

Comment form for 1st Review Phase of the Deliverable 3c) Fast-track methodological assessment on scenarios and models Chapter 7 ‘Capacity-Building’

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Reviewers:

Joel Houdet (JH)

Raghunathan Nair Jaishanker (RNJ)

Gautam Talukdar (GT)

Audrey Coreau (AC)

Hans Keune (HK)

Madhav B. Karki (MBK)

Rob J.J. Hendriks (RJJH)

Louise Gallagher (LG)

Eva Paule Mouzong (EPM)

Corinne S. Martin (CSM)

Thomas Brooks (TB)

Monika G MacDevette (MM)

Elsa Galarza (EG)

Roy Haines-Young (RHY)

Tim Hirsch (TH)

Ciara Raudsepp-Hearne (CRH)

Michael Murphree (MM)

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
1.	7.8	27		30		Practical strategies for specific user uptake are missing (i.e. understanding how different stakeholders use values, in which context, mechanisms, incentives, etc.)... what is going to be the difference with previous BES models and scenarios for business and local authorities for instance?	Joel Houdet (JH)	In the restructure of the chapter and its key messages and recommendations, we have attempted to provide more specific entry points for capacity building. It is expected that most of the practical strategies for models and scenarios will be in earlier chapters as this chapter is about capacity requirements to do BES M&S rather than lessons on how to do BES M&S themselves which are elsewhere.
2.	7	1	18	1	24	A lengthy sentence for introductory paragraph. Split into 2-3.	Raghunathan Nair Jaishanker (RNJ)	Sentence gives overarching aspects of capacity requirements, separated by semi colons for clarify.
3.	7	3	37	3	39	Restructure	Raghunathan Nair	Moved elsewhere in full chapter restructure.

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							Jaishanker (RNJ)	
4.	7	4	7	4	7	No demonstrated existence of <i>similarity</i> as claimed.	Raghunathan Nair Jaishanker (RNJ)	We believe similarities within and between regions are apparent in the figures provided. Regardless this section has been rewritten.
5.	7	5	20	6	10	Consider merging 7.3.1 and 7.3.1.1	Raghunathan Nair Jaishanker (RNJ)	Both sections removed and integrated into new structure.
6.	7	7	37	38	14	Very limited in scope and confined to just a few. A document like this can be kept neutral by not taking individual organizations name.	Raghunathan Nair Jaishanker (RNJ)	We have expanded on training both in a new section on training, and in a table on tools and their training availability.
7.	7	16	11	16	35	(a). Loss of erosion of IK is a serious concern. Studies in this line need mention. Upon request shall share the details of a quantitative study on loss of IK carried out within a biodiversity hotspot in 2013. (b). Can a global attempt be made to codify (geo-tagged and time flagged unique id for all known species? Definitely a challenge, but not impossible. This will open enormous opportunity to understand finer relations between life forms. This can also go into table 7.2 - Long-term strategy.	Raghunathan Nair Jaishanker (RNJ)	(a) We have included text on developing capacity to document and archive IK (new section 7.3.2). (b) out of scope of this chapter on BES models and scenarios
8.	7	19		25		Consider replacing the adjective “Western” with Modern.	Raghunathan Nair Jaishanker (RNJ)	We have used ‘conventional scientific knowledge’
9.	7	19	19	19	26	A finer analysis of the various courses at different countries, exposes the diversity in “understanding of the concepts” taught through courses. Can a suggestion to evolve a Global Biodiversity Academy (GBA) to coordinate capacity building across different countries be placed here?	Raghunathan Nair Jaishanker (RNJ)	We have expanded in a section on training programmes. The IPBES capacity building task force is responsible for the broader integration of capacity building across different countries and will use information from this chapter to drive capacity building priorities for BES M&S.
10.	7	28	15	29	2	Whilst both the pathways mentioned in lines 15-20 are equally strong or weak, how can it be stated that second approach is better?	Raghunathan Nair Jaishanker (RNJ)	Here we are trying to follow with terminology used in Chapter 1. We comment that ‘either of the methods can be applied....’

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11.	7	29	40	29	40	Values also change with time. Hence the temporal relevance of scenarios becomes a constraint.	Raghunathan Nair Jaishanker (RNJ)	We agree.
12.	7	32				Item IV should read Stemming Corruption.	Raghunathan Nair Jaishanker (RNJ)	We disagree. Regardless we have removed this section from the second order draft.
13.	7	32				(Lst paragraph) New paradigm: this is a vague approach: rediscovering ... ?	Raghunathan Nair Jaishanker (RNJ)	We have removed this section from the second order draft.
14.	7	33				Second paragraph: Markets and sustainability? Should we not learn from history?	Raghunathan Nair Jaishanker (RNJ)	We have removed this section from the second order draft.
15.	7	33				Second paragraph: Political stability is a prerequisite.	Raghunathan Nair Jaishanker (RNJ)	We have removed this section from the second order draft.
16.	7	36				In 7.9.5 (second paragraph): Does a tested mechanism to support processes exist?	Raghunathan Nair Jaishanker (RNJ)	Recommendations section has been completely redrafted.
17.	7					After an analysis of existing differences in capacity to develop, use an interpret models, this chapter should have come out with concrete suggestions on ways of reducing the gaps. A lot of generalization has crept in, which will be counterproductive for an action document. Too much emphasize on Indigenous Knowledge. Strategies suggested for improving the capacity are abstract. Would the authors be able to list out 5 action items clearly indicating how to strengthen the capacity for At various regions? The chapter will need to be refocused. Leverage Information Technology to bring up the capacity levels (Pl see item 8 above).	Raghunathan Nair Jaishanker (RNJ)	Recommendations section has been completely redrafted.
18.		General comments				<ol style="list-style-type: none"> 1. A paragraph on Massive Open Online Course from Coursera, Edex, etc will be appreciated. 2. Elearning platforms like Moodle, Atutor, BlackBoard, etc can also be discussed 	Gautam Talukdar (GT)	We have added more references to different training courses in new section 7.2.2, and also included references to online available courses for BES software and tools in table 7.3. We have included reference to MOOC, though we have not

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								referred to these other specific tools as we do not have space to refer to all potential online and elearning platforms due to restricted space.
19.	7.1	1	14	1	31	May provide some statistics on available capacity to develop, interpret and use scenarios and models. What is the gap i.e. requirements for trained professionals? What kind of curricula is needed to fill the gap? What are the policy requirements for uptake of learnings of trained professionals? What is the potential job market in various countries / organisations / etc?	Gautam Talukdar (GT)	We have added more references to different training courses in new section 7.2.2, and also included references to online available courses for BES software and tools in table 7.3
20.	7	1	9	1	11	Key messages should be elaborated and provided only once i.e. in the beginning of the chapter	Gautam Talukdar (GT)	Key messages now only at beginning of the chapter.
21.	7	1	23	1	23	“tools” and “software” are useful but are not the only solution, especially for scenarios building. Capacity building in futures studies and scenarios development is also really important.	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4) in addition to rewriting and restructuring sections on tools and software.
22.	7	4	4	4	6	Cannot NGOs choose the objective they want to pursue? What is the reference to say that they should rather focus on agriculture or water quality?	Audrey Coreau (AC)	Yes, NGOs can choose their objective – the point of this sentence is that NGO objectives then result in drivers of whether or not BES models are used.
23.	7	5	21	5	26	As I already commented in previous chapters, participatory methods are not the only way to build scenarios. Capacity building should also focus on futures studies theory and practices, on expert panels animation, on stakeholder participation, etc. See for instance. Godet 1987 . Scenarios and Strategic Management. Or Bell. 2003. Foundations of futures studies: History, purposes and knowledge (New Edition).	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4)
24.	7	6	1	6	7	Why scenarios are not listed in the list of the skills needed?	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4)
25.	7	6	36	7	4	Participatory methods are not only useful for integration of indigenous knowledge. They are also very useful to contribute to smooth the science policy interface, and to bring their values and expectations. Therefore the whole literature on future studies should be widely communicated and taught. This comment also concerns section 7.7 of this chapter. See for instance. Robinson et al. 2001. The Georgia Basin Futures Project: bringing together expert knowledge, public values, and the simulation of	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4)

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						sustainable futures Glenn and Gordon. 2009. Participatory Methods		
26.	7	7	36	8	14	This section is a bit short and “catalog”. European environmental agency has a bunch of futures studies about biodiversity and ecosystem services (directly or indirectly). See for instance http://www.efi.int/files/attachments/publications/annex_1_review_of_foresight_exercises.pdf	Audrey Coreau (AC)	We have added more references to different training courses in new section 7.2.2, though we have not used this specific example.
27.	7	9	9	9	35	This list is far too long.	Audrey Coreau (AC)	We have restructured this as a table with selected examples for each scale of BES models and scenarios.
28.	7	10	16	12	10	This whole section is just about models. For instance, in table 7.1., the steps include “modeling scenarios”, but not building scenarios themselves. But you need labs, and science-policy units, and futures studies practitioners to build scenarios...	Audrey Coreau (AC)	We have removed this section.
29.	7	17	10	19	26	This section is just about models.	Audrey Coreau (AC)	This section has been restructured into a new section on capacity to participate in BES M&S
30.						General comment: capacity building about scenarios and futures studies is not dealt with properly in this chapter. You have some descriptions of what could be a “good” scenario analysis, but no recommendation of what should be improved.	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4)
31.	7	25	1	25	5	In some cases the main barrier may be communication of information, but in other cases it is just that stakeholder do not want to participate. Mermet L, 2011. Strategic Environmental Management Analysis: Addressing the Blind Spots of Collaborative Approaches, Working Papers n°5/2011, IDDRI, Paris, 34p.	Audrey Coreau (AC)	We have expanded on a section on communication and stakeholder engagement (section 7.5)
32.	7	25	39	26	42	It is not clear what is meant by “integrating traditional knowledge into western science”. You have more and more participatory research programs, or citizen science programs, stakeholders are more and more involved in research agenda setting, in research definition and implementation. Table 7.4. is unclear (why local stakeholders are not in the level “practice?”)	Audrey Coreau (AC)	We have expanded on a new section titled ‘mechanisms to include TK in scenario analysis and modelling’
33.	7	27	8	27	9	There are several definitions of scenarios in the document.	Audrey Coreau (AC)	Scenarios (and models) are now defined in the assessment glossary.
34.	7	27	17	27	18	I cannot see where the scenarios are in the example of the CBD targets.	Audrey Coreau (AC)	We have rephrased this sentence.
35.	7	28	1	28	4	There are probably a lot of studies at a local scale, but that are bit published in the academic literature. I know a lot of them in France (in natural marine areas, for	Audrey Coreau	We have rephrased this paragraph.

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						the Seine river estuary, for river watersheds, etc.).	(AC)	
36.	7	29	1	29	30	I really do not understand what is the objective with the idea of mainstreaming the types of scenarios we should built on biodiversity and ecosystem services by constructing a BES prototype. The main strength of scenarios is their adaptability to each issue at stake. What is the issue here? Global biodiversity preservation? Moreover, you say further in the document that scenarios have to adapt to the local regional and national perspectives and scales, which is for me confusing with the idea of a BES prototype	Audrey Coreau (AC)	We have expanded on a section on scenario development (section 7.4), as the objective in this chapter is to identify capacity requirements to do scenario analysis, not to provide a how to of doing scenarios which is in earlier chapters.
37.	7	27	5	32		It seems to me that there is a confusion between : - new capacities that learning scenario methods could bring - capacity building that is needed to be able to build scenarios.	Audrey Coreau (AC)	This chapter is about capacity building to develop BES models and scenarios.
38.	7	32		32		Figure 7.7. : links between policy makers and the scientific community are missing.	Audrey Coreau (AC)	Multi direction arrow now in figure.
39.	7	32		32		Reference needed on policy instruments (political science often distinguishes 5 types of instruments: legislation – law – rules / economic and financial instruments / communication and sensibilisation instruments / contracts – voluntary schemes / institutional instruments) . See for instance Lascoumes et al. 2005. Introduction : l'action publique saisie par ses instruments	Audrey Coreau (AC)	We have removed this section.
40.	7	33		33		Maps are only one tool to improve environmental legislation; it is not the only one.	Audrey Coreau (AC)	We have removed this section.
41.	7	34		38		This section 7.9. about strategy and recommendation focuses mainly on models, not on scenarios.	Audrey Coreau (AC)	We have completely rewritten the recommendations section.
42.	7					One main comment: the focus seems largely on data, far less on decision support, which to me seems a handicap.	Hans Keune (HK)	We have restructured the chapter completely to focus equally on both technical (data, software) and stakeholder/scenario/human capacity
43.	7.1	3	32	3	39	replace cultural differences by socio-economic, cultural, and institutional differences	Madhav B. Karki (MBK)	We cover socio-economic and institutional in other paragraphs in this section, and did want this to discuss cultural aspects separately.
44.	7.3	5	16	5	18	This is known, more useful could have been a finding that says HR skills required have to be customized according to regional, national, cultural, and contextual needs	Madhav B. Karki (MBK)	We have restructured this entire chapter and the human skills sections are now integrated into other sections.

