The two terms address slightly different issues, as local breeds denote breeds present only in a distinct region, and native breeds denote breeds which had sufficient time to adapt to specific local conditions.

This has been done throughout.

All documents include big differences in the quality of the writing. Everything should be thoroughly proof-read and edited by native speakers.

We have attempted to address this comment by taking a more balanced perspective on the relative contributions of nature to people especially with respect to food and fibre provision in chapter 2. We have also increased the treatment of genetic diversity of crops and animal breeds in chapter 3.

The NBS concept is referenced where there is literature and evidence to support its use.

The use of evidence sources has been comprehensively checked across the document, especially including those that integrate across chapters.

The document language has been systematically edited by native English speakers.

The document has been comprehensively reviewed by native English speakers.

If you have any other comments or questions, please let me know.

Best regards,

Anatoliy Khapugin

Regional Assessment Report on Biodiversity and Ecosystem Services for Europe and Central Asia

Comments external review second order draft - Chapter 6
We would recommend that the IPBES Core Indicator Percentage of Category 1 nations in CITES is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point De Meloerter (email: Tom.D.CIOVINEL@rspb.org.uk).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the IPBES Core Indicator ‘Nitrogen + Phosphate Fertilizers (N+P2O5 total nutrients)’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Francesco Tubillio (email: francesco.tubillio@fias.org).

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We would recommend that the IPBES Core Indicator ‘Trends in Pesticide Use’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Francesco Tubillio (email: francesco.tubillio@fias.org).

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We would recommend that the IPBES Core Indicator ‘Percentage of Undernourished People’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Francesco Tubillio (email: francesco.tubillio@fias.org).

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We would recommend that the IPBES Highlighted Indicator ‘Net Extent Trend Index’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Sarah Darrah (email: Sarah.Darrah@unep-wcmc.org).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the IPBES Highlighted Indicator ‘Trends in invasive species vertebrate extinctions’, is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Sarah Darrah (email: Sarah.Darrah@unep-wcmc.org).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the IPBES Highlighted Indicator ‘Number of countries with national instruments on biodiversity relevant tradeable permit schemes’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. These indicators are country-specific, so they can be disaggregated by countries in your region. However, given the incomplete country coverage, any regional aggregates cannot be taken to represent the entire region. Currently we have data on about 58 countries (just to note, we also have information on country with biodiversity relevant taxes in place). More information on this is available from the Indicator Focal point Katerina Karousakis (email: Katerina.KAROUSAKIS@oecd.org).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the IPBES Highlighted Indicator ‘Number of protected marine areas’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Maria Rivero Darrah (email: Sarah.Darrah@unep-wcmc.org).

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We would recommend that the IPBES Highlighted Indicator ‘Improved area coverage of terrestrial, marine and freshwater ecosystems’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Ed Lewow (email: Edward.Lewow@unep-wcmc.org).

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We would recommend that the IPBES Highlighted Indicator ‘Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits’ is used in this assessment. Indicator information is available from the IPBES Indicator portal and the BIP website www.bipindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator Focal point Robert Hoft (email: robert.hoft@ramsar.org).

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We would recommend that the indicator “Ocean Health Index” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Benjamin Harpén (email: Benjamin.Harpén@eea.europa.eu).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the indicator “Cumulative Human Impacts on Marine Ecosystems” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Benjamin Harpén (email: Benjamin.Harpén@eea.europa.eu).

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We would recommend that the Indicator “Proportion of countries adhering to relevant national legislation and adequately assessing the presence or control of invasive alien species” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Shyama Pagad (email: s.pagad@auckland.ac.nz).

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We would recommend that the Indicator “Biodiversity Barometer” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Tom De-Kneuwenaar (email: Tom.De-KNeuwenaar@unep.org).

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We would recommend that the Indicator “Red List Index (Impacts of utilisation)” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Tom De-Kneuwenaar (email: Tom.De-KNeuwenaar@unep.org).

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We would recommend that the Indicator “Water Quality Index for Biodiversity” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Hartwig Kremer (email: Hartwig.Kremer@unep.org).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

We would recommend that the Indicator “Number of Parties to the CBD that have deposited the instrument of ratification, acceptance, approval or accession of the Nagoya Protocol” is used in this assessment. Information indicator is available from the EEA website www.biodiversityindicators.net. This indicator can be disaggregated/made available for this region, more information on this is available from the Indicator focal point Tom De-Kneuwenaar (email: Tom.De-KNeuwenaar@unep.org).

Chapter author teams made use of these core/highlighted/further indicators as far as possible given the delivery late in the process.

A few points on references: 1) In general, there is a need to check references in the chapters. Specifically, EEA reports are not referenced consistently, e.g. in some chapters EEA is EEA XXX while in other chapters European Environment Agency XXX. 2) Chapter 5 doesn’t seem to contain any reference to EEA materials, which seems a bit odd given the many relevant EEA publications. 3) Some EEA references are not the most current one, e.g. Climate change, impacts and vulnerability in Europe 2012 is referenced although there in 2016 report.

EEA sources are highly appreciated and cited throughout the document using the Mendeley bibliographic software.

NSP-WG: The Biodiversity Indicators Partnership (BIP)

This review provides feedback from the IPBES Knowledge and Data Task Force (KD TF) / Task Group on Indicators (TGI) on the use of IPBES core indicators in your assessment. We see that Chapter author teams made use of these core indicators as far as possible given the delivery late in the process.

The draft assessment is an impressive and very informative work. It can, also, be seen that the drafting and peer review process are flexible enough to incorporate very recent work despite the long drafting cycle. It would be helpful to incorporate a feedback mechanism from stakeholders as well, as for recent information that becomes available on a running basis. For example, the Baltic Sea mapping and assessment outside Natura 2000 - some 60% of the country - for ecosystem condition and biophysical valuation of ecosystem services was completed in April, 2017. BSBAS has mapped six of the nine ecosystem types in Bulgaria, and has the lead role in developing the underlying methodological framework. However, the final reports are under verification and publications upon it are still to follow, with findings being systematised. Similarly, work is underway in other countries too.

Therefore, at the current stage the comments are somewhat generic and limited to the general approach (Chapter 1) if it would be suitable, if such a mechanism existed, to keep contributing beyond June 20 until the report is ready. It may be good to allow for submitting links to new publications on a regular basis, so the report authors would get up-to-date information in a timely manner.

By e-mail: Astrid Hilgers (EEA)

Thank you for the suggestion concerning new literature. The IPBES guidelines require us to establish a cut-off date for literature (April 2017), but we have attempted to be flexible in incorporating more recent, but highly important, material.
The assessment’s description in Chapter 1 appears anthropocentric without a clear focus on humans as part of Nature. Since the Assessment clearly notes (Table 1.1, Figure 1.2) that IPBES has a scope overarching earlier assessments such as MA, TEEB, MAES by providing a holistic view on Nature, the introduction, too, may need to put more emphasis on the socio-ecological system as a single entity rather than merely a source of benefits to humans.

This could lead onto introducing insights at the unit-win and lose-lose options, including the ecosystem disservices, as well as a more systemic view at the continuum of states in which the socio-ecological system is evolving over time. It would bring out more clearly the Nature component of the IPBES CF, in particular to Mother Earth and Systems Values categories which appear to be underrepresented in the current draft. Their equivalent in Western science appears to be not the entire body of knowledge on biodiversity and ecosystems but the parts of ecology that treat ecosystems from the emergenecy/entropy/information theory points of view.

