<Review comments on First Order Draft of Chapter 2 of Wetlands Supplement>

ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20001	Thompson, Victoria	2	1	1	2	When "tier" appears by itself, i.e. not in context of "Tier 1" or "Tier 3", should it be capitalized or lowercase? This is not consistent throughout.		Accepted.	
20002	Thompson, Victoria	2	1	1	2	Italicize 2006 IPCC Guidelines throughout		Accepted.	
20003	Thompson, Victoria	2	1	1	2	greenhouse gas should not be abbreviated as GHG throughout		Accepted.	
20004	Thompson, Victoria	2	1	1	2	hyphenate "country-specific" wherever it occurs--often is given incorrectly as "country specific"		Accepted.	
20005	Tuomainen, Tarja	2	1	1	2	The terms, names of variables, units and the manner how equations are presented need harmonisation between chapters and 2006 IPCC GLs. For example, in Ch2 Eq. 2.1 is for annual carbon loss from drained organic soils but in Ch3 is discussed about emissions and removals in Eq. 3.1. Clarifying is needed for example to: 'peatland type' or 'peat type', signs of emissions and removals, are EFs in carbon or in gases (signs).		Accepted.	We have developed a glossary
20006	Lilleskov, Erik Andrew	2	2	6	2	Lines 2-6. I find the title a bit confusing. "Removals from Organic Soils" Is the intended implication that the gases are being removed from the soil? If not, then the title is misleading. If the intended meaning is that the soils are removing greenhouse gases, then the title should be "Emissions from and Removals by Organic Soils".		Accepted with modification	This is a bid the jargon of the IPCC, but emissions and removals generally refer to the atmosphere. The title has been changed
20007	Rieley, Jack	2	2.1			The introduction (2.1) states that this chapter 'summarizes and harmonizes emissions factors for organic soils in all land use categories" but unfortunately it doesn't assess and harmonize the methods used to obtain primary research data obtained in the field for the essential components of emissions factor calculations. These seem to be taken at face value as if they are all correct and relevant when scrutiny reveals they have been obtained at different periods over at least the last 30 years and carried out on many different geographically separated sites under numerous land uses with different degrees of standardization, replication and computation. Some data are quite obviously incorrect but there has been no quality evaluation. This needs to be carried out before precise emissions factor values can be accepted as reliable. It is clear that major input to this chapter has been made by some who are not tropical peatland specialists and have not carried out primary field research on this important ecosystem (e.g. CIFOR). One must regard metadata analyses with caution since by definition they are using all data that can be found by trawling the literature whether in peer reviewed publications, official reports or 'grey' literature and of course there is a tendency for the same data to be used in different reviews in different ways. In terms of the IPCC Guidelines it is important to know what the baseline is in each case. For land remaining in a land use category, which in tropical SE Asia means forest, it is necessary to know if peat is still accumulating (relatively undisturbed and undrained) or not (selectively) or if superficial drainage channels have been constructed that are causing deeper water drawdown, enhanced oxidation and loss of peat and carbon (illegal logging). For land use change to another land use the baseline has to define the starting point, peat swamp forest, degraded forest, deforested land or other.	Attachment_v2_20007.pdf	Accepted with modification	Efs have been revised, but there remains disagreement among the author team. The Efs have been moved to an Appendix while the remaining issues are being resolved
20008	Rieley, Jack	2	2.2			A peatland can be regarded as a 'dual ecosystem' in which the surface vegetation and the peat below have evolved and co-existed for thousands of years (Rieley, 2007). The plants contribute to the accumulating peat and a 'dynamic equilibrium' is reached under conditions of high rainfall and high water table. The only contact between these two components is the root zone in the uppermost layer of peat which is subject to water level oscillation and experiences alternating aerobic and anaerobic conditions. This zone is known as the acrotelm in boreal and temperate bogs while in tropical peat swamps it is the distance between the peat surface and the lower limit of water table drawdown in the dry season. In both instances it is where much biological activity takes place, especially root (autotrophic) and microbial (heterotrophic) respiration but also nutrient release, recycling and uptake. In boreal and temperate zone bogs the dominant peat formers are species of Sphagnum moss together with a range of herbaceous and shrubby plants most of the dead material of which (plant litter), above and below ground, is decomposed although a small proportion may be added to the peat in the catotelm. In tropical peat swamp forests the peat formers are rain forest trees the above ground litter of which is mostly decomposed completely while the main source of organic matter to the peat accumulating in the permanently waterlogged zone below is the fine roots of the trees (Brady, 1997). In all peatlands only a few millimetres or so are added to the peat thickness per year but over a thousand years this can be a metre or so and will continue until the height of the peat dome above the drainage base of the peatland increases and the high water table necessary for peat accumulation can no longer be maintained. This is a natural process and eventually peat bogs will stop accumulating peat and start to degrade. Changes in climate to lower and/or more periodic rainfall will hasten this process. Any impact that affects the hydrology and vegetation on a peatland will disrupt the dynamic equilibrium, stop peat accumulation and speed up degradation and loss of carbon from the long term peat store. The methodology for determining carbon losses as a result of different logging and timber extraction practices is well defined and should be possible to implement for tropical peat swamp forest as it is for mineral soil forests. What is more difficult is to determine the amount of peat and carbon that is lost through peat decomposition under different degrees of forest degradation. Current CO2 emission measurement techniques can only determine total emissions (autotrophic plus heterotrophic) from the