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45.	7.3	6	31	6	34	also evidences such as success stories (videos)	Madhav B. Karki (MBK)	We have restructured this entire chapter and the human skills sections are now integrated into other sections.
46.	7.3	7	19	7	21	and practices	Madhav B. Karki (MBK)	We have moved this section into a new section on participatory approaches.
47.	7.4	9	10	9	35	This is too much detail difficult to read and make any use of it; better to tabulate or shift it to annex	Madhav B. Karki (MBK)	This has been changed into a summary table.
48.	7.5	13	17	13	18	data management tools also	Madhav B. Karki (MBK)	We discuss data management in a new section 7.3
49.	7.7	19	33	19	34	include institutional capacity as technicians once trained tend to leave for greener pasture	Madhav B. Karki (MBK)	We did not include staff retention in our chapter.
50.	7.7	20	9	20	10	as well as practices since local knowledge are not `shared' but `observed' and `practiced'	Madhav B. Karki (MBK)	We agree and feel our text covers this.
51.	7.7	20	11	20	11	better to describe by culture, society, community etc.	Madhav B. Karki (MBK)	Our text includes both local and traditional/indigenous knowledge aspects.
52.	7.7	20	15	20	18	modern scientific system is also complex; unorthodox community will always term orthodox science `complex'; this is often the strategy to discourage its understanding	Madhav B. Karki (MBK)	We agree and complexity is covered also in the stakeholder engagement section. We note this section is now called `different knowledge systems including TLK' and thus complexity refers to both modern and traditional knowledge systems, as well as more general interactions of society/stakeholders in BES models and scenarios
53.	7.7	20	23	20	25	joint development of scenarios and models is one way	Madhav B. Karki (MBK)	We agree and this is the context of this sentence.
54.	7.7	25	4	25	5	lack of suitable and mutually acceptable platform is another issue	Madhav B. Karki (MBK)	We believe this is covered in detail in this section.
55.	7.7.4	26	8	9	26	I argue that `indigenous and local knowledge' should always be mentioned	Madhav B.	IPBES assessments will have a

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						together since societies all over the world are integrating	Karki (MBK)	standard terminology here for ILK – and yes, we agree – local knowledge is included throughout our chapter as well as traditional/indigenous knowledge systems.
56.	7.4 (table)	27	1	1	27	You should add one more row for common platforms since due to asymmetrical relationships often the ILK community do not come to the platform dominated by modern scientific knowledge community	Madhav B. Karki (MBK)	We already have a line on TLK integration that we believe covers this.
57.	7.8	27	31	27	33	plus livelihood and economic development needs	Madhav B. Karki (MBK)	This is implicitly covered in the text we provide. ‘societal changes’.
58.	7.8	29	28	29	29	Actually a mix of all 4 scenarios that vary nationally, regionally and globally is likely to prevail that needs to be mentioned; it will not be a one-size-fit-all scenario	Madhav B. Karki (MBK)	We agree which is why all four are presented in this chapter.
59.	7.8	29	32	29	34	add institutional framework as NGOs and CBOs are becoming more important actions in BES conservation and maintenance	Madhav B. Karki (MBK)	Elsewhere in the chapter we discuss the role of NGOs when objectives and donor funding overlap with BES M&S objectives. However we do not think we should be adding NGOs here, rather they are a form of ‘social values’ where funding is provided to NGOs by individuals based on existing social values to promote particular objectives/tasks.
60.	Table 7.6	31		31		create common platforms, working groups of ILK and modern knowledge communities to create a ‘level playing field’	Madhav B. Karki (MBK)	This is included in the text already, now moved into a new section on ‘mechanisms to include TK...’
61.	32		32			Empowerment of CBOs by creating incentive mechanism and policy support to network and gain ownership and leadership of BES conservation and management	Madhav B. Karki (MBK)	I am not familiar with the term CBO, assume community based organisations? We think our text includes them, and we have also added new content to discuss utilization of existing networks include local/community networks.
62.	33					recognizing the critical of local peoples’ knowledge, institutions, and participation	Madhav B.	We have added new content to

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	34 38					<p>based on well recognized CBNRM principles and practices</p> <p>be explicit by mentioning community and private sector actors</p> <p>actually the CHES better yet combined human, ecological and technological system is necessary to build scenarios and models that will work</p> <p>emphasis on technical/technological and institutional CB</p> <p>7. Create common platform to bring together different knowledge systems , especially ILK community to develop scenarios and models that is applicable to all knowledge systems</p>	Karki (MBK)	discuss utilization of existing networks include local/community networks. Also mechanisms to incorporate TLK and recognition of different knowledge systems. We have attempted to equalize focus across both technical and scenario development/stakeholder/TLK aspects of capacity building.
63.	7.1	1	18	1	27	Text identical to para 7.2 page 2 line 4 till 12	Rob J.J. Hendriks (RJJH)	Rephrased so concept included but not identical.
64.	7.2.1	3	33	3	39	In which way do these differences influence the recognition of the importance and uses of scenarios and models?	Rob J.J. Hendriks (RJJH)	We have expanded/revised section to link between current capacity and how this influences use of and type of scenarios and models used.
65.	7.3.3	7	38	8	13	This section now can be related to the IPBES3 decision on capacity building priorities.	Rob J.J. Hendriks (RJJH)	We have restructured the full chapter to represent the capacity building task force key priorities (that were not available to us for the first order draft).
66.	7.4.1	8	24	8	25	What is meant with this sentence?	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
67.	7.4.1	8	29	8	29	What does 'It' (at the end of the line) refer to?	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
68.	7.4.1	9	4	10	15	It is not very clear what this section is about and what its relevance is.	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
69.	7.4.2	10	21	10	21	What does BM&SD stand for?	Rob J.J. Hendriks (RJJH)	Sentence/section removed.

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70.	7.4.2	10	19	10	25	Hard to follow what is meant here.	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
71.	Table 7.1	11	6	12	1	What is the meaning of the arrows in the second column of this table?	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
72.	7.4.2.	12	2	12	4	What is meant with this sentence?	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
73.	7.5	12	21	17	6	Wouldn't be a lot of the content of this section be better placed in other chapters of this deliverable 3c? It gives the impression of a basic description of data management issues related to scenarios and modelling, whereas the precise capacity building needs seem to be missing.	Rob J.J. Hendriks (RJJH)	Sentence/section removed.
74.	7.6.2	19	14	19	14	What is meant with 'idiot-proof'?	Rob J.J. Hendriks (RJJH)	Text rephrased.
75.	7.6.3	20	30	20	30	What is meant with 'The dialogue of knowledge can form the platform for scenarios and modelling'?	Rob J.J. Hendriks (RJJH)	We mean the dialogue between local and traditional knowledge, modern scientific and management/policy/decision making.
76.	7.7	19	29	27	1	The language in this section is clearer compared to section 7.5, but a precise indication of capacity building needs seems to be missing	Rob J.J. Hendriks (RJJH)	Full restructure of chapter so each section now linked directly with capacity building recommendations
77.	7.8.1	30	5	30	5	What is Fig. 1 referring to?	Rob J.J. Hendriks (RJJH)	There is no figure at this place.
78.	7.9.3	35	Second bullet			Not very clear what is meant here.	Rob J.J. Hendriks (RJJH)	We have rewritten the entire recommendations section to better align with the sections in the chapter.
79.		36	First bullet			It is difficult to follow this passage.	Rob J.J. Hendriks (RJJH)	We have rewritten the entire recommendations section to better align with the sections in the chapter.
80.	7.9.7	37		38		In what sense is this section dealing with capacity building?	Rob J.J. Hendriks (RJJH)	We have rewritten the entire recommendations section to better align with the sections in the chapter.
81.		Gener				Congratulations to the writing team on producing interesting content overall.	Louise	We have rewritten the entire

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		al comment				I think the chapter could be improved if there was guidance on prioritisation of which capacity must be built where.	Gallagher (LG)	recommendations and key messages to better align with the sections in the chapter.
82.		1	20			Key message is ambivalent - is there another key message for what specifically needs to happen to build the capacity more broadly. Facilitate the capacity for one region to support another until capacity is built - south-south knowledge transfers for example?	Louise Gallagher (LG)	We have rewritten the entire recommendations and key messages to better align with the sections in the chapter.
83.	7.3	5	15	7	35	This discussion is missing much on the participation of different groups in society - including sectoral specialists, private sector representatives etc, - in developing scenarios and in validation of the models; and in turn, in the types of social science and other skills that are critical to the process, i.e. bringing people to a table, collating, curating and sharing information, navigating conflicts and trade-offs in different types of knowledge. We suggest a focus on not just capacity to do the science but the capacity to use research that draws on diverse knowledges to inform decision-making.	Louise Gallagher (LG)	We have restructured the chapter and now include sections that address this: '7.4.2 – recognition of interdependence of knowledge systems', '7.4.1 – strategies to mainstream scenarios into sci-policy interface', '7.4.3 mechanisms to include ILK...' etc.
84.	7.3.3.	7	40			I think it's a big oversight that there is no discussion here of mainstream education and the role that universities can play in building these skills. There needs to be an analysis of which university programmes are currently producing the top talent in this field, and where they are located, the schemes under which PhDs and post docs are developing their capacity, etc. and where the gaps are. Which university programmes are the ideal home for this type of training? What would it take to work to mainstream this topic and training in them?	Louise Gallagher (LG)	We now include universities and many other training programmes in a new section (7.2.2) on training to enhance participation in BES M&S
85.	table 7.3	19				We are currently working with system dynamics training and Vensim in Cambodia and our results do not concur with the table here. It's free software and we have nontechnical trainees building their own causal loop diagrams - albeit basic - with the software in half a day.	Louise Gallagher (LG)	We received many comments that did not agree with the published review of different software for BES models, and we have restructured this table 7.3 to provide less subjective information and more relevant categories of information on each software type
86.		25				First and foremost, engaging local people, national experts decision-makers ..etc. in the wireframing of models and in the building of scenarios is a critical part of communication of model results. It seems that much of the Deliverable 3c is missing a trick on participatory modelling and scenario building (and valuation). Second point is that there is little strategy or guidance in this section. Suggest finding a science communications expert to review to provide some basic information on audience identification and multichannel communications approaches. Luc Hoffmann Institute can offer additional review on this point from	Louise Gallagher (LG)	We have moved this section into a new section on participatory approaches, with sections 7.4 and 7.5 specifically on scenario development/policy decision making and on stakeholder engagement respectively. Also new subsection on communication 7.5.2

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						our own Science Communications Manager but not within the 2 March timeframe.		
87.	27	20		20		<p>“At the national scale, most governments recognize the social role of ecosystems and their biodiversity due to their influence on human health and quality of life, apart from their contribution to social and economic development through the supply of essential ecosystem services.”</p> <p>- This statement assumes that governments work as single entities. Perhaps it is true for some experts in the Ministries of Environment etc. but even at that, many national government officials do not work with the concept of ecosystem services, or understand it very deeply. If it was the case, biodiversity conservation would not be the lowest rung on national agendas. Moreover, I think the policy effectiveness question is not just limited to the effectiveness of conservation or environmental policies. Policy effectiveness in the realm of economic, development, infrastructure/land use change, agriculture, water, energy, trade ... policy is also important because of the effect it has on the drivers of biodiversity loss. Therein lies the challenge of mainstreaming science on biodiversity loss and associated risks/impacts, and the policy in areas other than “environment”.</p>	Louise Gallagher (LG)	We agree and thought this was the point we were making here. The point of following sentences is that we are not realigning policy to effectively protect biodiv/env and thus impacts on human well being.
88.	Général comment					Today, computers are powerful instruments of capacity strengthening. Also, strategies of capacity building in the frame of IPBES, and precisely the developments of scenario of models should integrate linguistic aspects so as to take into consideration usages of languages such as French and Spanish, which are the main languages in Central, and West Africa and Latin America respectively. If the language barrier is not uplifted the targeted objectives will not be met. Consequently, we recommend that the reference internet sites be at least trilingual (English, French and Spanish)	Eva Paule Mouzong (EPM)	We have added text on need for language translation.
89.	7.5.6	17	Table 7.2			Table 7.2 : It is advisable to measure, on a more or less long periodicity (e.g.: yearly) the proportion of decisions taken based on the scientific data	Eva Paule Mouzong (EPM)	We are not clear what is meant here. We have provided a time frame for both short and long term strategies.
90.	7.5.6	17	Table 7.2			Insert an activity to measure and evaluate, on a more or less long periodicity (e.g.: 3 years) the proportion of decisions taken based on the scientific data in the colon long term strategies	Eva Paule Mouzong (EPM)	We are not clear what is meant here. We have provided a time frame for both short and long term strategies.
91.	7.6.1	18	Table 7.3			Table 7.3: contains the various types of software maint for the handling of data based on certain indicators/criteria. The method/sample that permitted the classification on the table must be mentioned. Also, some lines are empty, and one does not know whether it is a failure in the data.	Eva Paule Mouzong (EPM)	We have revised this table substantially and now include more columns of relevance to capacity building, and also less