Chapter 1 has been edited considerably to adopt a more comprehensive socio-ecological systems approach as well as recognizing the intrinsic value of nature and pointing out non-material relational values.

The chapter primarily focuses on the global, regional and national level.

We are well aware of the knowledge gaps related to Eastern and Central Europe, and Central Asia. We have as much as possible tried to include literature for these subregions.

Thanks for the comment. We have in all parts of the chapter tried to be more specific to the region.

We use it, but not often, and in the case it is used it is defined in its context.

We have tried to streamline the text to meet the comment. However this is a recurrent theme in the literature related to the different sectors. The need for policy integration will also be highlighted in the executive summary.

We have tried to streamline the text to meet the comment. The chapter has been substantially shortened to meet this request.

The table has been updated to include more examples of policy instruments.

The concept has been changed where relevant.

The chapter has been substantially shortened to meet this request.

The benefits of integration of policies/measures/tools are mentioned in several sections. This makes it repetitive, please try to streamline, this would also be beneficial w.r.t. the length of the chapter.

In general, there is an impressive number of references and approaches, but in general they should and could be better merged and drawn upon throughout the chapter: For instance at the end of chapter 6, but also on the other very relevant chapter 2-5.

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Thank you! We have considered the information provided.

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Thank you we have tried to apply the same outline for all the sector analysis in the chapter.

General: The chapter is too long. For instance the chapter 6.3.1. includes unnecessary descriptions about international law etc. Also in chapter 6.3.2 there is unnecessary description of decision making in the EU. Overall there is quite a lot of parts only describing or even lists listing instruments, actors etc. all these parts could be shortened and put more focus on analytical information. Attention should also be paid to the balance between different chapters and sections. A lot of relevant literature missing especially on legal literature on integrating ecosystem services in decision making, new environmental governance, adaptive law and governance, neoliberal & law and governance. (Authors to consider include Tony Arnold, Lance Gendersen, A. G. Garmentiani, J. B. Ruhl, Holger Götzen, Elka Anduergen, Armstrong, Kenneth; Börl, Tantja.)

We have not really sure what is meant by “generalize the effectiveness”. We have defined effectiveness a general term as: as goal achievement which make it possible to assess the effectiveness.

Overall, IPBES would arrive to better results if the assessments would be based on the hybrid sources of primary data (through indicators and custom analyses) and literature review as in the present chapter. The closer to source data the pathway i) will be, the better the outcomes. Please consider the secondary sources, such as expert, not evidence, based species ranges and mechanical and algorithmic data mash-ups for indicators, instead of those directly based on the primary data. The set of Core Indicators needs to be redeveloped for the future assessments to strengthen and to shorten the way from the raw data to the IPBES assessments. The task group on data and knowledge is in the ideal position to guide the data policy for the next assessments.

This comment has to be addressed by the co-chairs.

Undoubtedly, the chapter raises important issues on building governance and decision structures for integrating biodiversity, ecosystem integrity and services into institutions that regulate human activities and interactions. The scientific basis, the role of those providing biodiversity data and who should be capable in doing so in the future; however, is quite debated within the mainstream of the paper. A vital participation of biodiversity researchers, taxonomists, biogeographers and ecologists in governance and decision structures and processes appears to be indispensable for a sustainable and cautious process. In addition to halting the losses of biological diversity of the biosphere, capacity building for expertise biodiversity research and taxonomy is essential not only for filling the large knowledge gaps, but also for the long-term observation of biodiversity patterns. In view of the overall rather weak financial support and long term commitment for maintaining and building of expertise monitoring and infrastructure, its role in the above process needs to be emphasized, especially in the international context.

Thank you we have try to improve awareness and commitment.

This relationship has been elaborated in previous chapters.

We have been added.

We have been added.

They have been added.

No confidence statements given here.

This text has been revised substantially.

This is actually the case, it is important that the policy instruments are adapted to the specific context to which they are being implemented. The text is intended to give options and opportunities for decision makers.

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Got it.

Please clarify what is specific to the ECA region in this finding.

Definition of transformative governance in other sections. (see eg. 6.6.)

The text is intended to give options and opportunities for decision makers.

Got it where relevant.

The excecutive summary has been substantially rewritten.

The text has been substantially revised and shortened.

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They have been added.

The text has been substantially revised and shortened.

They have been added.

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The has been changed.

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They have been added.

The text has been substantially revised and shortened.

They have been added.
Ch.6.

Audun Ruud

Markus Fischer

Edited to be less prescriptive

Why using the upper case in ‘Indigenous’ throughout the document?

“This Pan-European Biological and Landscape Diversity Strategy”

Policy levels have been added

“large scale transboundary initiatives”

The text has been revised. The text has been reformatted and bold format removed.

References to this table is only implicitly made later in the chapter. Could be used more explicitly for instance in 6.6.3 in which there is also a presentation of certification in section 6.6.3.3

Please be more specific here. The differentiation into developed market economies vs. undeveloped seems not very useful here. How relevant are certification schemes in the different ECA-subregions?

Please be more specific here. The differentiation into developed market economies vs. undeveloped seems not very useful here. How relevant are certification schemes in the different ECA-subregions?

Some countries might think that since there is no “one size fits all”, then they cannot act. So when stating that, give also hints of what one should think about in order to design actions relevant for one’s own country. This could for example build on the “summary” subsections you made for sectors, or on the conclusions you made for different subregions, thus showing the diversity of responses for different contexts. This should provide ideas for decision makers to go further.

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The key messages have been updated and made more specific with this in mind.

The text has been revised.

The text has been revised.

The text has been revised.

Of ecosystems and the services they provide to human well-being.”

Thank you for the comment, the text

The key messages still to be completed.

The text has been revised.

Text has been reformatted and bold format removed.

We have now improved the links to previous chapter throughout chapter 6, but feel that section 6.1 is the introduction to the chapter is not the right place to extensively relate back to previous chapters, especially given the needs to shorten the chapter. We have therefore deleted the rather general sentences and directly move into the objective of chapter 6

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We have also slightly different approach to the term “mainstreaming biodiversity”, see CBD 2011 Training module on Maintaining biodiversity. We think that mainstreaming biodiversity is not exclusively possible only through the ecosystem services approach. We have now more explicitly defined mainstreaming in 6.1.

We follow a slightly different approach to the term “mainstreaming biodiversity”, see CBD 2011 Training module on Maintaining biodiversity. We think that mainstreaming biodiversity is not exclusively possible only through the ecosystem services approach. We have now more explicitly defined mainstreaming in 6.1.

The reference has been added (see e.g. 6.13)

The references to this table is only implicitly made later in the chapter. Could be used more explicitly for instance in 6.6.3 in which there is also a presentation of certification in section 6.6.3.3

We have revised the relevant key message and see explicitly that they are also to change the behaviour of public actors.

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We have revised the relevant key message and see explicitly that they are also to change the behaviour of public actors.
This seems to me to be a really important point. Should it form a key finding in the Executive Summary?

Institutional failures are mentioned in the executive summary.