peat surface over relatively small time periods, mostly during a few hours in the middle of the day). These CO2 emissions are usually much greater than those obtained from the peat surface under other land uses owing to the much larger vegetation biomass of trees and associated shrubs and ground plants. Eddy Covariance techniques are not sufficiently sensitive yet to provide the data required and are obtained from single towers representing vast areas of tropical peatland constructed in gaps made in the canopy. The only way to obtain reliable estimates of peat oxidation/decomposition is to measure peat subsidence using a network of subsidence markers inserted firmly into the mineral substrate underneath the peat deposit. This of course takes labour, money and time! For this category emissions from CH4 can be regarded as zero and from N2O as negligible (1.4-3.5% according to Rieley & Page 2012). In my opinion the inputs from litter can be ignored since this falls onto the surface where it is decomposed quickly and disappears from the system. Larger dead branches and fallen trunks also decompose but over a longer time scale while some of them may eventually become incorporated into the accumulating peat. For the purposes of the IPCC calculations these are irrelevant and only become important once they are incorporated as components of the peat inside the permanently saturated zone. There are also matters concerning POC and DOC Carbon removal in this category that I shall come back to later.	Attachment_v2_20007.pdf	Accepted with modification	Text We agree with some of the points raised here and disagree with others. All points have been considered and revised Efs have been developed. The reviewer misunderstands the need to look at litterfall. Litter contributes to the surface efflux of CO2 and this needs to be subtracted from the flux. This is not a statement about peat formation processes
20009	Rieley, Jack	2	2.3			The Chapter 2 (2.2.1: remaining in a land use category) states that it deals with the 'impacts of drainage and management on CO2 emissions… primarily by influencing carbon outputs… and thus carbon storage, by affecting heterotrophic respiration…, erosion losses… and loss of DOC…' In lowland tropical peatland conversion to other managed land uses takes place quickly over a few years and involves deforestation, drainage, fire, water table management at constantly lower levels and periodic cropping or harvesting. In addition, land use change cultivation practices involve removal of vegetation, exposure of the surface peat and replanting at different time intervals from several times a year for arable crops, 6-8 years for paper pulp trees and up to 25 years in the case of oil palms. These different land uses give rise to different rates of peat decomposition and hence CO2 emissions. The emission factors provided in this chapter for tropical peatlands converted to a new land use (plantations and croplands) are far too low compared to the values in recent peer reviewed publications (e.g. Hooijer et al, 2012; Jauhiainen et al, 2012).	Attachment_v2_20007.pdf	Accepted with modification	Efs have been revised, but there remains disagreement among the author team. The Efs have been moved to an Appendix while the remaining issues are being resolved
20010	Thompson, Victoria	2	4	4	2	Remove hyphen in green-house		Accepted.	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20011	Lund, Herluf Gyde	2	11	11	2	Use lower case after 1st Land as with rest of headings.		Accepted.	Correct.
20012	Bedard-Haughn, Angela	2	13	16	2	Need subscripts in CO2 (frequent typo throughout)		Accepted.	
20013	Evrendilek, Fatih	2	13	13	2	2.2.2 Non-CO_2 emissions		Accepted.	
20014	KIM, Raehyun	2	13	13		CO2 => CO2		Accepted.	
20015	Lund, Herluf Gyde	2	13	13	2	The 2 in CO2 should be a subscript.		Accepted.	
20016	Thompson, Victoria	2	13	16	2	Subscript 2 in CO2		Accepted.	
20017	Xu, Xiaofeng	2	13	16	2	CO2 should be "CO2" (2 as subscript)		Accepted.	
20018	Evrendilek, Fatih	2	15	16	2	CO_2		Accepted.	
20019	KIM, Raehyun	2	15	15		CO2 => CO2		Accepted.	
20020	Lund, Herluf Gyde	2	15	15	2	The 2 in CO2 should be a subscript.		Accepted.	
20021	Radunsky, Klaus	2	15	15	2	Change title to: CO2 emissions of organic soils		Accepted with modification	Title changed and standardized
20022	KIM, Raehyun	2	16	16		CO2 => CO2		Accepted.	
20023	Lund, Herluf Gyde	2	16	16	2	The 2 in CO2 should be a subscript.		Accepted.	
20024	Lund, Herluf Gyde	2	18	18	2	Will readers know what DOC means?		Accepted.	Yes, abbreviation is described in line 78.
20025	Bratton, John	2	19	272		Ch. 2 needs to be proofread; line 19 Appendix 2a.1 Estimation for [of] Particulate Organic Carbon (POC) loss; line 75 •□This chapter fills the gaps in… [remove bullet];88 This section deals with the impacts of drainage and management onCO2; 97 management and that eventually emissions become negligible. .;104 in equation 2.1, subscript on 3rd term should be "off-site", not "on-site"; errors with ")" in line 107 and 108; 150 It is a good practice to derive country-specific emission factors is if experimental. Ln 170-183: Tier 2 or 3 refinements could include consideration of percent organic carbon in soils, genetic/geologic origin, bioturbation, total thickness, relative lability of organic material, freeze/thaw cycles, and permafrost contributions (thaw bulbs, methane hydrate dissociation); line 271-272 inconsistent font size in title		Accepted.	proof-read and correct.
20026	Rock, Joachim	2	20	20	2	check formatting		Accepted.	proof-read and correct.
20027	Rock, Joachim	2	23	50	2	Page numbering is confusing. Please check whether chapter numbers can be included.		Accepted.	proof-read and correct.
20028	Bedard-Haughn, Angela	2	28		2	Capitalization in CO2 (frequent typo throughout)		Accepted.	proof-read and correct.
20029	KIM, Raehyun	2	28	28		co2 => CO2		Accepted.	proof-read and correct.
20030	Klemedtsson, Asa Kasimir	2	28		2	increase font size of CO2		Accepted.	proof-read and correct.
20031	Navarrete Encinales, Diego Alej	2	28	28	2	Carbon dioxide symbol is in lower case (i.e. co2); it should be in capital letter (i.e. CO2).		Accepted.	proof-read and correct.
20032	Rock, Joachim	2	28	28	2	CO2 should be given in upper case and the "2" be set low.		Accepted.	proof-read and correct.
20033	Rock, Joachim	2	35	38	2	What is the meaning of the asterics' here?		Accepted.	proof-read and correct.
20034	Thomson, Amanda	2	35	49	2	Asterisks in the table titles are confusing, because the meaning of **** is not explained until you get to the bottom of the first table		Accepted.	proof-read and correct.