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								subjective criteria.
92.	7	1	-	-	-	A long chapter. I would have liked a section with key messages at the beginning (like there is for Chapter 2). A lot of acronyms are known to the expert reader (BM&SD, RS, GBIF, DB, etc), but might not be by others. Data are alternatively used in the singular and plural forms, the latter being the correct one.	Corinne S. Martin (CSM)	Key messages are now at the beginning. We have removed or defined acronyms.
93.	7	3	21	-	-	Minor point: replace 'England' by 'United Kingdom'? It is an interesting statistic. What would the figure be for USA+Europe+Australia (80%?)?	Corinne S. Martin (CSM)	This is England and not UK, regardless we have deleted reference to individual nations.
94.	7	4	-	-	-	Figure 7.2. Review colour bar for part A (what do the numbers mean? why is the smallest number associated with the darkest colour?).	Corinne S. Martin (CSM)	Colour bar modified to match dataset.
95.	7	5	26	-	-	"Storylines"? please define.	Corinne S. Martin (CSM)	Sentence/section removed.
96.	7	6	1	-	-	Data collation/management/sharing are also key skills, particularly for regional/global scale analyses	Corinne S. Martin (CSM)	We agree and these are discussed in new section specifically on data, information/knowledge (7.3)
97.	7	7	20	-	-	I was expecting the mention of 'citizen-science' somewhere here. Citizen-scientists are an untapped and cost-effective source of local knowledge.	Corinne S. Martin (CSM)	While we do not use the term citizen science, we discuss both TLK and also use of mobile apps for data collection and communication.
98.	7	7	38	8	2	I wonder if other organizations with similar roles could be mentioned, e.g. the European Commission's Joint Research Centre in Ispra (Italy). I am also thinking of International projects such as BioVel (http://www.biovel.eu/) or EU BON (www.eubon.eu), or international programmes such as Nereus (http://www.nereusprogram.org/) or EurOceans (http://www.eur-oceans.eu/?q=node/14869). There is strong modelling expertise in these, including enhancement of human capacity in modelling.	Corinne S. Martin (CSM)	We expand on this training in a new section, though we do not include an exhaustive list of training programmes. We also include software training availability in table 3.
99.	7	9	4	9	37	The message of this section is very unclear. There is a mix of institutions, programmes, projects, MEAs, networks, tools, databases, etc. Could this information be better presented as a table?	Corinne S. Martin (CSM)	Section/sentence removed. We have created new table 4 that summarises types of data platforms across scales.
100	7	9	38	10	15	What does "an understandable decrease of new contracting parties joining the convention has taken place" mean? Can we really talk about "CBD infrastructure"? ("framework" feels more appropriate). Same comment as above: the message of this section could be written more clearly.	Corinne S. Martin (CSM)	Section/sentence removed.
101	7	12	30	12	31	Even if all the data that were ever collected were unlocked and shared, the data	Corinne S.	Section/sentence removed.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						would still present many weaknesses such as spatial gaps, temporal (including seasonal) gaps, taxonomic gaps, etc. These gaps are even more acute in the marine realm (coastal versus deep waters). See section 4 of http://wcmc.io/MarineDataManual (main text), which discusses the various challenges, gaps and limitations which can be presented by coastal and marine data, including a wealth of references.	Martin (CSM)	
102	7	13	3	13	5	I would also cite Tittensor, D.P. et al. (2014) A mid-term analysis of progress toward international biodiversity targets. Science 25 346: 241-244.	Corinne S. Martin (CSM)	While the Tittensor ‘Science’ reference is another potential citation to include here, due to space restrictions, we opted to use only the direct reference to CBD assessment reports.
103	7	13	29	13	31	I would also cite OBIS for the marine realm (Intergovernmental Oceanographic Commission (IOC) of UNESCO (2014) Ocean Biogeographic Information System (OBIS). www.iobis.org). And possibly the Ocean Data Viewer (http://data.unep-wcmc.org) as it distributes key global layers on the distribution of habitats (seagrass, coral, mangrove), and other datasets of biodiversity importance.	Corinne S. Martin (CSM)	OBIS is included in new table 7.4
104	7	16	11	16	34	The message in this section is a little unclear. No mention of data licensing (not all data are “open data”, which makes it difficult to share on Web-based platforms). No mention of the particular case of oceans (where data gaps are numerous and of various nature), nor modelling (to fill the spatial data gaps).	Corinne S. Martin (CSM)	Prior section turned into a new table which includes open access. This section has been moved and rephrased in a section on collaboration and interoperability of datasets. Oceans are included as OBIS, MarineBio, FishBase etc
105	7	17	16	18	17	Section 7.6.1: what about models used to fill the spatial gaps in biodiversity knowledge? E.g. AquaMaps, Maxent, Sea Around Us Project algorithm have been used to predict spatial distributions of a number of species (e.g. fish, invertebrates). A good reference: Franklin J (2009) Mapping Species Distributions; Spatial Inference and Prediction. In: Cambridge University Press. Cambridge, p Part IV. I am making this comment because maps of ecosystems are seen as useful later on in the chapter (p. 33, first paragraph)	Corinne S. Martin (CSM)	Out of scope of this chapter – This is covered in Chapter 4, specifically in section 4.3.1.2 on species distribution models.
106	7	1	22			Change “Millennium Ecosystem Assessments (MEAs)” (specific) to “assessments” (general).	Thomas Brooks (TB)	Changed to ‘global assessments’.
107	7	1	13	1	31	Brooks et al. (2014) TREE explored the strategic rationale for why support to capacity building is so important for IPBES, and might be a useful citation here, if I may be so bold.	Thomas Brooks (TB)	We included this citation in the final revision.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
108	7	3	21			“England”? – or “UK”?	Thomas Brooks (TB)	As above.
109	7	3	24	3	25	“FRB 2013” is missing from the reference list, but this statement surprises me. I would have thought that even though the absolute number of terrestrial decision-making processes is much higher, the proportion informed by scenarios and models in marine and freshwater environments would have been higher. But if the FRB citation presents evidence to the contrary, so be it.	Thomas Brooks (TB)	Citation added. I cannot read French but presume the information is presented in this citation as provided by an LA.
110	7	4	2	4	3	Evidence and citation for this?	Thomas Brooks (TB)	Citations are included in the final version of the chapter as appropriate.
111	7	5	21	5	26	An excellent quantitative analysis of varying capacity among countries for BES work is Rodrigues et al. (2010) BioScience – useful to add a citation to this.	Thomas Brooks (TB)	We have included this citation in the final revision.
112	7	8	7			Add a sentence regarding Red List training, along the lines of “The IUCN Species Survival Commission provides extensive capacity-building support for application of the Red List categories and criteria (http://www.iucnredlist.org/technical-documents/red-list-training), including a full online training course (https://www.conservationtraining.org/mod/page/view.php?id=3756&lang=en).	Thomas Brooks (TB)	We have expanded on training programmes in a new section, though we have not provided an exhaustive list. We do now include the IUCN Red List training.
113	7	8	28	8	33	I agree with the potential excitement about the contribution of citizen science to data generation for BES. However, despite the emergence of excellent platforms like eBird and iNaturalist, there are still very few examples of these data being harnessed into mechanisms to inform BES models and scenarios, let alone decision-making. I recommend adding a sentence of caution and caveat on this.	Thomas Brooks (TB)	We have substantially reduced content on e-tools.
114	7.	8	39			“Aichi”	Thomas Brooks (TB)	Error corrected (and section now removed regardless).
115	7.	9	4	9	8	I don’t understand this paragraph. The long list here seems to mix a range of conventions, institutions, and models all together. Clarify or delete.	Thomas Brooks (TB)	Section turned into new Table 7.4 which summarises types of data platforms across scales.
116	7.	9	14	9	36	I would delete this list. These kind of lists inevitably cause problems of “who is in, who is out”, and this one cannot hope to be comprehensive. It’s not even clear what it’s a list of!	Thomas Brooks (TB)	Section turned into new Table 7.4 which summarises types of data platforms across scales.
117	7.	10	2	10	8	Worth citing Hjarding et al. (2014) Oryx as an excellent example of application of GBIF data, and caveats to this.	Thomas Brooks (TB)	Section removed.
118	7.	10	8			It would be useful to add a sentence here along the lines of “The IUCN Red List of Threatened Species has undergone similar growth in assessment of species extinction risk over the last decade.” and to add a second panel to Fig 7.3 documenting this, from http://www.iucnredlist.org/about/summary-	Thomas Brooks (TB)	Not included due to space requirements.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						statistics#Expanding_Red_List.		
119	7.	10	22	10	23	This sentence does not seem to make sense.	Thomas Brooks (TB)	Sentence/Section removed.
120	7.	11				In Table 7.1, under cell for “Modelling current state of biodiversity...” and “Tasks...”, add “Red Lists, KBAs”	Thomas Brooks (TB)	Sentence/Section removed.
121	7.	12	28			Delete “and ecosystem” (ecosystems are part of biodiversity); or alternatively add “services” if this is what was intended.	Thomas Brooks (TB)	Sentence/Section removed.
122	7.	13	4			On achievement of the 2010 target or lack thereof, add a clause reading “...although the rate of loss was significantly reduced to relative to backcast counterfactual of biodiversity loss in the absence of existing conservation efforts (Hoffmann et al. 2010 Science),...”.	Thomas Brooks (TB)	Sentence rephrased.
123	7.	13	9	13	11	We explored the rationale for the importance of IPBES support for knowledge generation in Brooks et al. (2014) TREE, maybe worth citing here.	Thomas Brooks (TB)	We have included this citation in the final revision.
124	7.	13	29	13	31	Add reference to “IUCN Red List of Threatened Species (IUCN 2015)”; the citation is http://www.iucnredlist.org .	Thomas Brooks (TB)	We have included reference to the IUCN Red List in the final version.
125	7.	13	29	13	31	Add reference to “Key Biodiversity Areas, through the Integrated Biodiversity Assessment Tool (IBAT 2015)”; the citation is https://www.ibat-alliance.org/ibat-conservation/login .	Thomas Brooks (TB)	We have included this citation in the final version.
126	7.	15	4			Delete “and ecosystem” (ecosystems are part of biodiversity); or alternatively add “services” if this is what was intended.	Thomas Brooks (TB)	Sentence rephrased/section restructured.
127	7.	15	34	15	37	This section could be strengthened with discussion of Creative Commons licensing, to clarify that “open access” comes in many varieties. For instance, many institutions make data available open access for non-commercial use, but establish data licensing policies for commercial use, to strengthen data quality and currency. It would also be worth mentioning that the emergence of web services has removed some of the long-standing challenges with parasitic reposting and redistribution of data, because users can now consume APIs and thus retain currency and attribution back to the original data source. (This comment is also relevant to Section 8.1.3.2.)	Thomas Brooks (TB)	We have moved this text into Table 7.5, and opted for a generic bullet of ‘open access to data and software’. We also discuss accessibility and open source software in table 7.3
128	7.	18	4			To the end of this sentence add “...and the IUCN Red List categories and criteria; and tools to make these available such as the Integrated Biodiversity Assessment Tool.”	Thomas Brooks (TB)	Sentence removed.
129	7.	18	6	18	17	This paragraph (and Table 7.3) appears to be wholly about ecosystem services models and tools, so this should be stated in the first sentence. The text and the table should be consistent with Chapter 5, e.g., some key tools are missing from	Thomas Brooks (TB)	Section restructured and overlap with Chapters 4 and 5 have been minimized in the final chapter