To improve clarity and consistence with other chapters, replace 'multiple' by 'diverse' values

Table 6.1 on pages 10-11 is also very valid, but I am missing a follow-up for instance on participatory planning

In Figure 6.1, the arrangement of the blocks "Economic and financial instruments" and "Social and cultural instruments" should be changed, to make the visualisation consistent with the text and with Figure 6.2. (i.e.: "Economic and financial instruments" should be placed left of "Social and cultural instruments"). Otherwise the reader might wonder if this changed arrangement implies some sort of prioritisation

Table 6.1 covers already some of the instruments so those two tables could be merged.

...text and with Figure 6.2. (i.e.: “Economic and financial instruments” should be placed left of “Social and cultural instruments”), otherwise the reader might wonder if this changed arrangement implies some sort of prioritisation

Table 6.1 is a bit too simplified. i.e. Centralized governance modes uses also other types of instruments than legislation, norms and standards. For instance economic instruments like taxation are also often used in centralized governance.

This is simply too complex a suggestion to include in such a figure. Reworded to “Biodiversity and ecosystem degradation” to avoid the term “ecosystem services”.

We included CBA as just one example, next to other policy support tools arising at non-monetary valuation approaches such as deliberative tools or multi-criteria decision analysis that are also included in the figure. TEV is more a concept, not a concrete tool or methodology.

We have now deleted the “Instruments” row to avoid misunderstandings. These instruments simply indicated tendencies or typical instruments being used in each of the governance modes. This does not mean other instruments are excluded.

This paragraph only served to explain in more detail the combination of various governance modes in practice. With some changes in the following text, it is now directly followed by references to EE and CA, therefore, the text is now more balanced.

Institutional failures are mentioned in the executive summary.

We are not sure what you mean. In any case the format still needs to be revised, as the table unfortunately ran over a page break in the review version of the SOD.

...prices. We also do not think that this serves our purpose. We wanted to provide an overview to readers about the various possible instruments belonging to each category.

Three of these categories are quite common classifications in environmental policy analysis in several scientific disciplines (legal/regulatory; economic; and financial, social and information-based instruments), the 3rd one (rights-based) refers to the special needs in relation to ILK in IPBES. We have now included in the text that it is very difficult to make general conclusions in instruments categories or mixes of instruments. More detailed suggestions follow later in the text.

We included CBA as just one example, next to other policy support tools arising at non-monetary valuation approaches such as deliberative tools or multi-criteria decision analysis that are also included in the figure. TEV is more a concept, not a concrete tool or methodology.

In any case the format still needs to be revised, as the table unfortunately ran over a page break in the review version of the SOD.
see the concept of the regions interconnections (has sense to use the mentioned concept for this paragraph)

Hanna Skryhan

Ch.6

13

408

14

503

17

723

the chapter gives a broad overview of the many treatments and international agreements, but it is not really directed to Europe/Central Asia and it is the reader left with a feeling that there are a lot of agreements but that it is unclear whether this is helping to protect biodiversity and ecosystem services. Could this be discussed on the government the problems in 'Philosophical' as interlinked and is the monitoring and enforcement of legislation, is the lack of societal commitment and awareness, what are the issues that need to be tackled first? Do we have issues with indigenous peoples in Europe or central Asia? I thought this was more an issue in Africa/Latin America/Asia.

Jesse Bauma

Ch.6

17

521

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Finnish Government

Ch.6

13

524

48

As concepts such as regulation, governance, governance mode, mechanics, policy instruments etc. are often used differently consider adding a paragraph describing how these concepts are understood in this report see good example in Romppanen Seita: New governance in context- evaluating the EU Biofuels regime (2015, p. 68-69)

Section 6.2 serves as a theoretical framework where these concepts are defined.

Hanna Skryhan

Ch.6

13

525

48

As concepts such as regulation, governance, governance mode, mechanics, policy instruments etc. are often used differently consider adding a paragraph describing how these concepts are understood in this report see good example in Romppanen Seita: New governance in context- evaluating the EU Biofuels regime (2015, p. 68-69)

Section 6.2 serves as a theoretical framework where these concepts are defined.

Hanna Skryhan

Ch.6

18

566

21

723

What is the role of the introduction in the text the text is fine.

Hanna Skryhan

Ch.6

18

577

20

69

It is necessary to add clear list of ICO and identification their role in the BES management. The paragraph is needed to be cut. Is the issue of water WTO - it is not relevant to chapter.

PESC-4: Axel Paulsch

PESC-4: Kristina

PESC-4: Machteld

Hanna Skryhan

Markus Fischer

Ch.6

12

503

14

418

"looking at" or considering?

This part has been reduced substantially.

where is the list of INGO? The previous paragraph and this paragraph should be written the same way

This figure does not correspond with the its name: opportunities and constraints are not identified in the picture

Comment is unclear, but we have shortened the text on WTO to save space.

Most of the text in the introduction is fine- tuned.

Rephrased.

The first paragraph here presents IGOs with actions deploying worldwide. This could be cut short in order to focus on the work of intergovernmental regional organisations, such as the

it is necessary to clear list of ICO and identification their role in the BES management. The paragraph is needed to cut. Exlude the information about WTO - it is not relevant to chapter.

We expanded the paragraph and now also include relevant concepts of coordination between regimes, spatial fit and interplay. Yet, we only added

"Looking at" or considering?

The box has been moved to section 6.1 and was shortened.

We added the role of the states in the BES management.

We are sorry, but this suggestion is too complex to implement. Furthermore, the sector analyses have been based on this figure. If we completely change it, we need to revise the whole analysis which is impossible at this stage.

A relevant paragraph on these policy assessment criteria has now been moved right after the figure to provide a better link. We have tried to better link the sector analyses to the framework and assess policy instruments accordingly.

A relevant paragraph on these policy assessment criteria has now been moved right after the figure to provide a better link.

We expanded the paragraph and now also include relevant concepts of coordination between regimes, spatial fit and interplay. Yet, we only added

This is the framework section, we relate back but do not repeat the message here. We refer to the primary task for the different sector analysis.

We expanded the paragraph and now also include relevant concepts of coordination between regimes, spatial fit and interplay. Yet, we only added

The second paragraph has been revised and the paragraph is needed to cut. We have tried to better link the sector analyses to the framework and assess policy instruments accordingly.

We expanded the paragraph and now also include relevant concepts of coordination between regimes, spatial fit and interplay. Yet, we only added

This figure provides a useful framework. However, the actual "operationalization" remains not that explicit: in how far are linkages to drivers and underlying factors of biodiversity loss (chap. 4) considered in the analyses? The analyses are based on the criteria: effectiveness, efficiency and equity, which seems to be appropriate. However, in the following sections it would be very helpful if this structure in "effectiveness, efficiency and equity" could be made more explicit. That would allow readers to easier get the analyses of policy instruments.

This is the framework section, we relate back but do not repeat the message here. We refer to the primary task for the different sector analysis.

It has been shortened.

This has been revised.

We are sorry, but this suggestion is too complex to implement. Furthermore, the sector analyses have been based on this figure. If we completely change it, we need to revise the whole analysis which is impossible at this stage.

A relevant paragraph on these policy assessment criteria has now been moved right after the figure to provide a better link.

This is the framework section, we relate back but do not repeat the message here. We refer to the primary task for the different sector analysis.
Region 6: Non-EU countries

- Reasons for a state not to ratify (after signing) a MEA may vary due to different forms of international and/or regional cooperation. Specific reasons for a state not to ratify (after signing) a MEA may vary due to internal political affairs.

- Gap analysis, therefore a special point of departure is not relevant. We must also avoid prescriptiveness.