20035	Rock, Joachim	2	43	44	2	check formatting		Accepted.	proof-read and correct.
20036	KIM, Raehyun	2	47	48		y-1 =>yr-1		Accepted.	proof-read and correct.
20037	Kiyono, Yoshiyuki	2	47	47		tonnes and Mg are inconsistently used throughout the manuscript.		Accepted.	Units have been standardized
20038	Lund, Herluf Gyde	2	47	47	2	What does SOC mean?		Accepted.	SOC was replaced by soil organic carbon.
20039	COUWENBERG, John_2	2	52			will there be guidance on GHG emissions from burning of peat?		Accepted.	New section added
20040	Lilleskov, Erik Andrew	2	57	58	2	Lines 57-58. These lines indicate that the chapter focuses on drained soils, but drainage is not mentioned anywhere in the title.		Accepted.	"drained" was rephrased to "managed"

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20041	Lund, Herluf Gyde	2	59	59	2	Consider providing hyperlinks to key IPCC documents for easy access here and throughout the Chapter.		Reject. References have been provided accoriding to IPCC Style.	Transfered to TSU
20042	Klemedtsson, Asa Kasimir	2	60		2	this chapter applies to all organic soils which have been, or are newly drained, this statement is not consistent with the lines 697-698 where it is stated that emissions persist until drainage is reversed.		Rejected.	This is a misunderstanding. The sentence has been clarified.
20043	Kabo-Bah, Amos Tiereyangn	2	64	70	2	The paragraphs should be re-paraphrased to represent single thought. Reading through indicate some repetitions.		Accepted.	The paragraph has been re-paraphrased.
20044	Thompson, Victoria	2	67	67	2	insert "the" before "Tier 1 level"		Accepted.	
20045	PARISH, Faizal	2	68	83		no reference is made to emissions from fire. This is a major souirce of emissions for organic soil and is critical to be included in this chapter. Reference is only made in line 737-738 to emissions from non-co2 gasses from burning - but in general emissions are much less than of CO2. various studies on fire related emissions have generated emissions of 650-950 tCO2/ha /fire event - which is 10X more than the emissions from drainage.		Accepted.	Refer to new section.
20046	Couwenberg, John	2	73		2	CH4 emissions AND removals		Rejected	The revised Tier 1 Efs show no removals
20047	Gyldenkarne, Steen	2	73	73	2	spacing		Accepted.	
20048	Lund, Herluf Gyde	2	73	73	2	Insert space between 2006 and IPCC		Accepted.	
20049	MacDonald, James Douglas	2	73	73	2	Spacing		Accepted.	
20050	Schreir & Silvius, Arina & Marc	2	73		2	CH4 emissions and removals from organic soils (it has been proven, and more and more measurable that CH4 also can be up-taken).	Attachment_20050.pdf	Rejected	The revised Tier 1 Efs show no removals
20051	Sperow, Mark	2	73	73	2	Space required between 2006 and IPCC.		Accepted.	
20052	Couwenberg, John	2	74		2	N2O emissions AND removals		Rejected	The revised Tier 1 Efs show no removals
20053	Schreir & Silvius, Arina & Marc	2	74		2	N2O emissions and removals from organic soils ?	Attachment_20050.pdf	Rejected	The revised Tier 1 Efs show no removals
20054	Eve, Marlen D	2	75	75	2	This line should not be a bullet.		Accepted.	
20055	Hopfensperger, Kristine	2	75	75	2	I would not have this bulleted		Accepted.	
20056	Navarrete Encinales, Diego Alej	2	75	75	2	The bullet should be deleted.		Accepted.	
20057	Strack, Maria	2	75	75		It appears that no bullet is needed for this line as it introduces the list below.		Accepted.	
20058	Thompson, Victoria	2	75	75	2	This line should not be bulleted		Accepted.	
20059	Thomson, Amanda	2	75	75	2	Remove bullet point formatting		Accepted.	
20060	Gyldenkarne, Steen	2	76	83	2	should be indentated as these are subcategories of the sentence in line 75.		Accepted.	
20061	Schreir & Silvius, Arina & Marc	2	76		2	Providing…CH4 emissions from drainage ditches (and other water bodies? E.g. in the tropics artificial ponds belonging to production mills for palm oil, other human-made lakes or ponds?)	Attachment_20050.pdf	Rejected.	This chapter deals with wetlands associated with drainage. Rewetted land, reservoirs and constructed wetlands are dealt with elsewhere.
20062	Sperow, Mark	2	76	83	2	Since this list is a subset of Line 75, please indent.		Rejected.	Line 75 should not be bulleted.
20063	Wirth, Tom	2	84	84	2	I'm not sure it is necessary to break out the guidance by land remaining and land converted sections. This chapter is really cross-cutting guidance that supplements generic chapter 2 in IPCC 2006. Would suggest you look at chapter 3 of the Wetlands Supplement and replicated that organization approach.		Rejected.	We keep the structure for consistency.
20064	Andren, Olof	2	88		2	onCO2 > on CO_2		Accepted.	
20065	Evrendilek, Fatih	2	88	88	2	This section deals with the impacts of drainage and management on CO2 emissions		Accepted.	
20066	Klemedtsson, Asa Kasimir	2	88		2	CO2, subscript for "2"		Accepted.	
20067	Lilleskov, Erik Andrew	2	88	91	2	Lines 88-91. First line states the focus on CO2 emissions, followed by examples that include POC loss and DOC loss. This is unclear. These are carbon losses, not CO2 losses. If the focus is on emissions then there should be a mention of downstream emissions of CO2. As pointed out elsewhere in the document, a significant proportion of the POC could end up in sediments rather than lost as CO2, and POC is not accounted for in the method. If this paragraph is focused on loss of C from the site, whether gaseous, solid or dissolved phase, then the first line needs to be adjusted to be in line with this.		Accepted.	paragraph has been simplified.
20068	Lund, Herluf Gyde	2	88	88	2	The 2 in CO2 should be a subscript. Insert space between on and CO2.		Accepted.	
20069	Mu, Zhijian	2	88	88	2	onCO2 should be revised as "on CO2".		Accepted.	

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20070	Navarrete Encinales, Diego Alej	2	88	88	2	Include a space between "on'-'CO2".		Accepted.	