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						Table 7.3 such as TESSA (Peh et al. 2013 Ecosystem Services).		version. In Chapter 7, this table is not meant to be directly overlapping with models and softwares included in other chapters, nor it is meant to be an exhaustive list of tools, thus we have opted not included TESSA (primarily as we had difficulty finding information we needed to fill out the table at the time of writing the second draft – we do recognize that the TESSA website has since been substantially updated). Regardless, the point of the table is to illustrate a range of tools and their usability and accessibility.
130	7.	19	22	19	23	Add “IUCN Red List training (http://www.iucnredlist.org/technical-documents/red-list-training)”.	Thomas Brooks (TB)	As previous, we have done a new training programme section, but are not including an exhaustive list. We do include the IUCN Red List training.
131	7.	27	20			Delete “ecosystems and” – ecosystems are part of biodiversity.	Thomas Brooks (TB)	To maintain consistency with all chapters in the Deliverable, and with IPBES which clearly identifies both Biodiversity and Ecosystem services we retain Biodiversity and Ecosystem as separate terms in this context.
132	7.	29	4			“it is vital” – what is the evidence for this statement? I think that this is an overstatement: lots of policies are driven to great effect by BES models and scenarios, without these other components. Change the text to “it can be valuable”.	Thomas Brooks (TB)	Sentence rephrased.
133	7.	32				Page numbers appear to have died, making it very hard to comment effectively on the remainder of this Chapter.	Thomas Brooks (TB)	n/a
134	7.	32	4			Change “ecosystems and their” to “biodiversity and its”.	Thomas Brooks (TB)	To maintain consistency with all chapters in the Deliverable, and with IPBES which clearly identifies both Biodiversity and Ecosystem we retain

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								'ecosystems and their services' rather than replace Ecosystems with Biodiversity.
135	7.	32				Section 7.8.2, third line, delete "and ecosystems" – ecosystems are part of biodiversity.	Thomas Brooks (TB)	Section/sentence removed.
136	7.	32				Section 7.8.2, tenth line, change "ecosystems play" to "biodiversity plays".	Thomas Brooks (TB)	Section/sentence removed.
137	7.	32				Section 7.8.2, eleventh line, change "Ecosystem Assessments" to "Assessments of biodiversity and ecosystem services".	Thomas Brooks (TB)	Section/sentence removed.
138	7.	33	1			Change "ecosystems and their" to "biodiversity and its".	Thomas Brooks (TB)	Section/sentence removed.
139		Overall Comments				Using the instruction provided to reviewers, the intention at this time is to: "...obtain early feedback on whether, in the opinion of expert reviewers, the chapters of the report are heading in the right overall direction.". Using the description provided in Chapter 1, Section 1.3, an expectation is created that Chapter 7: " <i>addresses the challenge of "building capacity for developing, interpreting and using scenarios and models" by proposing practical strategies that account for regional and cultural diversity in perspectives on, and capacity for, scenario analysis and modelling.</i> " The current draft Chapter 7 provides glimpses of the critical role capacity building could contribute in this regard; however the chapter as currently drafted suffers from a lack of coherence and wanders off the main objective in ways that are distracting, add little value, and fail to concentrate on the elements of capacity building. The fundamental question posed to the reviewers is whether the draft chapter is heading in the right overall direction. I believe it starts out well, flounders at times, and ends disappointingly by not proposing practical strategies for scenario and modelling capacity building for BES. As this is an overview at this time, I did not comment on a line by line basis, but provide specific comments in the below table. It needs significant editing in terms of consistency of voice and basic grammatical structure.	Monika G MacDevette (MM)	We have substantially restructured this entire chapter, reduced much of the material that was unnecessary, and rewritten all sections with poor grammar.
140		6	23	6	34	This whole paragraph is out of place and does not directly speak to the sub-heading with respect for decision making. It strays into the realm of describing a communication strategy and subjective do's and don'ts of communicating.	Monika G MacDevette (MM)	This paragraph has been removed.
141		7	38	8	13	This section is very weak and superficial.	Monika G MacDevette (MM)	This section has been revised and updated (new section 7.2.2)
142		8	18	8	20	This message is not clear at all.	Monika G MacDevette	This key message is now integrated into more general

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
							e (MM)	messages/recommendations to take advantage of modern technology in addressing capacity building for BES models and scenarios.
143		8	22	10	15	This entire section does not add value nor do justice to the topic of institutional infrastructure as it pertains to IPBES. I think it needs to be thrown out in its entirety. I really don't know what the authors are trying to convey in this sub-heading.	Monika G MacDevette (MM)	Most of this section has been removed, though we have included infrastructure within sections on networking and training, and support of data platforms as relevant.
144		10	17	12	10	This entire section needs a re-write; it is far too fragmented and incoherent to make much sense of, or add value to the overall chapter.	Monika G MacDevette (MM)	As per comment 5.
145		12	21	12	25	I strongly suggest the authors use a commonly accepted and referenced definition for "data" in the context of IPBES.	Monika G MacDevette (MM)	Data was suggested for inclusion in the Deliverable 'glossary'.
146		12	30	13	2	With respect, there is more to biodiversity related data than GBIF! This paragraph is narrow and does not set the scene for the importance of quality data for scenario generation and modelling.	Monika G MacDevette (MM)	This section has been mostly deleted, with new revision including reference to a number of data platforms and datasets available at a range of scales.
147		13	36	13	37	The opening sections of this chapter highlight why developing countries lack the capacity for scenario and modelling - largely on the basis of data factors - and many biodiversity rich countries fall into the category of developing countries. Hence, it is not a paradox.	Monika G MacDevette (MM)	We agree. This sentence has been moved to the opening section of the chapter and rephrased.
148		14	6	14	25	Of what relevance is this to the Chapter and to IPBES? It is not presented in any context of relevance to capacity building.	Monika G MacDevette (MM)	This section has been moved to new section 7.3.1 where it is placed in context of capacity building requirements for dataset accessibility and management.
149		14	28	15	6	Nothing in this paragraph addresses the question posed in the sub-heading.	Monika G MacDevette (MM)	This paragraph has been removed.
150		16	32	16	34	I do not have a clue what these lines are attempting to convey.	Monika G MacDevette (MM)	This sentence has been removed.
151		16	40	17	1	GIS is not the topic of this chapter, nor the panacea to scenario and modelling of BES.	Monika G MacDevette (MM)	This sentence has been rephrased and placed in the context of geospatial dataset requirements for supporting BES models and

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								scenarios.
152		17		17		Table 7.2 The table contains interesting information however, the narrative needs to place it in the context of the gaps identified in the previous section. The two sections are not in synch with each other.	Monika G MacDevette (MM)	These sections have been substantially revised and placed in context of data management gaps as suggested.
153		18		18		Table 7.3 What is the source of this comparison? Or is it the authors' subjective assessment?	Monika G MacDevette (MM)	While the information in this table was based on a publication, we have revised it substantially to appear less subjective, and provide context relevant to decision makers investigating potential tools and how they fit within capacity of that institution/nation.
154		19	14	19	14	“..idiot-proof” Unacceptable language in an IPBES or any other professional publication!	Monika G MacDevette (MM)	Text replaced with “Metadata associated with models should be written following international standards, fully illustrated and intelligible by both specialists and non-specialists.”
155		31		31		Table 7.6 One of the most difficult aspects of capacity building is to know whether or not capacity has been built and sustained for the purpose intended. I would suggest that instead of objectives, the table be reconfigured to align with results or outcomes to be achieved, and an indicator of success. This would describe a future with enhanced capacity, that would exist - that does not currently exist - as a result of specific interventions/actions.	Monika G MacDevette (MM)	This table has been moved to the opening section and the chapter structure realigned and substantially revised to better show interventions to achieve particular aspects of relevant capacity building.
156		32		33		<i>(The line numbering stopped so I refer to page numbers and sections from now on.)</i> Section 7.8.2 This entire section would benefit immensely with references otherwise, it is assertion and conjecture on the part of the author.	Monika G MacDevette (MM)	This section is no longer included in the chapter, and relevant concepts have been incorporated into other sections as relevant.
157		34		34		Section 7.9.1 Bullet point 2 - I do not know what is meant in this point.	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
158		35		35		Second bullet point, top of page 35: Then it follows that this could be a priority for capacity building.	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
159		35		36		Section 7.9.3: This entire section appears to be a long list of brainstorming points from a workshop. It needs to be analyzed and integrated into some useful arrangement of recommendations specific to the objectives set forth for this chapter.	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
160		36		36		Section 7.9.4: ??? This adds no real value. It appears the author is trying to describe or promote the use of case studies of success stories?	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
161		36		36		Section 7.9.5: This section does not offer anything new for the subject at hand.	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
162		37		37		Third bullet point: I do not know what is being recommended here??	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
163		37		37		Fifth bullet point: Why is this a condition? I.e. The generation of knowledge must differ.....??	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter.
164		37		38		Section 7.9.7: This section is a mixture of very general, and well-known recommendations, needs, and design principles. It offers very little in terms of innovation for BES or the value-added that scenarios and modelling can bring to the policy sphere. The title for this chapter is Capacity building for developing, interpreting and using scenarios and models. Nothing in this final section on recommendations even addresses capacity building.	Monika G MacDevette (MM)	The recommendations section has been fully rewritten to better correlate with the prior text in the chapter, and link to key messages and key recommendations of this chapter.
165		1	35	1	40	Components of capacity should include the context in which it develops. Cultural issues are important to consider in that sense.	Elsa Galarza (EG)	While the word 'cultural' is not used in the UNDP definition of capacity building, the context of 'cultural' content is implicit in this definition, eg including values, processes, systems, structures.
166		2	10	2	13	Capacity building and scenario analysis also need effectively communication skills.	Elsa Galarza (EG)	We agree. We used different language to convey this ('public' awareness' as well as more generally 'meaningful engagement with multiple stakeholders') and this language continues in the second order

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								draft, as well as further text specifically on communication eg section 7.5.2 with the major restructure that highlights capacity for stakeholder engagement and communication strategies
167		3	6	3	10	There is a dependance on external organizations for financial resources, and also very limited resources can be found for financing equipment needed to get data. More is available for technical assistance.	Elsa Galarza (EG)	We agree and have kept this sentence, making sure it is used in context of capacity building, and also put more emphasis in the large restructure on networks and on training needs.
168		3	28	3	30	Integrated ecosystem services and holistic models still a complex issue for developing countries.	Elsa Galarza (EG)	We agree and the capacity building chapter is meant to determine gaps that need to be addressed (both in developed and developing countries). In the restructure, we now have a subsection on 'Developing capacity for effective communication of the importance of biodiversity and ecosystem services'.
169		5	28	6	9	When we talk about scenarios developing and modelling is not clear the process involved. At this point it is well mentioned the process: data, model development, etc. I think this can be set at the beginning of the document for more clarity.	Elsa Galarza (EG)	This section has been removed and content integrated into opening section as relevant.
170		7	23	7	23	The differences across regions are mainly in the availability of data. Get the data usually need financial resources that are not available for developing countries.	Elsa Galarza (EG)	In the second order draft, we have been more specific about different approaches to resource BES models and scenario capacity.
171		Overa II Comments				Find the structure of the chapter long and kind of dense. My recomendation is to organized considering the process of develop and model scenarios (see comment 5) 7.1 Introduction 7.5 Improving regional and national access to data sets 7.4 infrastructure to support BES modelling and scenario analysis (include 7.7. Developing flexible and effective methods for incorporatind local data and knowledge) 7.6 Improving access to user friendly software 7.8 Developing effective strategies and methods ...	Elsa Galarza (EG)	We have substantially revised the chapter structure, now with sections on capacity to 1. Participate in BES M&S; 2. Data, info, knowledge; 3. Policy and decision making; 4. Stakeholder engagement. Infrastructure and human skills are thus integrated throughout as relevant to key capacities. These