- Ratification of the Bern Convention is missing. Table 6.4 - suggested additions: The Cartagena Protocol on Biosafety (2000), The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Use of Genetic Resources. This is done elsewhere, see the introduction: “Since many natural resources are ecologically shared and many environmental problems have a global or transboundary nature, they can only be addressed effectively through different forms of international and regional cooperation.” Specific reasons for a state not to ratify (after signing) a MEA may vary due to internal political affairs.

- This comment is unclear. “Purpose” relate to the convention’s main aim.

- We agree, and have included a sentence on this in 6.3.3.1.

- Add citation from http://www.iucnredlist.org/about/citing.

- Due to limited space, unfortunately, we cannot go into detail but have to rely on representative examples, as well as references to relevant websites and databases that show which countries have ratified different MEAs. A table of the most significant conventions are to be found in an appendix.

- The text is based on an assessment on available literature, which include e.g. gap analysis, therefore a special point of departure is not relevant. We must also avoid prescriptiveness.

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- Germany
  - Should section 6.3.3 come after section 6.3.4, i.e. moving from the ECA region to the globe?

- We have previously discussed the order of sections, but this fits best. We have however clarified the important role of the global level under 6.3.1.

- Germany
  - here, it would be useful to be more specific - which ECA countries are included?

- No, we are not going to mention all countries, the countries appear on the cited homepage.

- Germany
  - what about non-EU countries?

- To build on previous comment, we could look at the situation for the candidate countries for the EU. As part of the negotiation process (Chapter 27), there are incentives for candidate countries to enter MEAs and adopt laws favoring biodiversity. See for example here for Serbia: https://rs.boell.org/en/2017/01/25/chapter-27-serbia-still-under-construction

- The example relating to the EU has been deleted, while the text now relates to the whole ECA region.

- Hunya Skryhan
  - the paragraph should be write from the point of view of ‘deficit implementation concept’ or ‘gap analysis’

- The text is based on an assessment on available literature, which include e.g. gap analysis, therefore a special point of departure is not relevant. We must also avoid prescriptiveness.

- CEIB: Natalya Streltsova
  - It’s reasonable to briefly review the documents - insert diagram reflected country participation of the ECA countries in different conventions - analyse the implementation of the documents - reasons of the poor implementation / enforcement of the documents. Conclusion / recommendation for better full implementation of the documents.

- This is why we define it as a hybrid organization. See lines 690-694.

- We agree, and have included a sentence on this in 6.3.3.1.

- Bulgaria
  - more recent references have been added.

- We agree, and have included a sentence on this in 6.3.3.1.
It's reasonable to: briefly review the documents.

incert diagram reflected countries participation of the ECA countries in different conventions.

analyse the implementation of the documents.

reasons of the poor implementation / enforcement of the documents.

conclusions / recommendation for better (full) implementation of the documents.

Delete the table 6.5.

31.7.4.3.3.6 on ILK could be included under 6.5.3 since it also relates to governance of fisheries. Similarly, other sector-specific pieces of information are scattered across the chapter and it could be wise to bundle them in the sector-specific sections under 6.5, in order to improve the readability of the chapter.

Table 6.5 (now 6.6) is removed to Appendix. There is not enough space to review the implementation of regulations/directive in detail - not the task either. We point generally to the assessment of implementation and enforcement failure related to biodiversity.

German

31.7.4.3.3.6 on IPvC can be shortened, and completed with information specifically relevant for ECA. For example: Kristina Hernandez-Mirolo, Joris Hebert, Elise-Olors-Roza, Tobias Plagge, Eda Gomes-Baigorri & Virginia Reyes-Garcia (2016) Traditional Ecological Knowledge in Europe: Status Quo and Insights for the Environmental Policy Agenda, Environment: Science and Policy for Sustainable Development, 56, 1-37, DOI: 10.1080/00139157.2014.861873

This paragraph could be included under 6.5.3, since it also relates to governance of fisheries. Similarly, other sector-specific pieces of information are scattered across the chapter and it could be wise to bundle them in the sector-specific sections under 6.5, in order to improve the readability of the chapter.

Link to this article: http://dx.doi.org/10.1080/00139157.2014.861873

Thank you for the reference, it is included. This subchapter has been totally rewritten.

”Benefit is not used in section”

This section has been totally re-arranged. However, a prescriptive language are to be avoided.

Table 6.5: Please consider adding “Resource Efficiency”

Table 6.5: Please consider adding “Resource Efficient Europe (this does not only focus on land and soil). The Circular Economy Package adopted in 2015 could be listed specifically.

We agree, the text has been revised.

The text has been revised to focus on water issues. Why only water issues are covered here?

The data builds on research from the ECA region.

The text has been developed and made more ECA-specific.

This section has been amended.

This section has been totally re-arranged. However, a prescriptive language are to be avoided.

The text has been thoroughly revised. And IPBES should not be policy prescriptive!

”Room for manoeuvre”

Unfortunatley we do not understand this comment.

Why only water issues are covered here?

Table 6.5: Please consider adding “Resource Efficiency”

The text has been revised to focus on water issues. Why only water issues are covered here?

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Southern Caucasus countries have signed conventions on watershed management, and there are reports from the E.U. assessing their effectiveness. See references:


The Southern Caucasus countries are not mentioned in the text along with the first reference line have added "Southern Caucasus countries have also signed the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.


2: E.U. project report "Trans-boundary Management of Kura River - Phase II, Armenia, Azerbaijan and Georgia/2013"

The text has been revised and also now rely on tables to save space as chapter was too long.

Hanna Skyhan

This text needs to be underlined with evidence or references or nuanced.

The Netherlands:

The text has been revised and also now rely on tables to save space as chapter was too long.

Hans Runhaar

Change to "at unfortunate locations where they cause huge damage."

The Netherlands:


Also

Companies may also employ instruments other than eco-labels, e.g. green procurement (see Runhaar 2016). About eco-labels for marine protection, mixed findings are reported regarding their quality and impact; see e.g. Jacquet, J.L., Pauly, D., 2007. The rise of seafood awareness campaigns in an era of collapsing ecosystems. Nature, 448(7155), 498-502.

Also

Suggestion: delete table 6.7 but keep table 6.8

Venier Government

Both table 6.7 deleted this is not a problem.

PESC-4: Hanna Skyhan

This paragraph is the same as the paragraph according to the referenced transboundary problems (documents + cooperation + results + analysis and conclusions + knowledge and policy gaps + next steps) Text has been greatly reduced. Conventions have been summarized into the table but figure 6.3 has been kept.

Hanna Skyhan

This statement needs to be underlined with evidence or references or nuanced.

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The Netherlands:

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Hans Runhaar

Change to "at unfortunate locations where they cause huge damage."

The Netherlands:

This map should be in Chapter 2 or 3 of the assessment. Why is it inserted here? The chapter on instruments is too is confusing to have the map. Otherwise, explain better in the text how using this map makes it a policy instrument.