20071	Rock, Joachim	2	88	88	2	insert space between "on" and "CO2"		Accepted.	
20072	Sperow, Mark	2	88	88	2	Space is needed between "on" and "CO2".		Accepted.	
20073	Thompson, Victoria	2	88	88	2	Insert space between "on" and "CO2" and subscript 2		Accepted.	
20074	Thomson, Amanda	2	88	88	2	Correct onCO2		Accepted.	
20075	Xu, Xiaofeng	2	88	88	2	there is a space between ‘‘on’’ and ‘‘CO2’’.		Accepted.	
20076	Mu, Zhijian	2	90	91	2	DOC shouldd be placed after "dissolved organic carbon".		Accepted.	
20077	Wang, Changke	2	90	91	2	Please repalce "loss of dissolved organic carbon in drainage waters (DOC)" with "loss of dissolved organic carbon(DOC)and dissolved inorganic carbon (DIC) in drainage waters." The reason is that DIC is one part of waterborne carbon.		Accepted.	Text added
20078	Xu, Xiaofeng	2	90	90	2	dissolved organic carbon (DOC)		Accepted.	
20079	Xu, Xiaofeng	2	91	91	2	remove ‘‘(DOC)’’		Rejected.	DOC was moved after "dissolved organic carbon" according to the other comments.
20080	Thompson, Victoria	2	93	93	2	Insert "Volume 4," before "Chapter 2"		Accepted.	
20081	Thompson, Victoria	2	96	97	2	Is use of "we" consistent with IPCC standard? See also lines 695-697 and 968-970		Accepted.	All respective sentences have been changed to passive voice.
20082	Bedard-Haughn, Angela	2	97	98	2	Are there references to back up this assumption? If so, please cite them here.		Accepted.	Sentence was changed, but no reference added because most studies have been performed on long-term drained soils, so this is the overwhelming evidence used to derive the Efs.
20083	Evrendilek, Fatih	2	97	97	2	management and that eventually emissions become "negligible". (delete the second period)		Accepted.	
20084	FEDERICI, Sandro	2	97	97		eventually emissions become negligible. . It should be "eventually the net C stock change becomes negligible." Indeed, what it is matter it's the net flux from soil (huge emissions paired by an equivalemt amount of removals would result in no net emissions (no net changes in stock) being therefore negligible.		Accepted.	Section has been updated
20085	FENTON, Nicole J	2	97	98		The consideration that organis soils emit carbon once they are drained continuously is I think a generalisation, and in fact the table 2.1 this is reflected by the negative values for boreal forest soils. In fact with forest regeneration it would be important to consider carbon sequestration by the entire ecosystem		Accepted.	Sentence was changed, but no reference added because most studies have been performed on long-term drained soils, so this is the overwhelming evidence used to derive the Efs.However, the whole ecosystem approach as suggested by the comment is not consistent with the IPCC Guidelines, which consider different carbon pools in ecosystems separately.
20086	Garcia-Diaz, Cristina	2	97	97	2	wetlands can be source or sinks of GHG to the atmosphere Action: include "and removals" after "eventual emissions"		Accepted.	aligned with table
20087	Huissteden, Ko van	2	97	98	2	add to this sentence: ' or the soil carbon has been depleted'		Accepted.	the sentence was changed in a more general way.
20088	Kabo-Bah, Amos Tiereyangn	2	97		2	. . double period. Please check and delete out one of them.		Accepted.	
20089	KIM, Raehyun	2	97	97		become negligible. . In organic soils, =>become negligible. In organic soils,		Accepted.	
20090	Klemedtsson, Asa Kasimir	2	97		2	a full stop too much in the line.		Accepted.	
20091	Kolka, Randy	2	97	97	2	I realize there is not much literature on gas fluxes from drained mineral wetlands but I don't understand the rationale on why they would eventually have negligible emissions following drainage. I would think they continue to have at least higher CO2 emissions depending on the depth of drainage.		Accepted.	Obviously, the comparison with upland mineral soils had led to confusion so it was deleted.
20092	Lund, Herluf Gyde	2	97	97	2	negligible. . In - Delete second period and extra space.		Accepted.	
20093	MacDonald, James Douglas	2	97	97	2	two periods		Accepted.	
20094	Navarrete Encinales, Diego Alej	2	97	97	2	Delete one of the two periods.		Accepted.	
20095	Rock, Joachim	2	97	97	2	Delete " ."		Accepted.	
20096	Thompson, Victoria	2	97	97	2	insert comma after management and delete extra space between sentences		Accepted.	
20097	Thomson, Amanda	2	97	97	2	Correct double full stop		Accepted.	
20098	Couwenberg, John	2	98		2	'...until drainage is reversed.' Also: until peat is depleted (all gone) or until a technical drainage limit is reached, beyond which deeper drainage is impossible.		Accepted with modification	Add a sentence that the method applies to org. soils which have enough peat.

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20099	Lilleskov, Erik Andrew	2	98	98	2	Line 98. The assumption stated here implies unlimited C supply. In the more shallow organic soils C stocks could be exhausted over time.		Accepted with modification	Add a sentence that the method applies to org. soils which have enough peat.
20100	Philip, Elizabeth	2	98		2	How is peat subsidence in shallow peat considered in relation to this statement? The subsidence of shallow peat in tropical countries stablises in most cases after 3 years.		Accepted with modification	Added a sentence that the method applies to org. soils which have enough peat.
20101	Rock, Joachim	2	98	98	2	same as 1-169:174: What happens if all organic C is lost / organic layer (horizon) thickness falls below threshold?		Accepted with modification	Added a sentence that the method applies to org. soils which have enough peat.
20102	Sperow, Mark	2	98	98	2	Delete extra period between "negligible" and 'In"		Accepted.	
20103	Schreir & Silvius, Arina & Marc	2	99		2	The total change in C stocks: also includes CH4 which is not mentioned neither in the tekst, nor in the equation. The contribution is low in terms of carbon, however, it should be mentioned.	Attachment_20050.pdf	Rejected.	This is the CO2 sub-chapter.
20104	Wang, Changke	2	100	101	2	The sentence should be read as"which combines the on-site emissions from soil organic matter decomposition and off-site emissions from POC,DIC and DOC".		Accepted.	Changed in the sense of the comment.