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						7.9 Consolidation, strategy recommendations This two can be included as a cross section issues 7.2 Undersatanding regional an cultural diferrences (cross section) 7.3 capacity to enhance human resources and skill base cross section)		sections better reflect companion IPBES deliverables, particularly Task Force on Capacity Building.
172		Througout				There is inconsistent use of MEA and MA for the Millennium Ecosystem Assessment – and at some points the use of MEAs to refer, I think, to Sub-Global Assessments – MEAs might usefully be abbreviated as SGAs, I think, and reference made to the SGA network in section 7.3.3 especially where reference is made to the UNEP-WCMC activities. I think the SGA term is more relevant given that the focus of the chapter is on regional, sub-regional and national scales (page 42, line 31)	Roy Haines-Young (RHY)	We have made consistent the use of MEA instead of MA, and refer to SGAs as relevant when using particular examples of capacity building/training.
173		42	21			I think this should be the UK and not England – there’s considerable work in Wales, and Scotland!	Roy Haines-Young (RHY)	This was actually ‘England’ as the dataset we used separated out different countries within the UK and we had specific data also for Wales, Ireland, Scotland. Regardless, we have removed the references to top countries in this sentence as it did not add value.
174		Througout , and especially section 7.3.1.3, page 6	36	7	20	I do not think the Chapter makes a sufficiently clear distinction between scenarios as a ‘process’ and scenarios as a ‘product’. Hence the chapter rather fails to describe the full range of capacities needed to use scenarios effectively in decision making. I read this document in conjunction with the first order draft of Chapter 1, which also rather blurs the distinction in that it only stresses the difference between explorative and intervention type scenarios (Chapter 1 page 9, lines 1-7). While Chapter 1 goes on to highlight the need for participatory scenarios (Chapter 1, page 14, lines 16-20) the social learning dimension of scenario application is glossed over. These problems therefore seem to carry over into Chapter 7. Both types of scenario (explorative and intervention) are implicitly seen/presented as model based, i.e. products of a scenario building, whereas there are many instances where participatory scenarios are used to facilitate deliberative processes and hence achieve social learning. In other words, the process is as important or more important that the outcomes (products). The scenario experience (especially built around conceptual, qualitative scenarios) can also help shape visions, identify conflicts between stakeholders and achieve shared understandings etc.. The term social learning is only mentioned once in the chapter – in the context of Table 7.1, but not developed. Similarly while material such as that on page 26, e.g. lines 8-15 stress the importance of cross-cultural learning, for example, the capacities needed to foster such outcomes are rather lost in the chapter as a whole	Roy Haines-Young (RHY)	For all chapters, authors have attempted to be clear on the distinction between models and scenarios, and also a glossary is being prepared. Much of this distinction is supposed to be in revisions of eg Chapter 1 and Chapter 2 (new – was previously Ch 6) on decision-making context. In the new restructure, our revised section 7.4 “Integrating scenarios and models into policy and decision making” that puts far more emphasis on scenario building, and we have reduced the technical capacity building sections substantially. We begin section 7.4 with a list of types of people required including softer sciences, and we also reiterate

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						<p>that seems to focus on the capacities for model building.</p> <p>I acknowledge that section 7.3.1.3 (Page 6 lone 36) does refer to participatory methods, but this section presents it in terms of a rather linear process – the nature of stakeholder engagement, and especially the different types of engagement need to be unpacked to be really helpful - otherwise the more deliberative skills and capacities needed for effective scenario use are rather undersold.</p> <p>In short there needs to be a proper section on scenarios and deliberative processes and the capacities that are needed to foster their application in this context. For example the list of types of people to be involved – pages5-6 does not include anyone from the softer sciences.</p>		this broad inclusion of types of people elsewhere in the chapter.
175		12	21	12	21	I don't understand the specific reference to 250 years – makes no sense to me.	Roy Haines-Young (RHY)	This text has been removed.
176		28	13	28	19	<p>The text might usefully reference the UN NEA follow-on work that explicitly made this distinction and applied it in the work undertaken; see: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx</p>	Roy Haines-Young (RHY)	We add reference instead to Haines-Young et al 2014 in this section.
177		11 exp. Table 7.1	1	12	10	<p>Given my reading of Chapter 1, I would not say that the matrix 7.1 ‘resonates well’ with the vision of IPBES. It is presented as a rather linear representation of practice, and I would suggest we have long ago accepted that the process of modelling and scenario building cannot simply involve ‘submission of results to decision makers’ (cell 4); moreover I would also suggest that the word ‘prediction’ is inappropriate in Cell 5. ‘Projection’ is better.</p> <p>I am not sure what the origin of this matrix is – but the rationale for it is not explained and it is therefore rather obscure.</p>	Roy Haines-Young (RHY)	This table has been removed.
178		Page 12, Section 7.5.1, and page 32, section 7.8.2 Page 34, section 7.9.2				<p>There were some sections – where the relevance to scenario building was lost – a closer link to scenario issues is needed. For example, despite the fact that the title of 7.5.1 has the title ‘What are data and why they are important for scenarios and modelling?’ there is no real explanation about their role, and the relevance of ‘data’ to the capacities needed to build scenarios is not really explored – for example the word scenario is not used once on page 16. The distinction between data and information would be a useful one to make – scenarios are tools that can turn data into information.... etc.</p> <p>Similarly in section 7.8.2, while ‘levels of action’ are identified as part of establishing needs, the role of scenarios in the work described there is poorly described.</p> <p>Finally, section 7.9.2 seems to be so general that its relevance here is hard to see.</p>	Roy Haines-Young (RHY)	In the substantial restructure, we believe we have contextualized the relevance of data for BES scenarios and models. The new version however has possibly under-emphasised the role of ‘information’ and ‘knowledge’ in BES scenarios, as much of this is discussed outside of the more technical data management section. All key recommendations including section 7.9.2 have been revised.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
179		32	Figure 7.7			This diagram rather misrepresents the desired relationship between policy makers and scientific community in that the across only go from the scientific community to decision makers – rather than being two way. Again maybe it is the fact that the rationale for it is not explained – but given that it is an adaptation from another source, then the suggested modifications should be highlighted.	Roy Haines-Young (RHY)	This figure has been moved to a different section, and rationale better explained in text. Also – in the figure, all arrows are now fixed with both directions from scientific community to policy makers.
180		Throughout				There are a number of places where the chapter makes assertions that are not really backed up by evidence. For example references are needed at: <ul style="list-style-type: none"> • page 3, lines 32-39 • page 7 lines 14-21 • page 7, lines 25-27 • page 19, lines 4-12 • page 30, lines 1-15 • sections 7.8.2 and 7.9.1 • section 7.9.4 – where are these examples 	Roy Haines-Young (RHY)	The chapter has been substantially restructured, and many of these sections have either been removed, or put in context of relevant references.
181		27	6	29	15	The section on mainstreaming ought to describe what ‘mainstreaming’ actually involves and how we would recognise success. It starts with a repetition of ideas covered earlier in the chapter, about the nature of scenarios, but says very little about the kinds of steps needed to achieve mainstreaming and how this relates to capacity. In fact it seems to drift off into a discussion of the relationship between models and scenarios, and prototype BES scenario, which it is claimed, are necessary for mainstreaming, without explaining how or where or in what contexts etc. In fact I would suggest this section is not about mainstreaming at all. Think again about its purpose and focus? This section and especially table 7.6 are more recommendations than anything else.	Roy Haines-Young (RHY)	We have restructured and have a new section 7.4 on integrating scenarios and models into policy and decision making that includes a set of steps (new page 21) for scenario development. Table 7.6 has been moved to the opening section to present direct actions and entry points for capacity building.
182		32, Section 7.8.2	No line numbers given			This section is about needs, and therefore it seems to me that it needed to be closer to the start of the chapter – because these needs seem to define the areas where different types of capacity need to be built. The role of models and scenarios in each of the areas of work identified on page 32 should be explained, and the barriers to progress in terms of lack of capacity or training needs can then be explored.	Roy Haines-Young (RHY)	We have removed this section, and integrated concepts from it into the opening and other relevant chapter sections.
183		36, section 7.9.2, and throughout	No line numbers given	37		The chapter quite rightly stresses the role of traditional knowledge and the importance of including such knowledges in scenario building and hence decision making. This needs to be retained. However, I think it would be useful to ‘local knowledge’ in developed societies (and lack of it!) is something that has to be coped with, and capacities need to be built, and taken account of, here too.	Roy Haines-Young (RHY)	We try to carefully use ‘local and traditional knowledge’ as the terminology which thus includes ‘local knowledge in developed societies.’
184		8	28	9	37	Section 7.4.1 is hard to decode. Clearly some of the text is in a rough form, but	Roy	This section has been completely

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						there are sentences that are hard to understand – e.g. “Together the numerous international agreements incorporating biodiversity and ecosystem services function as a complex mechanism, and in which modern mobiles’ applications act as new gearwheel.” Some careful editing needed here. I am not certain what the relevance to scenario capacity needs is at all clear here; see comments at 7, above.	Haines-Young (RHY)	rewritten and edited for grammar and sentence structure, and much of this content actually removed from the second order draft.
185		1	9	1	11	The key message as currently drafted is very bland and needs to be sharpened. To say ‘similarities and differences currently exist’ negates any sense of a real conclusion from the chapter and offers little incentive to policymakers to delve further into the chapter.	Tim Hirsch (TH)	Key messages and recommendations have been completely rewritten.
186		1	19	1	20	The meaning of ‘infrastructure’ in this sentence is unclear.	Tim Hirsch (TH)	We use infrastructure as a general term in this introduction (as we do other terms such as human resources) that we explain in context of different capacity building themes later in the chapter.
187		1	22	1	22	The use of Millennium Ecosystem Assessments here sounds oddly specific – presumably this refers more generically to assessments, or at least SGAs in which case it needs to be spelled out.	Tim Hirsch (TH)	We now refer to ‘global assessments’. We were aiming for a more general reference to large scale assessments and their associated data.
188		2	4	2	12	This passage would benefit from rewording to make a clearer distinction between technical and human capacity	Tim Hirsch (TH)	We have rephrased or removed much of this text. In line with the Capacity Building task force key capacity building aspects, we have separated technical from human aspects of capacity.
189		2	13	2	13	Figure 7.1: In the ‘Data requirements’ box an important missing element is capacity for data mobilization – which encompasses best practices in building networks of data-holding institutions through stakeholder engagement, incentives for data sharing, promotion of common standards and tools for data capture and publication etc. Additionally, the boxes on Models and Scenario Analysis do not really seem to describe capacity building requirements but simply define the activities.	Tim Hirsch (TH)	We have redesigned this figure to match the Capacity Building Task Force (key aspects of capacity building) and restructured the chapter according to these. In data requirements, we did not add networks, rather we concentrated bullets on ‘processes’ – networks feed into most of these. The text on data, information and knowledge goes into more detail on networks for data sharing etc.
190		2	19	2	26	Once again, use of the phrase ‘similarities and differences’ seems odd here – especially as the remainder of the paragraph refers only to the differences.	Tim Hirsch (TH)	We disagree – we concentrate on differences between regions

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								while at the same time showing similarities for example between many regions in lack of capacity for some aspects of BES models and scenarios.
191		2	24	2	24	Suggest deleting 'environmental' – should refer to all decision making	Tim Hirsch (TH)	Sentence has been removed.
192		3	21	3	21	Should this be UK rather than England?	Tim Hirsch (TH)	As per earlier comment, yes this is actually England rather than the UK, but removed reference to individual nations regardless.
193		3	41	3	41	'new innovations' is tautological	Tim Hirsch (TH)	This was removed after the second draft.
194		4	15	4	19	There is inconsistency in the placing of these 'key messages' – the first appears to refer to the whole chapter, there is no key message for 7.2 but a key message for 7.3	Tim Hirsch (TH)	Key messages and recommendations have been fully revised.
195		6	13	6	32	This paragraph does not really relate to capacity and I suspect will be repeating information already contained in other chapters.	Tim Hirsch (TH)	In the complete restructure, human capacity now is integrated across different capacity building themes (participation, data exchange, engagement, decision-making)
196		6	23	6	24	This whole section only makes very fleeting reference to capacity issues (on communication expertise). I would suggest considerable strengthening by pinpointing the capacity required to achieve each of the functions described in this paragraph.	Tim Hirsch (TH)	Communication is now more developed in a new subsection (7.5.2)
197		6	38	7	21	The same comment as for the previous section – this simply describes the process of conducting scenarios but does not provide information on the human resources required, which is what the title promises.	Tim Hirsch (TH)	Participatory approaches have been more developed in a new subsection 7.5.1
198		7	25	7	34	This section seems too superficial, using inexact terms such as 'mainly' and 'many' where one would expect considerably more detail and/or precision in an IPBES assessment.	Tim Hirsch (TH)	While we thought we had given specific examples in the first order draft, regardless this paragraph has been removed from the second order draft.
199		7	38	8	13	This section seems quite superficial and relies much too strongly on a single institution. It starts by referring to 'many global programs' but does not give a good sense of where they are. Shouldn't the SGA network be referenced here? Suggest substantial strengthening of the section.	Tim Hirsch (TH)	Training programmes are more developed in a new subsection 7.2.2. We also include the SGA network in this new subsection.
200		8	23	8	24	The first sentence of this section is quite incoherent in its listing of the Aichi Targets and fairly random reference to GBIO – not at all clear what the meaning is here and how it relates to capacity. The heart of the problem may be the	Tim Hirsch (TH)	This section has been removed. While GBIO is still referred to in a new table 7.4, further reference