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Hans Runhaar
<table>
<thead>
<tr>
<th>Hanna Skryhan</th>
<th>Ch.6</th>
<th>43</th>
<th>1400</th>
<th>49</th>
<th>1562</th>
<th>Grants the text</th>
</tr>
</thead>
<tbody>
<tr>
<td>The test mentions examples of species being introduced but not all of them have a negative impact and this ambiguity could be better reflected in the assessment. When there is a case of deliberate introduction of a non-native species, it would be good for IPBES to provide guidance on how to deal with the issue at the national level. In Armenia for example, see Republic of Armenia, First National Report to The Convention on Biological Diversity, 1999, Incorporating A Country Study on the Biodiversity of Armenia: “Most introductions were accidental, and include species with economic (agricultural, fisheries, hunting, medical, or technical) or aesthetic value. For instance, Armenian and Canadian poplars have been imported to grow on arid lands, jack pines were grown for its essential oil, and sawn log (Aspen) from India and China has been grown since Medieval times. However, a number of species appear to have been introduced accidentally, and many of these proved damaging to both natural ecosystems and agricultural land (such as Colorado beetles, and Asian grasshopper). Among the most aggressive invasive plant species are Fanamph, Cinamomum, and Galinsoga parviflora, while a weed species Ambrosia artemisia (Ambrosia artemisiofides) has expanded its distribution by over 2000km2 within the last decade. Armenia's fisheries have been supported by the introduction of a range of fish species since the 1920s (see Section 2.5.3), and such species now represent the most productive fish in Lake Sevan. However, their interaction with native fish is not well understood. However, the introduction of goldfish (Carassius auratus) to the lake resulted in increasing populations, and high levels of competition for fish food, these species have been introduced dramatically in Lake Sevan since their introduction in the 1980s.</td>
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<td>This text has been removed as another review highlighted we should be just dealing with political aspects here and not getting to the detail of particular countries.</td>
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<td>Hanna Skryhan</td>
<td>Ch.6</td>
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<td>1564</td>
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<td>Biljet</td>
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<td>Jetske Bouma</td>
<td>Ch.6</td>
<td>1511</td>
<td>1652</td>
<td>47</td>
<td>1564</td>
<td>one can provide summary in English.</td>
</tr>
<tr>
<td>Finnish Government</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>have EU legislation is mentioned in text. Also now have added the text “Member countries have been particularly insouciant about invasive species-related movement of stocks, feed, and equipment that may result in introduction of marine species (CRAEM 2007; Golani et al. 2015; Marchin et al. 2016) as well as illegal introductions. The appearance of five non-indigenous penguins in the Mediterranean, all of commercial interest and newly recorded in the past decade, raises a suspicion of direct human introduction, particularly as these species have been found in the vicinity of fish and shellfish farms. The European Union (EU) established a legal framework to limit the environmental risks related to the introduction and translocation of non-native species in aquaculture (Council Regulation 1126/2007 concerning use of alien and locally absent species in aquaculture), but as it pertains only to Member States, and unevenly regulated even in those, illegal introductions and intra-national translocation of shellfish stocks (and their associated biota) continue to contribute to the introduction and spread of marine NIS in the Mediterranean Sea (Bak and Aubin 2016).”</td>
</tr>
<tr>
<td>Jetske Bouma</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>This may be an important aspect in some cases, but not the majority of the cases discussed in Section 6.4.2.3 in the preceding section). However, also in this section EFR is critically discussed in Section 6.4.2.9.</td>
</tr>
<tr>
<td>The Netherlands: Aadil Hilgers</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>The overall flow of the presentation of Chapter 6 is hopefully now, after the revisions to the entire chapter, more obvious: Section 6.2 introduces the concept of biodiversity management and policy instruments in generic terms. Sections 6.4 and 6.5 identify existing approaches in the various sectors, and the constraints and opportunities that emerge, and Section 6.6 summarises and expands on the main opportunities across all sectors to avoid repetition.</td>
</tr>
<tr>
<td>Finnish Government</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>We have discussed this issue throughout with the author and we decided to keep this current sentence since the global and transboundary framework often sets the frame for national policies.</td>
</tr>
<tr>
<td>Jetske Bouma</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td></td>
</tr>
<tr>
<td>Azizul Haque</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>I have added eight more references to the section (a couple of them new), and retained a number of additional ones (but didn’t include them as they did not add anything). Section 6.4.2 now includes different references from the ones mentioned multiple times in the paragraph, which should be sufficient.</td>
</tr>
<tr>
<td>Hanna Skryhan</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1693</td>
<td>I can provide summary in English.</td>
</tr>
<tr>
<td>Jetske Bouma</td>
<td>Ch.6</td>
<td>48</td>
<td>1652</td>
<td>44</td>
<td>1701</td>
<td></td>
</tr>
</tbody>
</table>

The introductory descriptive text on AS is essential as the following text builds on it. In addition, it will be referred to in Chapter 3. The definition of AS and its complexity not occurring anywhere else in the ECA Assessment.
There is no link to the Box 6.4 in the text. There is a concern that the findings of this subsection turn out to be commonplace—this might be a result of the extremely wording of the chapter or the overall document. However, this subsection does make references to specific subsections and countries so the 2nd part of the comment seems warranted.

Hanna Skryhan
Ch. 6 51 1798 51 1851 recommended

This comment refers to agricultural policies (see Section 6.5) and has been passed on to Riccardo Simoncini.

Hans Ruther
Ch. 6 52 1881 52 1882

In the above reference (Ruchart et al. 2017) 10 distinct public authorities governance arrangements for agrobiodiversity were evaluated. The focus was on the Netherlands but many of the governance arrangements are found elsewhere in the EU. The limited effectiveness was explained by two factors: one, nature conservation by farmers is too voluntary (think of participation in AES) and two, remunerations are too low (instead of being compensated for extra costs or forgone income, farmers should be more generously rewarded for taking on conservation measures in their fields).

This comment refers to agricultural policies (see Section 6.5) and has been passed on to Riccardo Simoncini.

The Netherlands: Astrid Hilgers
Ch. 6 51 1881 51 1882

The Regional Cooperation Council (RCC) is missing in the key environmental policies for the Balkan region. See SEE 2020 Programming Document 2017-2019 e.g. Action 1 on responding to environmental challenges (http://www.rcc.int/files/user/docs/SEE_2020_Programming_document_2017-2019.pdf) and SEE 2020 Strategy, especially Dimension 1 on Environment (http://www.rcc.int/files/user/docs/reports/SEE2020-Strategy.pdf)

Thanks for the references—I have now reviewed this but environmental aspects seemed to play a rather minor role (e.g. the quoted Action 1 has a budget of 120 € EUR across all SEE countries). From a strategy paper such as this that doesn't offer further analysis it is also difficult to judge in the context and the impacts really are. I spent more for information and found on the RCC’s own website a statement that this is really largely about ICT, economic connections and road networks (while considering environmental priorities). I'm sure this could be a good example for mainstreaming environmental considerations but am reluctant to present it as such in the absence of further information. The same holds for the second document suggested.

The Netherlands: Astrid Hilgers
Ch. 6 51 1881 51 1882

In development, add and correct in regards to changes in the previous paragraphs

As above

The Netherlands: Astrid Hilgers
Ch. 6 51 1881 51 1882

In the above reference (Ruchart et al. 2017) 10 distinct public authorities governance arrangements for agrobiodiversity were evaluated. The focus was on the Netherlands but many of the governance arrangements are found elsewhere in the EU. The limited effectiveness was explained by two factors: one, nature conservation by farmers is too voluntary (think of participation in AES) and two, remunerations are too low (instead of being compensated for extra costs or forgone income, farmers should be more generously rewarded for taking on conservation measures in their fields).

This comment refers to agricultural policies (see Section 6.5) and has been passed on to Riccardo Simoncini.

