 3.52: "small spatial area" is vague – some clarification on the kinds of sizes anticipated/acceptable for BSUs would be welcome.

We have previously commented on the crucial role of location with respect to human populations when it comes to identifying and valuing ecosystem services. 3.57 states "While measurement of ecosystem use, including ecosystem services is of course, highly relevant for ecosystem accounting, this data should not influence the delineation of EAs except to distinguish where they can be used to highlight differences in ecological functioning" and this quite clearly rules out location relative to people as a criterion for delineating assets. However 3.67 states "Spatial attribution of the supply and use of ecosystem services is therefore an important task to ensure appropriate recognition of the role of different ecosystems and the mix of different users. These issues are discussed

further in Chapters 6 and 7” We suggest that it is worth considering the implications for that further discussion of ruling out location as a possible feature in delineating assets.

We note also that 3.57 has lost (from previous version) the text “The use of these data may be relevant on a case by case basis where there is the understanding that the ecosystem processes in evidence have been significantly affected by human use of the ecosystem (e.g. between protected forest areas and forest areas that are subject to logging activity)” – we think this text was useful in explaining the sort of situation that is intended y “highlight differences in ecological functioning”.

Para 3.58, second sentence. This was said, in more detail, in the previous section. I would not repeat or rephrase explanations in the handbook, even less in the same chapter. It is better to explain it longer the first time and cross reference afterwards.

Para 3.69, second sentence. I find this very important, why is it in an annex?

In para 3.63, “Within the SNA, a distinction is made between legal ownership and economic ownership” it would be worth adding that there can be several types/layers of ownership, relevant in particular to different ecosystem services. For example, there may be separate legal/economic ownership of a river bed, water abstraction rights, fishing rights, navigation rights, aggregates extraction rights and rights to emit certain amounts of wastes to water.

Annex 3.1. I find this annex puzzling. Some of the contents overlap and repeat material in the chapter, some other material says things differently and some material is new. I see a risk of repetition and contradiction. I would move to the chapter everything that can fit in and drop the rest.

Annex 3.1: “Soil Organic Matter, is an important biota-controlled soil characteristics that contributes to these chemical and physical properties” – it should also be recognised/mentioned that human management can be very important here.

Annex 3.2 Classifications can have their own annex at the end of SEEA EEA, as done in SNA and SEEA CF, but I'd avoid them scattered in annexes to chapters.

References. Will the chapters have bibliography? A common line to take is needed for all the chapters



Question 8. Do you have any other comments on Chapter 4?

Chapters 4 and 5 are only about tables. Maps are mentioned in passing. I advice to develop the explanations about maps and geographical information in chps 4 and 5, just having chp 3 is not enough.

We note that in Chapter 4 there is no mention of linear features. As noted above these are now much more clearly treated in Chapter 3, however it would be useful in Chapter 4 to recognise these features and the fact that for some of them recording will be using length not area.

Section 4.1 (placement of). I find the placement of section 4.1 fits better between 4.2.1 and 4.2.2

Para 4.2. Four reasons given. An additional 'reason zero' is that the extent account is the framework to integrate different data sources, reconcile differences observed in the sources and fill gaps. This is both about the process to select the available sources and the outcome that will be used as reference for ecosystem extent and for the other accounts in the framework.

Para 4.5 'underlying infrastructure'. In my view, it is more than underlying infrastructure, it is a fundamental pillar of ecosystem accounting: the ecosystem services produced (and consumed) depend on the ecosystem extent. One of the strengths of the ecosystem accounts is the integration of ecosystem extent, condition, and services, and the interrelation between them. This is what sustainability is about, is about the future delivery of services based on current and future extent and condition. It's where the rubber meets the road.

Table 4.1: the headings categories are examples and not comprehensive, that is not good!

Table 4.2 needs more explanatory text.

Question 9. Do you have any other comments on Chapter 5?

The terms degradation and restoration are being used throughout the doc, but one should be aware they are loaded terms and mean different things to different stakeholders. An ecologically degraded habitat can be regarded as optimal by a farmer.

The discussion on ecosystem condition is largely divorced from the ultimate purpose of condition accounts within an SEEA EEA context – that is to support the measurement and valuation of ecosystem services and benefits received by people. The challenges of constructing condition accounts should be more focused on contributing to this ultimate aim of accounting, so “how does changes in condition affect an ecosystems ability to supply ecosystem services?”. This could inform much of the discussion around variable and indicator and reference condition choices more explicitly. Do the indicators measure condition in a way that aligns with ecosystem service provision? Does the reference condition have something meaningful to say about the current conditions’ ability to provide ecosystem services? Admittedly this may not be the most coherent framing from an ecology / biology sciences perspective, but for accounting purposes it focuses the discussion appropriately.

Chapters 4 and 5 are only about tables. Maps are mentioned in passing (first in para 5.89. Para 5.39 also mentions maps but to say 'they are not addressed here'). I advice to develop the explanations about maps and geographical information in chps 4 and 5, just having chp 3 is not enough.

Para 5.1 ‘significant interest’. As I wrote in question 8, I think measurement of ecosystem condition, same as for ecosystem services, is an essential pillar of ecosystem accounts insofar establishes the relation between the volume and value of ecosystem services and the extent and condition of the ecosystem. See also the last sentence in para 5.3 and in para 5.5

Para 5.2, reference to annex 5.1. I suggest avoiding annexes to individual chapters. They normally serve to include material which is relevant but did not fit into the chapter text, it is a sign of chapter text not sufficiently finalised or mature. What would be needed to integrate the relevant information in annex 5.1 in the chapter text?