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						ambiguous use of the word 'infrastructure' here and elsewhere in the chapter. Also please note that GBIO is referenced twice in the bibliography and only the second reference (2013) is correct.		to GBIO 2012 in the text has been removed.
201		8	28	10	15	This entire section is seriously confused, mixing a wide range of barely connected issues, including a long list of initiatives and organizations with no real context, and needs a complete rethink. The caption to the GBIF data records charts is also bizarre. When it comes to a later stage I would be happy to offer advice as to how some of these elements could be connected – if that is permissible under IPBES procedures.	Tim Hirsch (TH)	This section has been substantially revised particularly for grammar and relevance to capacity building. This GBIF figure has been removed.
202		10	19	11	10	The explanation of the matrix needs to be much clearer as its significance is very opaque as currently worded	Tim Hirsch (TH)	The matrix table has been removed.
203		12	21	13	14	This section also needs a lot of sharpening up, as the connection between data mobilization, biodiversity targets and modeling/scenario is not at all clear.	Tim Hirsch (TH)	This section has been removed.
204		13	30	13	33	The figures relating to GBIF are expressed wrongly – there are 500 million species occurrence records (about 80% of which are georeferenced), and I am unaware of what the 50 million figure is supposed to refer to. A lot of general tidying up needed in this paragraph.	Tim Hirsch (TH)	Caption updated as suggested in the final draft. The final figure will be vetted by GBIF, provided the most up to date information and caption.
205		14	4	14	4	The URL is wrong (should be occurrence)	Tim Hirsch (TH)	The URL was updated in the final version.
206		14	6	16	34	While there are many valid points within this section, it misses certain critical points, e.g. the successes of many developing countries e.g. S Africa, Colombia, Brazil, China, Costa Rica, Mexico in building highly successful data mobilization and integration networks, through global and regional collaboration; and perhaps most critically in the context of this chapter, the role of capacity building in the the development of national data mobilization networks, e.g. through GBIF nodes. To present GBIF as essentially a developed country initiative is a serious misrepresentation. Many of the references are outdated and do not reflect important recent advances in this area, including on data quality and good collaboration between networks and initiatives.	Tim Hirsch (TH)	We have substantially revised text in this section, and created a new Table 7.4 to highlight many data hosting platforms of relevance to BES models and scenarios. We haven't added additional text to specify particular nations with strong GBIF mobilization, as we were also trying to reduce the focus on technical aspects of capacity building in this chapter.
207		18	20	19	17	This section would benefit from a stronger emphasis on capacity issues.	Tim Hirsch (TH)	We have created new sections both on training 7.2.2 and on utilizing existing networks 7.2.3.
208		19	20	19	27	This section is much too vague and needs specific references.	Tim Hirsch (TH)	We have developed more content on training in section 7.2.2.
209		21	7	24	24	It is difficult to judge without seeing the other chapters, but I suspect much of this will repeat issues covered elsewhere in relation to traditional knowledge, and the focus should be much more building capacity to incorporate TK, rather than	Tim Hirsch (TH)	We have reduced and combined much of the TK section, and focused not on TK itself, but on

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						describing the mechanisms of doing so.		building capacity to incorporate TK.
210		25	3	25	37	While this section does tackle the relevant issues, it lacks specificity and references. The mention of GEO BON at the end seems misplaced – it would be much more logical to incorporate into a reworked section on data and observations earlier.	Tim Hirsch (TH)	We have revised the TK section and split across both 7.4 and 7.5. In section 7.5 we address a separate subsection on TK networks.
211		27	8	30	15	Much of the earlier content of this section seems to deal with general issues around model/scenario building and it takes a long time to get to capacity-related issues	Tim Hirsch (TH)	We have revised this section to directly discuss steps in scenario development and entry points relevant to capacity building.
212		34		38		This final section with recommendations is entirely unsourced and needs much more specific support for its conclusions. As stated they appear to be assertions that have little solid backup from the earlier parts of the chapter.	Tim Hirsch (TH)	Key messages and recommendations have been fully rewritten to iterate context of the earlier sections in the chapter.
213						Generally there is a lot of material that isn't directly about scenarios or models. For example, I'm sure there will be more generally material about incorporating different knowledge systems in ES assessments, so does there need to be so much about that here? Could you refer to it instead elsewhere? Same thing for data needs and management. It would be useful if it was specific to scenarios or models, but it's generally not. It would be helpful sometimes to recap or summarize useful information that is directly relevant to the scenario or modeling approach, but otherwise a lot of this more general information could be removed	Ciara Raudsepp-Hearne (CRH)	We have fully revised the chapter and reduced substantially the total content, attempting to emphasise capacity building aspects rather than defining terms eg TK and how they are relevant to BES models and scenarios.
214						There is a problem related to scale in this chapter, it skips from local to global, some sections focusing uniquely on one or the other. Scale needs to be dealt with more systematically, as advice should be tailored to multiple scales in a very clear way, but should have more emphasis on national and subnational scales for IPBES than for global.	Ciara Raudsepp-Hearne (CRH)	The scale issue is one that is dealt with from the second author's meeting and attempting to tailor all chapters in the assessment according to similar scales. We have added content, eg Table 7.3 and 7.4 providing links of different tools/data to scale.
215						Would be very helpful for reviewers to have a table of contents to see how sections are laid out. It was a long chapter and not well structured, so difficult to tell how it was developing. There was a lot of skipping back and forth between topics. I would recommend that a TOC be developed, and titles made very descriptive, and then it will be obvious that the chapter needs to be reorganized completely to make sense. There is a lot of repetition and lack of focus in this chapter, requiring major reorganization and rewriting	Ciara Raudsepp-Hearne (CRH)	We have added a TOC. We have completed restructured the chapter.
216						Introduction is clear – objectives are clear. However, they are not met by content	Ciara	We have completed restructured

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						currently.	Raudsepp-Hearne (CRH)	the chapter.
217						The chapter seems to be written from many different perspectives, with different ideas of what the chapter is about. I find that practical information about capacity building needs for scenarios and models almost entirely lacking. There is a lot of information included that should be removed.	Ciara Raudsepp-Hearne (CRH)	We have completed restructured the chapter.
218		2	5			long lists of capacity building needs are repeated several times, could replace with a table. What would be great here, in fact, would be a table that lists the needs but shows how those needs vary by scale. There could be three columns for local, national/regional, global.	Ciara Raudsepp-Hearne (CRH)	We have added a table of capacity building entry points early in the opening section. We have also developed a new table 7.4 with data relevant at different scales, and included scale in table 7.3
219		2	9			exact sentence copied from introduction	Ciara Raudsepp-Hearne (CRH)	2 nd sentence revised to avoid duplication.
220						7.2 introduction should at least make reference to what the section is supposed to be about. It lists all needs for capacity, but doesn't suggest that these needs vary.	Ciara Raudsepp-Hearne (CRH)	This is now part of 7.1 so introduction in 7.1 provides this function.
221						7.2 title mentions differences/similarities in 'perspectives' on capacity building and scenarios/models, but this isn't included in the sections below. All title should reflect what will actually be found in those sections.	Ciara Raudsepp-Hearne (CRH)	Title modified accordingly.
222		3	15			don't need to list capacities again, just need to analyze differences.	Ciara Raudsepp-Hearne (CRH)	Removed.
223		3	37			sentence not clear about people and nature separation. Expand or delete.	Ciara Raudsepp-Hearne (CRH)	We have rephrased this sentence.
224						7.3 title: confusing title. Basically 'capacity to enhance capacity'. Maybe change to 'How to improve capacity'. Also, the description of the section could be amended to state that a broad set of skills is necessary to do this kind of work (not just various skills, but quite a few all at once)	Ciara Raudsepp-Hearne (CRH)	Full restructure, this title no longer used. Skills are integrated now within other capacity building topics.
225						7.3 there is a lot of overlap between this section and 7.2. Perhaps put up front the skills required, and don't go over many times.	Ciara Raudsepp-Hearne	Full restructure. Skills are integrated now within other capacity building topics.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
							(CRH)	
226						7.3.1.1 title: technological or technical?	Ciara Raudsepp-Hearne (CRH)	This title no longer used.
227		6	23			don't start with dissemination of results. The most important part is making it relevant to begin with. So start with need to communicate with decision-makers to focus exercise.	Ciara Raudsepp-Hearne (CRH)	New section 7.5.2 on effective communication, also section on decision making more developed.
228		7	14			this reads a little strangely. focus should maybe be on local people that know the context, and indigenous knowledge and other forms of knowledge could be used as examples? in the title, local people could be put first. If you want a focus on indigenous knowledge, maybe it could be pulled out as a special case (but since it will only sometimes be relevant, putting it first seems odd). (I am aware that indigenous knowledge is a focus in IPBES, but local knowledge is more encompassing. Also, it would be important to point to a section about how local knowledge is especially important in scenario and modeling work as an understanding of context can only be achieved this way, including how values are distributed across and within local groups.	Ciara Raudsepp-Hearne (CRH)	This section has been removed and concepts incorporated as relevant in other sections.
229		7	20			certainly not enough reflection on two toughest things - organizing and choosing the type of scenario that will be useful, choosing a focus and approach that will be useful to meeting needs of decision-makers. Who does this? How do they decide?	Ciara Raudsepp-Hearne (CRH)	We have expanded on development of scenarios in section 7.4
230						7.3.2 Title: what is meant by 'the regions'?	Ciara Raudsepp-Hearne (CRH)	'the regions' removed.
231						7.3.2 also similar in content to 7.2.1, they should be brought together. This chapter needs to be better organized.	Ciara Raudsepp-Hearne (CRH)	Section 7.3.2 has been removed and concepts integrated with section 7.1/7.2 (also now combined).
232						7.3.3. first paragraph – mention if these programs specifically focus on scenarios or modeling (I assume that's why they're being mentioned, but some more specificity, size of programs, how many have focused on these topics etc, would be useful. Also contact information?)	Ciara Raudsepp-Hearne (CRH)	We have expanded a new section on training programmes and also include training availability in table 7.3 for various BES tools.
233						7.3.3 – section could be expanded. Which tools can be learned without workshops/teaching? What skills are funders interested in focusing capacity building on?	Ciara Raudsepp-Hearne (CRH)	We have expanded a new section on training programmes and also include training availability in table 7.3 for various BES tools.
234						7.4 title – generally, all titles are not very descriptive, hard to predict what will be in them. Can you be more specific about what type of infrastructure in title?	Ciara Raudsepp-	Titles reworded as necessary, and all jargon removed.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						Seems to be focused on 'e-infrastructure', although the terms are not familiar to me. Plainer language would help, or defining what is meant by jargonny words.	Hearne (CRH)	
235						7.4 key messages: lots of e-words, can these be written in plain language or defined? What does e-geosociety encompass?	Ciara Raudsepp-Hearne (CRH)	All jargon removed, and much of the section on e-words substantially reduced to a few sentences.
236						7.4.1 first paragraph – perhaps don't list all these items by number that people will not understand off the top of their head. Refer to a table, or other section where these items are described.	Ciara Raudsepp-Hearne (CRH)	We have created new Table 7.4 to summarise typical data platforms previously listed in the text.
237		8	29			modern mobiles??	Ciara Raudsepp-Hearne (CRH)	Removed. Elsewhere referred to as mobile phone applications.
238		8	30			Much of this is hard to understand.	Ciara Raudsepp-Hearne (CRH)	Rewritten for clarity, and much of this text removed from the chapter.
239		8	34	8	41	good ideas in here, need to be framed and put in appropriate section	Ciara Raudsepp-Hearne (CRH)	Rewritten for clarity, and much of this text removed from the chapter.
240		9	1			this section is focusing on larger scale scenario work, while last section was focusing on smaller, local scales. This has to be streamlined, hopping back and forth is confusing and needs to be marked.	Ciara Raudsepp-Hearne (CRH)	Rewritten for clarity, and much of this text removed from the chapter.
241		9	4			confusing paragraph, rewrite. I understand that it's saying something about the wealth of something that has developed through all the mentioned networks, projects and programs. What exactly exists, and can it be described more fully? The following paragraph seems to be elaborating on idea of what resources exist, but the paragraph is unreadable. Turn into a table, but describe what is included here and what scale it is useful at. Most are large scale? Can you divide by types of databases? Are all georeferenced? Etc.	Ciara Raudsepp-Hearne (CRH)	Rewritten for clarity, and much of this text removed from the chapter. We have created new Table 7.4 to summarise typical data platforms previously listed in the text.
242		9	38			Delete this whole paragraph, is not specific to scenarios. Rewrite whole section to make it useful and relevant to people trying to understanding what infrastructure is available for people at different scales and with different goals to tackle scenarios and modeling.	Ciara Raudsepp-Hearne (CRH)	Rewritten for clarity, and much of this text removed from the chapter.
243						Figure 7.3: remove, not specific to this topic	Ciara Raudsepp-Hearne (CRH)	This figure has been removed.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
244		10	19			providers of what?	Ciara Raudsepp-Hearne (CRH)	Removed.
245						7.4.2 first paragraph: do not understand what is being said in this paragraph. This needs to be refocused on objective of chapter.	Ciara Raudsepp-Hearne (CRH)	Removed.
246						Table 7.1: I do not understand what this table is about, or what the different elements in it mean.	Ciara Raudsepp-Hearne (CRH)	Removed.
247						All of section 7.4.2 needs to be rewritten or removed, what is it about, who is it aimed at, what kinds of projects is it referring to?	Ciara Raudsepp-Hearne (CRH)	Removed.
248						7.5.1. section not very useful as it is not focused on what data are needed for modeling and scenarios, and written in vague terms. 'What are data' is a question that is probably asked elsewhere. Claim that failure to meet targets is because of lack of data seems weak.	Ciara Raudsepp-Hearne (CRH)	Data now defined in overall glossary for the assessment. One major difference in the new structure is that we separate technical data from 'information and knowledge'.
249						7.5.2: this is a very incomplete section. As well, it should describe local datasets that are useful. And then a table of data that is often used at higher scales, but particularly in scenarios and modeling. So my comment is that (1) these sections should all focus specifically on scenario and modeling needs, and (2) be organized in a way that makes the issue of scale clear and provides guidance for all scales.	Ciara Raudsepp-Hearne (CRH)	We have created new table 7.4. We expect that other chapters on particular models are highlighting the types of data required, and do not include that here as it would be repetitive, rather we concentrate on general capacity for collecting and sharing data, information and knowledge.
250						7.5.3 Can information that is not specific to scenarios and modeling, but to all parts of assessment (e.g. data availability and management) be put in a separate chapter so that it is not repeated for every topic? This seems a bit random here. I think the scenario-specific stuff should be the focus. This is probably important, but needs to be linked to the main issue. Could also be a box?	Ciara Raudsepp-Hearne (CRH)	Yes – the restructure has all data, information, knowledge in one section. Regardless we have kept section 7.5.3 five key points for data management – these could be turned into a table, but we felt they worked better as text, as much of the information would be repeated in the text if we had both a table and text to introduce