The Netherlands: Astrid Hilgers
Ch. 6 51 1881 51 1882

Overall in the region (South East Europe), the policy, legal and regulatory framework is in a transition phase towards the EU framework regarding the environment, biodiversity, etc. What is lacking is an adequate institutional framework with sufficient resources and capacities in order to deal with environmental degradation, loss of biodiversity, etc. Terrestrial services are only mentioned in NAPAP of countries but often without specific targets and timelines. There is no cross sector policy formulation—yet—that incorporates ecosystem services or NCP. There is a transition going on where the above are brought in line with EU laws, etc. but often there is insufficient follow up due to budgetary constraints or lack of priority. Also, enforcing and inspection are lacking due to these reasons. Environmental Impact Assessments and Strategic Environmental Assessment in combination with spatial planning (at all levels) is lacking or not properly conducted, especially when it comes to public consultation rounds. This criticism comes a lot from NGO and citizen’s groups. I have a link to one document here: https://crickitt.com/2017/02/27/achieving-sustainability-in-planning-english-and-serbian-experiences/

Thank you, yes, many of these aspects are already covered in Section 6.4.3, but I have also added a sentence in the paragraph on EU accession to make this more explicit, quoting two REC reports. I have also added a EU-related reference on progress in mainstreaming the concept of ecosystem services within the environmental acquis (Bouwma et al. 2017). Unfortunately, I could not find the referenced document (Crickitt & Therivel on the internet).

The Netherlands: Astrid Hilgers
Ch. 6 51 1881 51 1882

This sentence has now been placed.

Thank you—agreed on to the coordinators of the section on agriculture

The Regional Assessment Report on Biodiversity and Ecosystem Services for Europe and Central Asia

Mark Rounsevell
Astrid Hilgers
The Netherlands: Hanna Skryhan
Hanna Skryhan
Mark Rounsevell
Astrid Hilgers
The Netherlands: Hanna Skryhan
Hanna Skryhan
Mark Rounsevell
Astrid Hilgers
The Netherlands: Hanna Skryhan
Hanna Skryhan
Mark Rounsevell
Astrid Hilgers
The Netherlands: Hanna Skryhan
Hanna Skryhan
Ch.6

When describing the instruments existing for different sectorial policies, most instruments are related to sanctions. This should be balanced with the assessment of instruments related to positive incentives, such as agri-environmental aid and measures on the green market. From literature regarding agri-environmental policy making there are examples of environmental policy instruments regarding regulation (command and control), market based instruments and voluntary instruments (such as labels). One reference is James Connolly and Graham Smith 2003. Chapter 5 “Choosing the means” in Politics and the Environment: From Theory to Practice, London: Routledge Press pages 157-166.

Thank you for the comment, the chapter has been substantially revised with the contents of the comment in mind.

Done. In TOD now line 2244

Ch.6

Done. In TOD now line 2244

Ch.6

Done. In TOD now line 2244

Ch.6

Done. In TOD now line 2244

Herman Skyhun
Ch.6

Local and native breeds are two interchangeable terms, for greater clarity, I would recommend only one expression is used for the whole publication.

In post-Yugoslavia War countries, the issues related to land laws and land properties are a constraint for implementing conservation measures related to agricultural land. We are currently still in a transition period, with issues regarding land restitution. It makes governance difficult to enforce. Regarding agriculture in the Western Balkan countries there are two documents that describe the current state of the sector and the agriculture policy in the region: Volk, T. (ed.) 2010. Agriculture in the Western Balkan countries, (Studies on the agricultural and food sector in Central and Eastern Europe, vol 57) and AGRICULTURAL POLICY AND EUROPEAN INTEGRATION IN SOUTHEASTERN EUROPE, FAO, 2014. They describe the current state of affairs and gaps.

Thanks for this interesting information. Unfortunately at the moment the text needs to be shortened and this makes unlikely to include further detailed information.

Done.

Ch.6

Done.

Ch.6

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Ch.6

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Ch.6

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Ch.6

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Ch.6

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Ch.6

Done.
The depletion of groundwater resources led to an environmental catastrophe for fisheries in Armenia. See:

The statement has been revised:
"If they are involved in the management"

The text describing the context of agriculture in the region can be shortened significantly, so that we focus on the policy instruments which are at the core of Chapter 6.

The section on forest is quite clear, with a little summary section before moving to next section. Could we have the same for the section on agriculture?

The text has been substantially reduced,

ECA value liaison group Ch.6 63 2415 adapt wording “the costs and instrumental benefits of…”

Text has been revised

PESC-4: Anurak Mukschan Ch.6 70 2455 2456 Table 6.6: “(and to the positive ecological impact)”

Text has been adopted

Hanna Skryhan Ch.6 73 2425 Table 6.6: “(and to the positive ecological impact)”

Text has been adopted

Hanna Skryhan Ch.6 73 2481 2485 “Adapt wording: “…around 60 percent of the value of NCP comes from pastures.”

Text has been revised

Hanna Skryhan Ch.6 73 2505 2506 “Adapt wording: “…lead to higher net income and…”

Text has been revised

Hanna Skryhan Ch.6 83 2709 “Add the analysis of the policy instruments in ECA sub-regions”

The text has been revised

PESC-4: Kristina Kujundzic Ch.6 86 2627 2627 The processes mentioned are no processes for sustainable development but for the establishment of criteria and indicators for Sustainable Forest Management (SFM) which is a completely different issue. The processes for SDG is the Agenda 2030 for Sustainable Development

The text has been adopted accordingly

Germany Ch.6 86 2653 2653 "the hard legal instruments" are not at hand at all. There is no mechanism of sanctions to fulfill the OB goals. In many decisions from international processes the national capabilities and the national sovereignty are specifically addressed, thus this kind of institutionalisation of forest processes seems rather a theoretical construction.

The text has been revised

Germany Ch.6 86 2739 2739 “Unsure to what country listeners refer to when mentioning specific directives and strategies”

The text has been revised

Germany Ch.6 86 2773 2773 "If possible these forecasts but also models are not further supported. Or makes the example of further elaborate on the linkages to the above-mentioned "

The text has been revised

Germany Ch.6 86 2785 2785 "The example is taken up in the next paragraph"

The text has been revised

Germany Ch.6 86 2792 2792 "The statement has been qualified"
We now mention wind as well as solar power in section 6.5.4.3. A distinction between renewable and non-renewable energy is available in section 6.5.4.1. In the following sub-sections, we refer to them in different paragraphs.

On energy, pages 89-95 it could be considered to better distinguish between renewable and non-renewable energy resources extraction. This chapter is about policy responses; not drivers. Yet we deal with biofuels in section 6.5.4.3 (constraints and opportunities).

We have corrected it by mentioning "limited direct impacts" in the corresponding sentence. We cover hydropower in the following sentences in 6.5.4.3: "There are also constraints regarding the use of the widely established energy policies and policy instruments. As reviewed and demonstrated in Chapters 3 and 4, all known renewable energy sources can have consequences for biodiversity and animal migration. For aquatic and semi-aquatic fauna, hydropower presents by far the greatest array of problems in terms of diversity and severity of impacts (OSHEE, 2014; Hogan, 2011). Environmental policy of the largest Russian hydropower company RussHydro states that further development of the sector is constrained primarily by the fact that all most suitable dam locations are in wilderness areas known as key habitats for eldelogned species (PAZ RusHydro, 2010). Gas, coal and coal extraction or exploration in many parts of Europe and Central Asia (e.g. Kazakhstan, Kyrgyzstan) as well as extraction of uranium and other minerals (e.g. Kazakhstani) lead to biodiversity losses. Apart from the conventional sources of energy, mainly comprising of fossil fuels, hydraulic fracturing (or fracking) also puts pressure on the environment and ecosystems causing potential water and soil contamination from surface leaks or from improperly designed well casings. Spills of improperly treated water, increased competition for water usage, and so on (UNEP, 2012)."