	Xu, Xiaofeng	2	100	100	2	indirect emissions from POC and DOC. Actually it is decomposition or mineralization of POC and DOC; I would suggest to use “decomposition and mineralization”, rather than indirect emission.		Rejected.	The off-site CO2 from these sources is to be highlighted here. Refer to appendix
20106	Kabo-Bah, Amos Tiereyangn	2	101	108	2	Equation 2.1 should be checked. The variable definitions on the Left Hand Side of the equations are the same. One needs to be replaced with the off-site CO2 emissions		Accepted.	
20107	Baltzer, Heiko	2	102	104	2	Correct the typo in the equation "Lorganic-CO2-C(on-site)" appears twice and one of the terms should be "Lorganic-CO2-C(off-site)"		Accepted.	
20108	Bedard-Haughn, Angela	2	102	109	2	Typos in equation and definitions below.		Accepted.	
20109	Choowaew, Sansanee	2	102	104	2	Equation 2.1 should read " ……. = …… + …… (off-site)		Accepted.	
20110	FEDERICI, Sandro	2	102	104		for one term of the equation the text "on-site" should be replaced with "off-site"		Accepted.	
20111	FENTON, Nicole J	2	102	108		Typo in formula - on site is used twice, also typo in explanation for off site		Accepted.	
20112	Gyldenkarne, Steen	2	102	104	2	Only C shold be given in the equations not CO2		Accepted.	Units changed
20113	Gyldenkarne, Steen	2	102	104	2	Error in the name of the equation, on-site should be off-site		Accepted.	
20114	Hamilton, Stephen K.	2	102		2	Second term on right side of equation should say “off-site” not “on-site”.		Accepted.	
20115	Hatala, Jaclyn	2	102	103	2	There is a typo in the formula - the subscript for one of the two terms on the right should read 'off-site'		Accepted.	
20116	Hopfensperger, Kristine	2	102	104	2	Equation 2.1: is one of the terms supposed to be soil C (off-site)? Because they are both "ON-site"		Accepted.	
20117	Kishitomo, Ayaka	2	102	104	2	The second (on-site) should be (off-site)		Accepted.	
20118	Klemedtsson, Asa Kasimir	2	102	104	2	Eq 2.1 the second term should be off-site not on-site, on-site was for the first term.		Accepted.	
20119	Lapveteläinen, Tuija	2	102	108		In the equation 2.1 there is two times on-site emissions in the parenthesis, should the latter one be of-site?		Accepted.	
20120	PENMAN, Jim	2	102			Equation 2.1 - Is this equation given in the 2006 GL? If so would be worth cross referencing. I think we should do this for all equations that occur in the 2006 GL (so I won’t keep making the comment)		Accepted.	equation has been removed
20121	RYAN, Zoe E	2	102	104		There is an error in this equation. The two components on the right of the equals sign are the same (one should read 'off-site' as the sub-script)		Accepted.	
20122	Somogyi, Zoltan	2	102	104	2.2.1	in Equation 2.1, the index of one of the Ls should include "off-site" instead of "on-site"		Accepted.	
20123	Sperow, Mark	2	102	104	2	The subscript for the last variable should be "off-site' not "on-site".		Accepted.	
20124	Strack, Maria	2	102	104		second term in equation should be LOrganic-CO2-C(offsite). On site is repeated twice currently.		Accepted.	
20125	Tuomainen, Tarja	2	102	104	2	Equation 2.1. There is an error in the second equation factor's subscript Organic-CO2-C(on-site) shoul be Organic-CO2-C(off-site)		Accepted.	
20126	Oiumet, Rock	2	103	104	2	Eq. 2.1; The equation needs to be rephrased. The off-site paramater does not appear in the formula.		Accepted.	
20127	Stenhouse, Michel	2	103		2	Equation 2.1: last term should be "off-site"		Accepted.	
20128	Xu, Xiaofeng	2	103	103	2	equation 2.1. The second item on the right side of the equation is “off-site”.		Accepted.	
20129	Couwenberg, John	2	104		2	both subscripts read 'on site', one should read 'off-site'		Accepted.	
20130	Garcia-Diaz, Cristina	2	104	104	2	comment both addends in the equation are exactly the same (both say ON-SITE). Action Correct. One of the addends should be OFF-SITE		Accepted.	
20131	KIM, Raehyun	2	104	108		Lorganic-CO2-c => Lorganic-CO2-c		Accepted.	
20132	Kiyono, Yoshiyuki	2	104	104		The last member of the equation 2.1 should be written as L Organic-CO2-C (off-site).		Accepted.	
20133	Mu, Zhijian	2	104	104	2	One of the addends should be subscripted with "off-site".		Accepted.	
20134	Radunsky, Klaus	2	104	104	2	in equation 2.1 the last term should relate to: L organic-CO2-C(off-site)		Accepted.	
20135	Rock, Joachim	2	104	104	2	One of the indices should be "C(off-site)".		Accepted.	
20136	Schreir & Silvius, Arina & Marc	2	104		2	equation: Lorganic-co2-c(on-site) + Lorganic-co2-C(off-site)	Attachment_20050.pdf	Accepted.	
20137	Thompson, Victoria	2	104	104	2	Last term of equation says on-site instead of off-site		Accepted.	
20138	TIEMEYER, Barbel	2	104	104		Equation should read LOrganic-CO2-C = LOrganic-CO2-C(on-site) + LOrganic-CO2-C(off-site)		Accepted.	