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
								the table.
251						7.5.4. same as above comment, for whole section. Instead, could you comment on the most promising models/methods and talk about how that data could be managed and organized specifically to make modeling and scenario work simpler for people without top expertise?	Ciara Raudsepp-Hearne (CRH)	7.5.4 has been turned into a table as suggested.
252						7.5.4.4. important issue., but link to BES models and scenarios. For example, to fill in many of the ES models out there, people search the internet for open access data. They end up with some good quality from reputable organizations, and some of dubious quality or local relevance, that they are forced to use. Talk about this. Otherwise too vague and is relevant to all assessment steps, not just modeling/scenario work.	Ciara Raudsepp-Hearne (CRH)	We have created a table of requirements for reputable datasets.
253						7.5.5. This is an important section, but should be focused more on scenario/modeling work. What ES/biodiversity issues are most modeled? What data is most limiting to this work? How about some basics that are important to many models (e.g. good land cover data, which is not always available, especially as a time series, but could be developed quite easily for everywhere and stored/shared?	Ciara Raudsepp-Hearne (CRH)	We include and expand on this content in a new section 7.3.2 on developing capacity to enhance collaboration and some of the data that is not commonly included/modelled, and dataset issues of compatibility.
254						Table 7.2: a useful table would list a plan for developing data that could specifically be used for modeling and scenario work. A focus on time series data for universally useful datasets (e.g. land cover, land use, precipitation, temperature, etc.), and short and long terms plans, but specific to the topic would be great.	Ciara Raudsepp-Hearne (CRH)	While we agree this is useful, our understanding is that particular data requirements for key BES models are being mentioned in prior chapters, and we kept our terminology more about data management than listing specific datasets. Other chapters (Chapter 3, 4, 5) discuss useful datasets as relevant to BES models.
255		17				Good, back to something specific about scenarios/modeling.	Ciara Raudsepp-Hearne (CRH)	No action required.
256		17	12			Perhaps add in reference to the guidelines, 'including guidelines for choosing the most appropriate method/approach'	Ciara Raudsepp-Hearne (CRH)	This type of context is covered in other modelling chapters, not here. Regardless we have provided steps in new section 7.4 for developing scenarios that are relevant to this comment.
257		17	18			shouldn't be defining what a model is here (p17!), since the whole chapter is about models.	Ciara Raudsepp-	Removed. Models and scenarios both defined in chapter 1 and in

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
							Hearne (CRH)	assessment glossary.
258						***** There is an awkward issue in this chapter with presenting information about modeling and scenarios, these are sometimes used together, but often not. So sections need to reflect that, and the two topics need to be separated with a section at the end about how they can be used in conjunction, and what is needed in terms of capacity building to use the two simultaneously, and plan for this.	Ciara Raudsepp-Hearne (CRH)	Models and scenarios both defined in chapter 1 and in assessment glossary. We try to separate capacity relevant to each in separate topical sections on capacity.
259						Table 7.3: this is slightly misleading (e.g. what does it mean that invest is easy and fast to learn? It's relatively true, but for many, without training, it is very hard to populated and validate. Some more information is key here, and some more indicators about what kinds of skills/knowledge/data needed to run each. There are a number of analyses like this out there, perhaps could link to some of the better ones.	Ciara Raudsepp-Hearne (CRH)	We have redone this table and references to many of the common BES tools and software packages, as it appears many people do not agree with the reference that we had cited. New table 7.3 includes a number of other key functions of these tools, scale, type of tool, software requirements etc.
260		19	14			idiot-proof?	Ciara Raudsepp-Hearne (CRH)	Removed.
261						Section 7.6.2: more could be said about these models. There are several that have communities of practice and online tools for sharing knowledge, data, tips. Highlight these (e.g. InVest) and suggest whether they work or not, whether all tools should have similar things, what are other ways to improve accessibility, knowledge sharing?	Ciara Raudsepp-Hearne (CRH)	We have redone this table and references to many of the common BES tools and software packages, as it appears many people do not agree with the reference that we had cited. New table 7.3 includes a number of other key functions of these tools, scale, type of tool, software requirements etc.
262		19	24			what is meant by 'regional centers'?	Ciara Raudsepp-Hearne (CRH)	Removed, this concept placed into training section and utilising regional networks in enhancing capacity.
263						Section 7.6.3: this could be expanded as well. Some models have good manuals, but a useful component would be to have trouble-shooters that people could contact when stuck, someone to help locate datasets, someone to give input on whether data is suitable for models etc. There is a lot of uncertainty about the details, even when the broad understanding of how to use the models is built up in workshops. Running the models to answer real questions is a different story.	Ciara Raudsepp-Hearne (CRH)	Expanded in new section on training programmes 7.2.2

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
264						Section 7.6 is supposed to be about models and scenarios, but only presents information about models. The same information needs to be presented for scenarios (e.g. what tools are out there? What are the most useful guidebooks? What types of scenarios have been found to be most useful in decision-making, or for other purposes, etc.) IMPORTANT!!! This information is entirely missing.	Ciara Raudsepp-Hearne (CRH)	Chapter 2 (prev 6) details types of scenarios and integration in decision making. We do expand a bit more in section 7.4 on scenarios and steps to develop them and capacity to support this, but leave discussion/listing of individual scenarios to earlier chapters
265						Section 7.7 comment related to point above, incorporating types of knowledge into scenarios suggests the need for a section on doing scenarios in the first place.	Ciara Raudsepp-Hearne (CRH)	We do expand a bit more in section 7.4 on scenarios and steps to develop them and capacity to support this, but leave discussion/listing of individual scenarios to earlier chapters
266						7.7.1 I like how knowledge is presented here, the focus is on traditional and local knowledge throughout, not just on traditional or indigenous knowledge. Sections near the beginning of the chapter should use similar language.	Ciara Raudsepp-Hearne (CRH)	We strived for language consistencies throughout, and use of TLK including local knowledge as per over arching IPBES framework.
267						7.7.1 this section is well-written, but since the focus is on capacity building, perhaps include a suggestion of what the main stumbling blocks for this issue are. Is there widespread acknowledgement of the importance of including different forms of knowledge to understand complex systems? Is this widespread acknowledgement that due to a lack of data, sometimes local knowledge is the ONLY way to run scenarios and models? How do we go about building understanding of this at different scales? Are there suggested readings on this?	Ciara Raudsepp-Hearne (CRH)	We have revised and expanded in a new section 7.4.3 'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'
268		21	21			Examples give here, such as adaptive co-management, are not specific to integrating knowledge into scenarios/models. Broad concept, requires breaking down and making more specific to topic at hand. Can talk about adaptive co-management, but need to make it clear that this is a broader approach within which scenarios/models can be developed. But then talk specifically about how to include information during scenarios/model planning.	Ciara Raudsepp-Hearne (CRH)	We have revised and expanded in a new section 7.4.3 'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'
268		22	4			whole paragraph – this is a mix of things, mostly about how to develop a good scenario, not specifically about other forms of knowledge. This section needs to be organized to stay focused on point of section.	Ciara Raudsepp-Hearne (CRH)	We have revised and expanded in a new section 7.4.3 'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'
269						7.7.2 whole section: needs to be organized around specific points. At the moment, a lot of random information about different things is included (e.g.	Ciara Raudsepp-	We have revised and expanded in a new section 7.4.3

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						p22,112, p2411 – this is well established, what we need is to focus on mechanisms here, not the rationale) I was expecting to see in this section information on the types of information that traditional and local knowledge can contribute, at what stages, how that can fit into scenario building and models (the latter is challenging, the former easier), how to manage these different forms of information, what tools can help with the process (e.g. building participatory conceptual models, workshops, review, asking the right questions) etc. I.e. mechanisms. It doesn't seem like this section was written by someone who has developed scenarios or models.	Hearne (CRH)	'mechanisms to include indigenous and local knowledge in scenario analysis and modelling
270						Figure 7.7. this could be used as an example of how local knowledge can be used to build a conceptual framework for use in scenarios or modeling, but I wouldn't suggest using this particular one (the point is to suggest mechanisms for including different forms of knowledge that are context-specific)	Ciara Raudsepp-Hearne (CRH)	We have included this figure 7.7 in second order draft as we felt it focused on cultural, economic and social aspects of well being.
271						7.7.2 final point – this section, though interesting, is disjointed and doesn't provide useful information on the topic as it is currently titled. See above comment.	Ciara Raudsepp-Hearne (CRH)	We have revised and expanded in a new section 7.4.3 'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'.
272						7.7.3 title: not very clear what this means (and therefore what will be in this section). Again, writing a good table of contents and being able to tell exactly what is in each section based on the title of it would be very helpful. Then you'll also know what has been left out or if the order of the sections makes sense	Ciara Raudsepp-Hearne (CRH)	All titles revised. This particular subsection integrated with other text elsewhere in 'capacity for effective communication' section
273		25	3			is this in the context of scenario or model development, or more generally? What is focus?	Ciara Raudsepp-Hearne (CRH)	This sentence has been rephrased for clarity.
274		25	7			the knowledge to inform scenarios: not clear whether this section is about what happens during the development process or after.	Ciara Raudsepp-Hearne (CRH)	This text moved to section on communicating BES models and scenarios.
275						7.7.3 section in general: a bit vague. Not clear what point is, please contextualize for scenario and model development.	Ciara Raudsepp-Hearne (CRH)	We have expanded on communication in new section 7.5.2
276						7.7.4 Why is this section far from the section on integrating traditional knowledge into models and scenarios? Put these sections together. When using traditional and local knowledge and integrating into models, there will be a need to integrate with western science information. Information that would be useful: what models have the capacity to integrated different forms of knowledge? What approaches	Ciara Raudsepp-Hearne (CRH)	Traditional knowledge sections have been integrated across multiple sections in the new restructure, primarily 7.4 and 7.5