We have omitted the related reference (Jones et al) and the corresponding paragraph due to length concerns. We have tried to highlight the main issues in this section with the limited space that we had. Have also added to summary "In a recent article, Colloca et al. (2017) points to "a worrisome picture where the effect of poorly regulated fisheries, in combination with the ongoing climate forcing and the rapid expansion of non-indigenous species are rapidly changing the structure & functioning of the ecosystem", and add "the management system implemented in the region appears too slow and probably inadequate to protect biodiversity and secure fisheries resources for future generations.""

We have added in the 6.5.4.2 section. We have also added information about biofuel directive and its implementation in the ECA sub-region. Table 6.13 on page 96-97 should be better related to table 6.1. There are still many issues with fisheries and fishing practices. It is generally well known that certain fisheries and fishponds cause environmental and ecological damage. It says that marine mining don’t have effects to human environment. That is true if we look at direct impacts, but surely there is potentially indirect impacts to humans also on marine mining. It does not apply to the current version of the text.

We have added bio-fuel production and its impact on the BES. We also have added information about Bio-fuel Directive and its implementation in the ECA sub-regions.

Table 6.13: Adapt wording: "Business related biodiversity and NCP risk and opportunities";
adapt wording "... contain a high non-anthropocentric and cultural value." Revised.

Table 6.13: Adapt wording: "Business related biodiversity and NCP risk and opportunities";
Conclusion: "... greater share of income and participation, ..." Revised.

We have added the bio-fuel production and its impact on the BES. There are still many issues with fisheries and fishing practices. It is generally well known that certain fisheries and fishponds cause environmental and ecological damage. It says that marine mining don’t have effects to human environment. That is true if we look at direct impacts, but surely there is potentially indirect impacts to humans also on marine mining. It does not apply to the current version of the text. There are still many issues with fisheries and fishing practices. It is generally well known that certain fisheries and fishponds cause environmental and ecological damage. It says that marine mining don’t have effects to human environment. That is true if we look at direct impacts, but surely there is potentially indirect impacts to humans also on marine mining.
It should be mentioned, that attractive landscapes and nature play a crucial role to attract tourists. Hence, tourism strongly depends on biodiversity and ecosystem services (as natural capital) - while at the same time the tourism industry also supports the protection of biodiversity. The following references could be cited: Adams-wood, W. L.; Naidoo, Robin; Nelson, Erik; Folke, Stephen and Zhang, Jing (2011): Nature-based tourism and recreation. In: Kanari, Peter; Trols, Heather; Rebelski, Taylor-H.; Daily, Gretchen C. and Nepokroeff, Stephen (Eds.): Natural Capital. Theory and Practice of Mapping Ecosystem Services. Oxford, Oxford University Press: 188-205.

Mayer, Marian; Müller, Martin; Woltering, Manuel; Armeger, Julius and Hubert (2010): The economic impact of tourism in six German national parks. In: Landscape and Urban Planning 97: 73-82.


The suggested references have been added.

3. The suggested changes have been made.

5. The suggested changes have been made.

6. The suggested changes have been made.

7. The suggested changes have been made.

The suggested changes have been made.

And when discussing trends in governance modes (6.5.6), the table 6.1 could be better used as a reference and perhaps the discussion could be more specific on the ECA experiences.

Adapt wording “…based on the monetary value of output…”

We have meant ‘multiple services’ thus we did not replace.

The suggested references have been added.

Reference is now included in 6.4.2.1

Unfortunately, we had to reduce the text. Thus, we have not been able to include more detailed examples.

Reference is now included in 6.4.2.1

I would add the following reference, which is more recent: UNDP-WCMC (Eds.): Ecosystem Services (Online available: 11 March 2017) (http://dx.doi.org/10.1016/j.ecoser.2017.02.014).

As a second issue, please note that the list of sectors, “manufacturing” should be added, as it is an industry that consumes the largest share of resources. “Spatial planning” might be replaced by “infrastructure” more generally, the list of sectors could be harmonised with earlier lists in this section, such as the list of the sectors in Figure 6.2. A second issue with Figure 6.10 “Trends” (last word in figure) is rather vague, this would benefit from being more precise.

We changed “systems” to ecosystems”.

The suggested references have been added.

Has been rephrased accordingly in 6.6.4.1

A negative “opportunities for improvement” or the like


It should be mentioned, that attractive landscapes and nature play a crucial role to attract tourists. Hence, tourism strongly depends on biodiversity and ecosystem services (as natural capital) - while at the same time the tourism industry also supports the protection of biodiversity. The following references could be cited: Adams-wood, W. L.; Naidoo, Robin; Nelson, Erik; Folke, Stephen and Zhang, Jing (2011): Nature-based tourism and recreation. In: Kanari, Peter; Trols, Heather; Rebelski, Taylor-H.; Daily, Gretchen C. and Nepokroeff, Stephen (Eds.): Natural Capital. Theory and Practice of Mapping Ecosystem Services. Oxford, Oxford University Press: 188-205.

Mayer, Marian; Müller, Martin; Woltering, Manuel; Armeger, Julius and Hubert (2010): The economic impact of tourism in six German national parks. In: Landscape and Urban Planning 97: 73-82.


The suggested references have been added.

The suggested changes have been made.

The suggested changes have been made.

The suggested changes have been made.

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Mayer, Marian; Müller, Martin; Woltering, Manuel; Armeger, Julius and Hubert (2010): The economic impact of tourism in six German national parks. In: Landscape and Urban Planning 97: 73-82.


The suggested references have been added.

The suggested changes have been made.

The suggested changes have been made.

The suggested changes have been made.

The suggested changes have been made.

And when discussing trends in governance modes (6.5.6), the table 6.1 could be better used as a reference and perhaps the discussion could be more specific on the ECA experiences.

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We have meant ‘multiple services’ thus we did not replace.

The suggested references have been added.

Reference is now included in 6.4.2.1

Unfortunately, we had to reduce the text. Thus, we have not been able to include more detailed examples.

Reference is now included in 6.4.2.1

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We changed “systems” to ecosystems”.

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Has been rephrased accordingly in 6.6.4.1

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Mayer, Marian; Müller, Martin; Woltering, Manuel; Armeger, Julius and Hubert (2010): The economic impact of tourism in six German national parks. In: Landscape and Urban Planning 97: 73-82.