Para 5.4 ‘complement environmental monitoring systems by using data from different monitoring systems’. Please check if this makes any sense.

Para 5.5. ‘explicit recording of ecosystem condition in physical terms is an important aspect of completing the accounting picture’. I see the degrees of importance the other way around: the whole point of ecosystem accounting is integrating ecosystem condition (and extent) with ecosystem services. In addition, the ecosystem condition account (and extent account too) are important pieces of information by themselves

Para 5.6 first sentence, ‘record data’. Are the variables and indicators in this sentence used to 'record data' or they are inputs to the measurement approach introduced in para 5.8?

Can we say ecosystem condition accounts measure the state [...] based on a combination of relevant variables and indicators?

Para 5.8 and 5.9 repeat that data for each stage are relevant for policy and decision making

Para 5.18, selection of variables. I guess the selection of variables should be based on two broad aspects:

- What said in para 5.18 and 5.19 (I'll call in 'informative potential')
- also data availability: existence of data for the whole country or area where they are relevant, existence of repeated and comparable data over time, etc.

Table 5.2, column 'short description'. The text on this column uses very repeatedly 'ecosystem characteristics and their metrics', 'ecosystem condition metrics', 'ecosystem condition indicators', etc. Not clear if these repetitions are really needed and not if the different wording has a specific meaning.

Para 5.23. 'Favourable'. I am aware area experts must be very sensitive to this term and it was hard to come to 'favourable', but it is not obvious what is 'favourable' for. Is it 'favourable to produce ecosystem services'? This could be said. Alternatively, another term intrinsic to the ecosystem condition could be tried, such as 'degraded', I do not know. I do not presume to have the answer but favourable and unfavourable read a bit alien to condition

Para 5.25. Para 5.23 gives the impression the rescaling is based on the biggest and smallest observed (or possible) value, as to have a range between 0 and 1. See also para 5.54. Para 5.25 tells a different story

Section 5.2.5. Is 'indexes' established terminology? I would not call them indexes, to me an index is something else about time series(e.g. year 2010=100). I would call it 'aggregates', if possible

Annex 5.4 See my previous comment about annexes to chapters. In this particular case, it seems to be an annex about something not recommended for use in the SEEA, stated in 5.16 (!?)

Para 5.51 'normative baseline'. Is this the same as para 5.30 called 'reference level'? Better use the same term everywhere. 'Medium, high, low': this is more neutral than 'favourable' and 'unfavourable'.

Para 5.68 'Approaches to aggregation and weighting are discussed further in annex 5.6' I consider the weighting a most fundamental element and here it is mentioned in passing and relegated to an annex. The very principle of weighting is only mentioned in 5.65. I expect use of weighting is unavoidable because there will be many situations in which one single indicator provides a good rough picture of the class, yet it is not enough by itself to be comprehensive for the class. In those cases, other indicators in the class are needed but they will only supplement and deserve a lower weight. I expect the weights applied have profound effects in the results of the accounts, both in the condition account and in

the services estimates. Tests may indicate robustness of the results ('indices') to different weighting schemes and correspondingly the text here may say something about it.

Para 5.77 overexploitation. Good point, but identification of overexploitation in the accounts is somehow iterative and circular. I imagine it requires looking at (changes in) the extent account and services accounts to determine the condition, and at the condition to determine the services.

Para 5.82, note to the reviewers. Note taken, biodiversity is not easy. However, in my view, if SEEA EEA fails to provide answers about biodiversity, it will have a hard job to engrain with the community of users. Users already have instruments different from SEEA EEA for extent aspects (e.g. CF land accounts, water and forest accounts, etc.) and about ecosystem services (non-SEEA research work).

Para 5.83-84 are more detailed and better explained than conversion in chp 4 (para 4.20). I would expect the proper explanation in chapter 4 and here instead a cross reference, rather than a repetition.

Para 5.85. I would delete this or move to chp 4. I see it as repetition of explanations that belong in chp 4.

Para 5.87, last sentence. Is this about maintaining the distinction managed/not-managed in the changes of extent in the extent account, or about something else for the condition account? None of the tables in this chapter has this breakdown.

Section 5.4.6 note to reviewers. OK, this is work in progress. However, for the sake of organising the material, I wonder where will the concept of ecosystem capacity be introduced and explained? Here? I see ecosystem condition is addressed in this chp 5 and ecosystem services in other chapter.

Section 5.5 'applications of ecosystem condition accounts' This is the counterpart of section 4.1 (purposes of ecosystem extent account). I suggest harmonising the placement in the chapters of this type of material about uses. In chp 4 it is at the opening of the chapter; I proposed to place it just before the explanations on the layout of the account and compilation principles. Here instead it comes late. They are both possible but better done the same way across chapters.

Para 5.89 'Where accounts are compiled with spatially explicit detail...' Almost first hint in the chapter about maps.

Para 5.93 'the potential to make many key policy commitments measurable, and thus more easily implementable...' Tricky wording, it risks to overpromise about making commitments measurable. I'd suggest 'condition accounts measure changes in condition and thus have the potential to monitor progress on policy commitments'.

Para 5.94, last sentence. I miss something else to wrap up the paragraph (and the chapter), such as: the SEEA framework makes it possible to serve both policy and scientific aims and

it is a question of nailing the right level of detail in the condition variables, indicators, etc.
This will depend on national circumstances including data availability

Annex 5.2 I would move this as an annex to the whole SEEA EEA book. An annex for classifications is OK, in my view.