20139	Wang, Changke	2	104		2	Please repalce the last"on-site" with "off-site".		Accepted.	
20140	Evrendilek, Fatih	2	105	105	2	"Where:" should read "where" throughout the manuscript.		Accepted.	
20141	Kishitomo, Ayaka	2	105	109	2	Please indicate what "managed" are included. Does only "drained" induce "the on-site CO2-C emission"?		Rejected	The MLP has been explained in Ch 1 and in the 2006 guidelines
20142	Baltzer, Heiko	2	106	108	2	Correct the typo "Lorganic-CO2-C(on-site0t" to "Lorganic-CO2-C(on-site)"		Accepted.	
20143	Baltzer, Heiko	2	106	108	2	Correct the typo "Lorganic-CO2-C(off-site0t" to "Lorganic-CO2-C(off-site)"		Accepted.	
20144	Kiyono, Yoshiyuki	2	106	106		tonnes and Mg are inconsistently used throughout the manuscript.		Accepted.	
20145	Schreir & Silvius, Arina & Marc	2	106		2	idem. Should say Annual CO2 and DOC/POC loss, or should change the formula.	Attachment_20050.pdf	Accepted.	Equations have been revised
20146	Thompson, Victoria	2	106	108	2	units should be tonnes CO2-C yr-1		Accepted.	Units changed
20147	Klemedtsson, Asa Kasimir	2	107		2	change 0t into)		Accepted.	
20148	MacDonald, James Douglas	2	107	108	2	check subscripts, appear to not be correct		Accepted.	
20149	MIAO, Chiyuan	2	107	109		The expression of subscript in the equation is error		Accepted.	
20150	Navarrete Encinales, Diego Alej	2	107	107	2	) instead of "0t".		Accepted.	
20151	SHARMA, Chhemendra	2	107	108		Check equations (typo error)		Accepted.	
20152	Somogyi, Zoltan	2	107	108	2.2.1	the term "0t" at the end of the indices is not clear		Accepted.	
20153	Sperow, Mark	2	107	108	2	In both of these equations, the last portion of the subscript is "0t" which I believe should be ")".		Accepted.	
20154	Thompson, Victoria	2	107	108	2	close parentheses missing in subscript, seems to be related with 0t		Accepted.	
20155	Klemedtsson, Asa Kasimir	2	108		2	change 0t into)		Accepted.	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20156	Navarrete Encinales, Diego Alej	2	108	108	2	) instead of "0t".		Accepted.	
20157	Wang, Changke	2	108		2	Please insert (only represented by DOC at present) after "losses".		Noted	Equations have been revised and the comment is no longer relevant
20158	Thompson, Victoria	2	112	112	2	Replace Chapter with Section		Accepted.	
20159	Evrendilek, Fatih	2	115	115	2	The activity "of" re-		Accepted.	
20160	Thompson, Victoria	2	115	115	2	Delete activity		Accepted.	
20161	Thompson, Victoria	2	117	118	2	insert the before 2006 IPCC Guidelines, add comma after Guidelines and after Volume 4, relace Chapter with Section		Accepted.	
20162	Thompson, Victoria	2	122	129	2	Should these paragraphs refer to water tables or water table levels?		Accepted.	Section has been revised
20163	Couwenberg, John	2	123		2	can you define 'deeply drained'?		Accepted.	Guidance has been provided
20164	Klemedtsson, Asa Kasimir	2	123		2	Could it possible be said more clairly what is meant by "deeply drained" and "dry" is not dry only drier than earlier. Maybe "well-drained" is a better expression.		Accepted	Guidance has been provided
20165	PENMAN, Jim	2	123			replace "it is assumed" with " the 2006 Guidelines assume" if this is the intended meaning i.e. assumed by what/whom?		Accepted.	rephrased.
20166	Schreir & Silvius, Arina & Marc	2	123		2	what is deeply drained? Please specify since e.g. CO2 emissions from tropical peat lands are dependent on water table depth.	Attachment_20050.pdf	Accepted	Guidance has been provided
20167	FEDERICI, Sandro	2	125	126		the following text is not fully clear: "The magnitude of annual CO2 emissions is roughly proportional to the distance between the mean annual water table and the soil surface in unfertilized systems, in the absence of fire"; it is suggested to redraft as follows: "Without considering CO2 emissions due to fertilization and fire that may and may not occur in a drained land, the magnitude of annual CO2 emissions is roughly proportional to the distance between the mean annual water table and the soil surface"		Accepted.	Section has been revised
20168	PENMAN, Jim	2	125			insert "in fact" at the beginning of the sentence because the additional information in this para only applies at higher Tiers.		Accepted.	Modified differently.
20169	Rock, Joachim	2	125	126	2	Please give a reference for this statement.		Accepted.	Reference added
20170	Romanovskaya, Anna	2	128		2	consistency in the text for the way of writing word "Tier" or "tier"		Accepted.	
20171	Klemedtsson, Asa Kasimir	2	129		2	dry the same suggestion as above		Accepted.	Guidance has been provided
20172	Thompson, Victoria	2	129	129	2	replace which with that		Accepted.	
20173	Sperow, Mark	2	130	134	2	Consistency with presentation of volume ("Volume" vs "Vol.").		Accepted.	
20174	Thompson, Victoria	2	130	130	2	Replace Chapter with Section		Accepted.	Replace Chapter with Section
20175	Thompson, Victoria	2	133	134	2	Capitalize section and equation; delete either period or colon at end of sentence; this paragraph should include a reference to Equation 2.2.		Accepted.	
20176	Sperow, Mark	2	134	134	2	Equation 2.26 in Vol. 4 is not the same as Equation 2.2, so this may be somewhat misleading.		Accepted.	Add: Equation 2.2 here derives from Equation 2.26 in IPCC 2006 Vol 4 by clarifying tha t some land use categories may be stratified by nutrient status.
20177	Sperow, Mark	2	135	137	2	Equation 2.2 contains a subscript for nutrient status. Where is this defined and how does the user know what the nutrient status is for their site?		Accepted with modification	2006 GL page 7.12 provide description, we mean "bogs" versus "fens". This has to be defined in Chapter 1.
20178	KIM, Raehyun	2	136	136		Lorganic-CO2-c => Lorganic-CO2-c		Accepted.	
20179	Lund, Herluf Gyde	2	139	139	2	The 2 in the first CO2 should be a subscript.		Accepted.	
20180	Thompson, Victoria	2	139	139	2	units should be tonnes CO2-C yr-1		Accepted.	Units changed
20181	Wirth, Tom	2	140	140	2	Should you mention that the nutrient status only applies to forestland.		Accepted with modification	2006 GL page 7.12 provide description, we mean "bogs" versus "fens". This has to be defined in Chapter 1.