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						work best with different forms of knowledge? What scenario approaches can work best with multiple knowledge forms? When is it done? What skills are required? How about validation? What types of people need to be involved to make sense of and integrate different forms of knowledge? What if knowledge forms are contradictory? Etc etc. practical information pointing to what capacity is needed		
277						7.8 Section: I might start with this section, as it's actually about scenario work, and it's the first need for capacity building. Without a demand for this type of information, the technical steps aren't needed.	Ciara Raudsepp-Hearne (CRH)	This is reordered and now is section 7.4 rather than final section, and with some aspects (eg old table 7.6) moved to opening section.
278		28	1			Sentence not clear. Are you saying that there aren't many scenarios in existence that focus on BES?	Ciara Raudsepp-Hearne (CRH)	We have rephrased this to point out the many scenarios thus far that are focused on economic services rather than biodiversity/environment services.
279						Table 7.5 how about smaller scales? Smaller scale scenarios generally more relevant to decision-makers	Ciara Raudsepp-Hearne (CRH)	We have removed this table.
280		28	13			How about scenarios alone, or models alone? There are a number of ways either tool can be used, depending on what questions are being asked.	Ciara Raudsepp-Hearne (CRH)	We leave that discussion to chapters specific to models and scenarios.
281		28	21			This paragraph (and above one) is too prescriptive and narrow, and I find, false.	Ciara Raudsepp-Hearne (CRH)	We leave that discussion to chapters specific to models and scenarios. In the context of IPBES, the relationship between scenarios and models is defined in Chapter 1, and this paragraph sits within Chapter 1 context.
282		29	4			including HWB indicators: isn't that the whole point of the ES concept? Of course these should be included, in terms that are locally relevant, or relevant to decision-makers. Not sure what point is here.	Ciara Raudsepp-Hearne (CRH)	We agree that is the point of the ES concept, however in practice, most ES scenarios do concentrate on economic resources, not HWB. Thus we think a focus on this in chapter 7 is still relevant.
283		29	6			and figure: this is very confusing. Again prescriptive, and unclear how this is supposed to be used. More general guidelines are needed, probably separating	Ciara Raudsepp-	We have revised and expanded in a new section 7.4.3

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						models from scenarios. This whole section takes an idiosyncratic approach. Not sure what to do with it.	Hearne (CRH)	'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'. See earlier comments on models v scenarios.
284						7.8 section really focuses on scenarios, not on models. Again, a bit awkward and shows need for dealing with each in a planned way.	Ciara Raudsepp-Hearne (CRH)	We have revised and expanded in a new section 7.4.3 'mechanisms to include indigenous and local knowledge in scenario analysis and modelling'.
285						Table 7.6 this table could be used to organize the chapter better.	Ciara Raudsepp-Hearne (CRH)	This table has been moved to the opening section in order to provide introductory material on key aspects of capacity that the chapter is organized around.
286						7.8.2. Title: ?? really need to work on titles. Go through table of contents and develop titles that tell a clear story, that make sense. What does this title mean?	Ciara Raudsepp-Hearne (CRH)	All titles revisited. This particular subtitle no longer included.
287						7.8.2 This section doesn't seem to be about scenarios or models at all. They are mentioned at the end.	Ciara Raudsepp-Hearne (CRH)	All titles revisited. This particular subtitle no longer included.
288						Section and Title 7.9 What is meant by 'projection of data'? Projection data is referred to many times and if it is a technical term, it should be defined. Not all scenario and modeling inputs are simply data 'projected' into the future, so this is confusing.	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.
289						-page numbers have disappeared. Paragraph talks about time series data from the past. How about current trends, and monitoring to allow current trends to be recorded?	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.
290						-This section about data could be put with other section about data? But preferably in another chapter if it's not specifically about scenarios and models?	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.
291						7.9.3 'grooving'?	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
292						7.9.4. 'set up a concept'? What does this mean? If you mean a database of case studies, that would be very useful. With some form of analysis of success. Expand on this.	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.
293						7.9.5 a section on practical resource needs would be very useful, funding being just one of those needs. List all needs, how long these processes take, and how to help people deal with constraints related to the needs.	Ciara Raudsepp-Hearne (CRH)	In the opening section, we have tried to organize along capacity building entry points. The key recommendations are anticipated to give direct entry points for funders/IPBES to focus capacity building on.
294						7.9.7 general recommendations. Not sure it's necessary to sell the approach here as a first recommendation, as chapter is about building capacity. Instead, a sentence about building capacity in decision-makers to value scenario and modeling knowledge/information, and mention what mechanisms could be used to do this. Recommendation first bullet: develop scenarios? I thought the idea was to build capacity for people at different scales and with different needs to develop their own scenarios or models. There seem to be many ideas of what this chapter is about, and it needs to be clear. Recommendation second bullet: again, develop scenarios? Do you mean build capacity at different scales to be able to develop scenarios? Way to prescriptive and narrow a set of recommendations.	Ciara Raudsepp-Hearne (CRH)	All recommendations have been revised and iterated to link directly to content in the chapter.
295						Suggestion for reconfiguration of chapter (done quickly, elements probably missing, and scale issue not worked in yet): 7 Building capacity for developing, interpreting and using scenarios and models 7.1 Introduction 7.2 Strategies and methods for mainstreaming scenarios and models into participatory assessment and decision-making processes across scales and contexts 7.2.1 Building capacity to see value in and use scenarios and models in BES decision-making 7.2.2 building capacity to communicate effectively throughout scenario and modeling processes 7.3 Strategies for enhancing human resources and skill base to conduct scenario and modeling work	Ciara Raudsepp-Hearne (CRH)	We have fully restructured this chapter. Not exactly as Ciara recommends, but rather reflecting the suggested key capacity building aspects as summarized by the IPBES capacity building task force. 1. Capacity to participate in BES models – includes technical capacity (models etc), scenario development and policy decision making, BES tools, training, networks 2. Access data, information, knowledge e- most of data related

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						<p>7.3.1 Modeling BES</p> <ul style="list-style-type: none"> -what skills are needed (technical, management of process, integration into decision-making, different forms of knowledge) -how are these skills distributed across regions -what resources exist to meet needs -important gaps in capacity building <p>7.3.2 BES scenarios</p> <ul style="list-style-type: none"> -what skills are needed (technical, management of process, integration into decision-making, different forms of knowledge) -how are these skills distributed across regions w -what resources exist to meet needs -important gaps in capacity building <p>7.3.3 Integrating models and scenarios</p> <ul style="list-style-type: none"> -what skills are needed (technical, management of process, integration into decision-making, different forms of knowledge) -how are these skills distributed across regions -what resources exist to meet needs -important gaps in capacity building <p>7.4 Infrastructure to support BES modelling and scenario analysis</p> <p>7.4.1 sources of capacity building, knowledge sharing (other MEAs, institutions, etc)</p> <p>7.4.3 case studies, databases,</p> <p>7.4.4 gaps in infrastructure</p> <p>7.5 Data, models and scenario tools</p> <p>7.5.1 sources of data for modeling and scenario development</p> <ul style="list-style-type: none"> -what data is relevant to this type of work -where can it be found -what are most pressing data needs -how can access to available data be improved -how to validate data, improve quality, etc. <p>7.5.2 Modelling BES</p> <ul style="list-style-type: none"> -Models and software tools available, accessibility -Recommended characteristics of software tools to support BES analysis -Training and support for models and software tools <p>7.5.3 Scenario tools and capacity building</p> <ul style="list-style-type: none"> -what are most effective types for supporting BES goals -practical handbooks/guidelines in existence -gaps in capacity building, pressing needs <p>7.5.3 Integrating models and scenarios</p>		<p>infrastructure is here, some networks and cross collaboration, integration</p> <p>3. Decision-making and scenario development, including incorporating local knowledge</p> <p>4. Engagement including within assessment and BES M&S, and also communication strategies and networks for engaging stakeholders</p>

Nr	Chapter	From page	From line	Till page	Till line	Comment	Reviewer Initials	What was done with the comment
						<p>-what tools (e.g. models or scenario approaches) do this best? -gaps in capacity building, pressing needs</p> <p>7.6 Developing flexible and effective methods for incorporating local data and knowledge into scenario analysis and modeling 7.6.1 Different forms of knowledge in modeling 7.6.2 Different forms of knowledge in scenarios 7.6.3 In integrated models/scenarios</p> <p>7.7 Summary and recommendations</p>		
296		Overall comments				<p>In line with the instruction that: “The intended purpose of this first review is to obtain early feedback on whether, in the opinion of expert reviewers, the chapters of the report are heading in the right overall direction.”</p> <p>I certainly agree that the chapter is moving in the “right overall direction” and I would congratulate the authors on preparing a very comprehensive and thought provoking first draft. Having looked at all the chapters for deliverable 3c, this is clearly a critical chapter going forward. I must also stress that I am more of a scenario planner than a modeler and therefore my review is biased towards the scenario planning aspect of the chapter. With that in mind I have the following comments to offer.</p> <ol style="list-style-type: none"> 1. One of the attractions of scenario planning is its usefulness as a tool for conflict resolution and developing common purpose. In southern Africa natural resources and the access to ecosystem services are often areas exemplified by a high degree of conflict and contention. This aspect does not come out very clearly and needs to be addressed in future revisions. The aspect of trans-scale communication and the use of scenario planning as a tool for enabling different levels of society and interests to communicate in the “same language” could also be brought out more clearly. 2. Another strength of the scenario planning process is the ability to communicate complex interactions and relationships in a manner that can easily be understood by a wide range of users and actors. This comes out to some extent but could be reinforced. In the module that I teach I use the example of a topographic map of Table Mountain in Cape Town and a photograph or painting of the same mountain. Both are valid representations of the mountain but each serve a different purpose and in the case of the topographic map will not be understood by many. 	Michael Murphree (MM)	We have completely restructured this chapter, and have a new section ‘integrating scenarios and models into policy and decision making’ that we believe addresses background behind scenario planning and some of their potential uses. However we note that this aspect should be present in earlier chapters eg new Chapter 2 prev Ch 6. We also have new sections on stakeholder engagement and communication that expand on the previous version of this chapter.
297						Section 7.3.2 – I am a little uncomfortable with the way this section reads in that	Michael	We struggled with this

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						it comes across with a very strong western science /academic bias. I agree that most of the academic literature is in western journals and by sheer numbers the greater body of research is in the western/developed country universities. However, I think that the practitioners in developing countries have adapted “local level scenario planning” techniques in ways that have not been achieved in developed countries. Unfortunately very little of this is reflected in academic journals. I would be happy to work further with the authors on this aspect and the implications for capacity building.	Murphree (MM)	integration of our chapter to local scales, as IPBES targets higher level scales (global, regional) – however, we attempted to make sure we were discussing tools and case studies and data sets relevant to a number of scales.
298						Section 7.9.5 – On the aspect of funding. I strongly agree with the position taken in this section. I would also add that smaller amounts of funding over longer periods are more effective than larger amounts of funding in shorter periods. This is a point I have made repeatedly to donors.	Michael Murphree (MM)	Key recommendations have been completely rewritten. We no longer have a specific 7.95 section on funding, but we have integrated funding across key aspects of capacity building to provide entry points for donors.
299						Section 7.9.6 – Traditional knowledge is an important aspect of cross scale communication and understanding. I often remove the TK stigma by referring to it as civil science. When working with local communities external technocrats and formally educated bureaucrats often intimidate them (even if unintentionally). They have been conditioned to believe that their knowledge systems are not scientifically valid. In my scenario building work I tell them that they are scientists and during the workshop phase show them pictures of “the scientists” doing exactly the same exercises.	Michael Murphree (MM)	We have maintained this concept in the key recommendations and in overarching key messages of the chapter, highlighting different world views and knowledge systems.
300						Section 7.9.7 – The general recommendations are absolutely critical and the part of the chapter that will be focussed upon by potential donors and governments. In this from my experience in southern Africa do not agree that an emphasis should be placed on the policy sector per se. Capacity building in scenario planning in the natural resource / ecosystem services sector needs to happen at the “frontline”, that frontline is at the user level of interface. Again from my experience when scenario planning is undertaken at community level it empowers them, it builds the confidence of communities to express and discuss with policy and decision makers what they see as the critical issues and how to overcome them. In my opinion it is a much harder process to undertake but the rewards are far greater than undertaking the exercise with policy makers that have far more entrenched mental models and are often locked in administratively constrained planning models. This is not to say that policy makers are not important but the users are equally important if not slightly more so.	Michael Murphree (MM)	These final recommendations are now incorporated into key messages/key recommendations and included in the SPM.