The suggested references have been added.
<table>
<thead>
<tr>
<th>Germany</th>
<th>Ch.6</th>
<th>109</th>
<th>3764</th>
<th>109</th>
<th>3766</th>
<th>Can you further disaggregate into the 4 ECA-subregions?</th>
<th>Revised.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>110</td>
<td>3767</td>
<td>adapt wording: “...the multiple types of value of natural capital...”</td>
<td>Revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>110</td>
<td>3801</td>
<td>adapt wording: “...as which anthropocentric and non-anthropocentric value domains...”</td>
<td>Revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>111</td>
<td>3809</td>
<td>To improve clarity and consistence with other chapters, replace ‘multiple’ by ‘diverse’ values</td>
<td>Revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>111</td>
<td>3836</td>
<td>adapt wording: “...the recognition of the multiple values of such services...”</td>
<td>Revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>111</td>
<td>3857</td>
<td>adapt wording: “...including integrated valuation method...”</td>
<td>Revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III.4: Hanka Skyhun</td>
<td>Ch.6</td>
<td>112</td>
<td>3863</td>
<td>115</td>
<td>4026</td>
<td>strong bias to ME, the information about EU and CA is totally missing. The paragraph need in significant redevelopment. I could provide text of this paragraph including the missing parts.</td>
<td>Thanks for the comment. Has been implemented.</td>
</tr>
<tr>
<td>Finnish Government</td>
<td>Ch.6</td>
<td>112</td>
<td>3865</td>
<td>Could there be an example from Baltic Sea, the HELCOM- VASKAR cooperation [<a href="http://www.helcom.fi/helcom-all-work-groups/helcom-vascular-maritime-spatial-planning-working-group/">http://www.helcom.fi/helcom-all-work-groups/helcom-vascular-maritime-spatial-planning-working-group/</a>]</td>
<td>Website has been checked. It is an interesting example of collaboration in marine spatial planning. However, no new relevant information was found that could be taken up in the assessment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>113</td>
<td>3948</td>
<td>adapt wording: “...and have substantial advantages...”</td>
<td>Thanks for the comment. Has been implemented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PESC-4: Hanna Skyhun</td>
<td>Ch.6</td>
<td>144</td>
<td>3951</td>
<td>There is actually quite a lot of work on spatial planning in Eastern Europe, and on participatory approaches. I studied the case for Ukraine and Belarus and I can provide you with a little paragraph on that topic if you want.</td>
<td>Thanks you! We have now integrated more information on spatial planning in Eastern Europe, based on the new information provided (see response on comment 142 above).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNEP-WCMC: Elise Faith</td>
<td>Ch.6</td>
<td>115</td>
<td>4003</td>
<td>The text of the ‘key contributers’ has been deleted</td>
<td>Done</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNEP-WCMC: Elise Faith</td>
<td>Ch.6</td>
<td>115</td>
<td>4007</td>
<td>could you say a bit more about these two examples.</td>
<td>Thank you. A short note on this has been added: “Trade-offs between different NCPs as well as between biodiversity and NCPs need to be accounted for in decision-making about preferable spatial planning strategies and implementation actions.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Ch.6</td>
<td>115</td>
<td>4015</td>
<td>115</td>
<td>4021</td>
<td>&quot;better integrating BEIS in planning&quot; - would be useful to point out that key trade-offs are between B and ES...and even local synergies of the two can mean poor balance at regional scale - see references - Faith, Australian Zoology.</td>
<td>Thank you. Indeed we could say more, but we have been asked to substantially reduce the length of the manuscript and not to provide further detail. We therefore decided to refrain from adding further detail and hope that the reader will consult the provided references for more information.</td>
</tr>
<tr>
<td>Sigrid Kuch</td>
<td>Ch.6</td>
<td>116</td>
<td>4020</td>
<td>117</td>
<td>section 6.2.3 &quot;Sustainable consumption and production&quot; would benefit from some more specific information, as one example, circular economy could be mentioned.</td>
<td>We have considered this carefully in the revision and tried to be more specific to ECA throughout the entire section - as far as this was possible given the space limitations. Furthermore, one colleague from eastern Europe provided additional information that we incorporated in the manuscript. However, we needed to recognize that it is impossible to comprehensively address the breadth of formal and informal government and governance arrangements in place within ECA.</td>
<td></td>
</tr>
<tr>
<td>Sigrid Kuch</td>
<td>Ch.6</td>
<td>116</td>
<td>4039</td>
<td>116</td>
<td>4047</td>
<td>This should be reviewed. One not correct issue is the statement that the first 4 items on the list refer to the production stage, and only item 5 to the final consumption stage. Note that item 3 heavily depends on the end-user. Later in this section, the list of “key contributers” seems rather selective - what is the basis of this list of “main contributers to these impacts”?</td>
<td>Agree, but due to limited space and with the chapter being too long, we will have to limit this if at all.</td>
</tr>
<tr>
<td>Sigrid Kuch</td>
<td>Ch.6</td>
<td>116</td>
<td>4051</td>
<td>116</td>
<td>4052</td>
<td>the &quot;statement that the first 4 items refer to the production stage, and only item 5 to the final consumption stage&quot;</td>
<td>Yes, agree. We rephrased the reference to the numbers, and rephrased the bullet list as follows: 1. increase resource efficiency, including circular resource use (production); 2. Enhance sustainable resource production (production); 3. Design products with cradle-to-cradle approach (production); 4. Promote consumption patterns with less environmental impacts (consumption); 5. Reduce waste at different stages (production &amp; consumption).</td>
</tr>
<tr>
<td>Sigrid Kuch</td>
<td>Ch.6</td>
<td>116</td>
<td>4078</td>
<td>117</td>
<td>Figure 6.12 not mentioned in the text (except in Executive Summary).</td>
<td>The text of the &quot;key contributers&quot; has been deleted</td>
<td></td>
</tr>
<tr>
<td>Sigrid Kuch</td>
<td>Ch.6</td>
<td>116</td>
<td>4082</td>
<td>116</td>
<td>4100</td>
<td>To cut the text of the paragraph on that topic if you want.</td>
<td>Done</td>
</tr>
<tr>
<td>Germany</td>
<td>Ch.6</td>
<td>119</td>
<td>4082</td>
<td>119</td>
<td>4100</td>
<td>It was not easy to disaggregate into the ECA-subregions; however, instead, we now add a comparison of ECA with the other regions.</td>
<td>The text has been deleted</td>
</tr>
<tr>
<td>Finnish Government</td>
<td>Ch.6</td>
<td>119</td>
<td>4110</td>
<td>119</td>
<td>4133</td>
<td>adapted wording: “...the recognition of the multiple values of such services...”</td>
<td>Noted, reference added.</td>
</tr>
<tr>
<td>Finnish Government</td>
<td>Ch.6</td>
<td>119</td>
<td>4110</td>
<td>119</td>
<td>4133</td>
<td>&quot;the multiple types of value of natural capital...&quot;</td>
<td>Done</td>
</tr>
<tr>
<td>ECA values basin group</td>
<td>Ch.6</td>
<td>119</td>
<td>4110</td>
<td>119</td>
<td>4133</td>
<td>&quot;...the multiple values of such services...&quot;</td>
<td>Done</td>
</tr>
</tbody>
</table>
It is not clear in this section how large the knowledge gap really is concerning these issues. If we wouldn’t know anything on these issues, wide parts of ch6 and beyond could not have been written, so please specify.

Section has been restructured and knowledge gaps are now mentioned throughout the text.

Comprehensive table inserted (Table 6.11).

Do you need an extra conclusion section, given that you have 6.6 which attempts to conclude?

The conclusion section has been deleted. Table 6.11 shows option and opportunities in the beginning (chapter 6.6.2).

Section has been restructured and knowledge gaps are now mentioned throughout the text.

Clarification added. statement is related to agricultural landscapes, where farmers decide about the uptake of agri-environmental schemes.