20182	Couwenberg, John	2	148		2	delete 'in Forest Land or other land use categories'		Accepted.	Deleted
20183	Gyldenkarne, Steen	2	150	150	2	delete "is"		Accepted.	
20184	Klemedtsson, Asa Kasimir	2	150		2	delete "is" in "...factors is if…"		Accepted.	Deleted
20185	Lapveteläinen, Tuija	2	150	150	2.2.1.1	Remove second "is" from the sentence :"It is a good practice to derive country-specific emission factors is if experimental data are available."		Accepted.	
20186	Mu, Zhijian	2	150	150	2	Delete "is" before "if".		Accepted.	
20187	Navarrete Encinales, Diego Alej	2	150	150	2	Delete the word "is" after "factors".		Accepted.	
20188	Rock, Joachim	2	150	150	2	Delete "is" following "factors".		Accepted.	
20189	SHARMA, Chhemendra	2	150	150		Sentence need to be rephrased		Accepted.	
20190	Sperow, Mark	2	150	150	2	Delete "is" from "factors is if".		Accepted.	
20191	Thompson, Victoria	2	150	151	2	delete "a" before good practice. Italicize good practice (2x)		Accepted.	
20192	FAGGI, Ana	2	151			delete "the" before "Annex 2A.1"		Accepted.	
20193	Klemedtsson, Asa Kasimir	2	151		2	No, Annex 2A1 is dealing with ditch CH4 emissions. There is some text (lines 869-944) under 2a.1 POC, (confusing numbering of Annx) which deals with measrement techniques. Could be a separate Annex.		Accepted.	
20194	Sperow, Mark	2	151	151	2	I am not sure this is the correct Annex to reference - the reference provided is for "Ditch CH4 Factors" but this section addresses CO2.		Accepted.	
20195	MacDonald, James Douglas	2	152	152	2	Annex 2.A.1		Accepted.	
20196	PENMAN, Jim	2	153	154		replace "derivation must" with "classification should"		Accepted.	Changed in the sense of the comment.
20197	FEDERICI, Sandro	2	155	155		It is usggested to add: "Unless regional emission factors are calculated for different regions of the country."		Accepted.	Section has been revised and this has been corrected
20198	ADHYA, Tapan Kumar	2	158	162		In measurement based approaches, use of eddy covariance could be highly usefulas has been demonstrated for drained peatlands		Accepted.	No change necessary.
20199	Evrendilek, Fatih	2	158	158	2	can be estimated with a "process-based (mechanistic)" model or "a data-driven approach"		Accepted.	Section has been revised and this has been corrected
20200	Thompson, Victoria	2	158	158	2	insert hyphens after model and measurement		Accepted.	Sentence has been changed.
20201	Evrendilek, Fatih	2	159	159	2	Dynamic, "mechanistic" models		Accepted.	text added
20202	Romanovskaya, Anna	2	159		2	would be possible to provide here some examples or even references (web-reference) to existing models?		Accepted.	Add reference.
20203	Thompson, Victoria	2	159	159	2	delete based, delete comma after processes		Accepted.	
20204	PENMAN, Jim	2	161	162		Authors should consider whether this workshop report (2010 Sydney expert meeting) contains useful information, e.g. on improving transparency of complex models. May be better to put this advice in the introduction to this chapter, so that it refers to all Tier 3 approaches		Accepted with modification	Check whether it is useful to include the reference, maybe be more detailed
20205	Leifeld, Jens	2	167	169		We recently published two studies where we measured CO2 EF from drained temeprate peatlands (both bogs and fens) under grassland or cropland that may be included in table 2.1. The corresponding references are: Leifeld, J., Müller, M., Fuhrer, J., 2011. Peatland subsidence and carbon loss from drained temperate fens. Soil Use and Management 27: 170-176. Leifeld, J., Gubler, L., Grünig, A., 2011. Organic matter losses from temperate ombrotrophic peatlands: An evaluation of the ash residue method. Plant and Soil 341: 349-361.		Accepted with modification	Update EFs
20206	FEDERICI, Sandro	2	168	168		table 2.1, the number "-.036" is uncorrect		Accepted with modification	Update EFs
20207	Kishitomo, Ayaka	2	168	169	2	Table 2.1: Please indicte the Emission Factors are new or improved from 2006 Guidelines (would be better to show the values before improved), or the existed EFs of 2006 Guidelines.		Accepted with modification	Update EFs

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20208	Klemedtsson, Asa Kasimir	2	168	169	2	Table 2.1, the headline for "Cropland" should be moved one position up, above boreal cropland.		Accepted with modification	Update EFs
20209	Klemedtsson, Asa Kasimir	2	168	169	2	After read Ch2 I am confused. What do the EF in table 2.1 represent? Is it emission from decomposition of SOM (as I thought)? Or is it NEE? Or stock change?		Accepted with modification	Update EFs
20210	Klemedtsson, Asa Kasimir	2	168	169	2	Table 2.1, I have comments on the EF for boreal soils, and which refernces (systems and methods) to use to base this EF. See attached file "commentCO2"	Attachment_20210.pdf	Accepted with modification	Update EFs
20211	Klemedtsson, Asa Kasimir	2	168	169	2	the reference Lindroth et al. 2007 should be 2008		Accepted with modification	Update EFs
20212	Klemedtsson, Asa Kasimir	2	168	169	2	Table 2.1, should be Kasimir Klemedtsson instead of Kasimir-Klemedtsson at two places, temperate croplands, respectively grasslands.		Accepted with modification	Update EFs
20213	Lapveteläinen, Tuija	2	168	169	2.2.1.1	In Table 2.1 EF for Boreal forest soils indicate removals (negative values), with footnote * including litter and coarse woody debris. This is confusing for the inventory compiler. Earlier IPCC guidance and reporting tables in general require/recommend that each pool should be reported separately. Is it possible to exclude the DOM pool from the EF's to be consistent with the reporting requirements and also with the other EFs reported in the talbe 2.1? If EF's can not be produced only for soil pool, this and it's concequences (would EF be negative or positive without the litter and coarse wood pool?) should be explained more transparently in the text (a small footnote in the table is not enough for inventory compiler). As other IPCC Guidelines and UNFCCC guidance and reporting tables in general recommend/require reporting of emissions by pools, the Good practice for situations, where only aggregate EF is available should be included/discussed (including the possible risk of double accounting). Title of the table 2.1 refers to CO2 EF, when EF in table are given as C?		Accepted with modification	Update EFs
20214	Lund, Herluf Gyde	2	168	169	2	Table 2.1 - Consider repeating table headings on each page.		Accepted with modification	Update EFs
20215	Lund, Herluf Gyde	2	168	169	2	Table 2.1 - Column 1 - I think the 2 in CO2 should be a subscript.		Accepted with modification	Update EFs
20216	Lund, Herluf Gyde	2	168	169	2	Table 2.1 - Column 3- page 2.6 should Von be von?		Accepted with modification	Update EFs
20217	Lund, Herluf Gyde	2	168	169	2	Table 2.1 - Column 3 Page 2.7 Wetlands - Should Tuittila et al. 1995 be Tuittila and Komulainen 1995? See lines 1265-1266		Accepted with modification	Update EFs
20218	Lund, Herluf Gyde	2	168	169	2	Table 2.1 Page 2.7. Column 4. Grasslands - Change Gronlund to Grønlund.		Accepted with modification	Update EFs
20219	Lund, Herluf Gyde	2	168	169	2	Table 2.1 Page 2.7. Column 4. Wetlands - Should Ahlholm et al. 1990 be Ahlholm and Silvola as in the References? See lines 1060-1061.		Accepted with modification	Update EFs
20220	Lund, Herluf Gyde	2	168	169	2	Table 2.1 Page 2.7. Column 4. Wetlands - Change Nykanen to Nykänen		Accepted with modification	Update EFs
20221	Lund, Herluf Gyde	2	168	169	2	Table 2.1. Page 2.6.Column 5. Grassland - Should Klemedtsson et al. 1997 be Klemedtsson et al. 2005 as in references?;		Accepted with modification	Update EFs
20222	Lund, Herluf Gyde	2	168	169	2	Table 2.1. Page 2.7.Column 5. Grassland - Lorenz et al. 2002 - Citation is not complete in the references. See line 1151.		Accepted with modification	Update EFs
20223	Lund, Herluf Gyde	2	168	169	2	Table 2.1, Page 2.7 - Repeat headings from page 2.6. Repeat heading for other tables in this chapter as well.		Accepted with modification	Update EFs
20224	PARISH, Faizal	2	168	169		Table 2.1 Forest land First row - please verify that the carbon stock of all drained, forested organic soils are accumulating carbon - as all other categories of land are losing carbon. Is the gain in the SOC or in the surface litter? General comment - significant updated information given in Couwenberg 2010 (see FILE Couwenbery 2010 mires and peatlands - "Attachment_20224A.pdf") Forestlandf row 6 - plantations - the levels estimated is much lower than in the comprehensive recent study - eg JAUHIAINEN ET AL. 2012_A CARBON DIOXIDE EMISSIONS FROM AN ACACIA PLANTATION ON PEATLAND IN SUMATRA, INDONESIA which estimates at least 86tCO2/ha/yr or 24tC/ha/yr (FILE Jauhiainen et al 2012 CO2 flux - "Attachment_20224B.pdf") Cropland row 2-4 - no references are given. Cropland row 4 - the oil palm plantation emission factor appears to be extremely low and not in aline with any of the recent literature. The generally accepted emision level for oil palm on peatland is between 60-90tco2/ha/yr = 16.8-25 tC/ha/yr additional literature is provided including 1. Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011). Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia (ICCT White Paper 15). Washington: International Council on Clean Transportation (FILE name ICCT Peat emissions september 2011 - "Attachment_20224C.pdf"). 2. Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment_20224D.pdf")	Attachment_20224A.pdf, Attachment_20224B.pdf, Attachment_20224C.pdf, Attachment_20224D.pdf	Accepted with modification	Update EFs
20225	Romanovskaya, Anna	2	168	169	2	the 3rd column titles as Emission factor (tones C ha-1 yr-1), however it is not clear what is related soil layer considered? 0-30cm?		Accepted with modification	Update EFs
20226	Romanovskaya, Anna	2	168	169	2	words as "nutrient poor" and "nutrient rich" used, however there are no definitions/explanations for these terms		Accepted with modification	Update EFs
20227	Romanovskaya, Anna	2	168	169	2	for Forest Land and Cropland in tropical/subtropical -- the references used to develop Efs (which are very precise! And have precise numbers for uncertainty) are not provided. If that is assumption of Authors - that should be clearly mentioned		Accepted with modification	Update EFs
20228	Romanovskaya, Anna	2	168	169	2	first line with croplands EF is coming before of heading for Cropland - please, move down		Accepted with modification	Update EFs
20229	Romanovskaya, Anna	2	168	169	2	for Rice tropical/subtropical it is not clear what kind of water regime for rice production has been assumed for developing of default EF. It might be that rice field is wet for the part of vegetation season and sometimes is dry. It should be clarified. probably, some modifications may be done in equation 2.2 - to use annual EF only for the part of the yea		Accepted with modification	Update EFs
20230	Romanovskaya, Anna	2	168	169	2	for Settlements the same EF assumed as for Croplands. That is WRONG assumption, which led to overestimations. Croplands are intensively managed lands, while settlements are not. EF for settlements should be assumed zero if where are not more exact information		Accepted with modification	Update EFs
20231	Romanovskaya, Anna	2	168	169	2	the uncertainties should be given in consistent way across the table, across all tables in the Supplement and consistent with requirements of IPCC GPG and 2006 IPCC Guidelines - please provide everywhere just 95% confident interval, which is required to be used in GHG inventories.		Accepted with modification	Update EFs
20232	Romanovskaya, Anna	2	168	169	2	explanations on positive and negative values indicated emissions or removals - please, move that from footnote to the subtitle of the table		Accepted with modification	Update EFs

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20233	RYAN, Zoe E	2	168	169		Table 2.1, emission factor for Plantation (e.g. Acacia) on Tropical/Sub-Tropical organic soils appears to be a significant underestimate. Contemporary research conducted in drained peatlands in the tropics has revealed emissions in the order of 50 t C ha-1 yr-1 for the first five years after drainage, and then in the order of 20 t C ha-1 yr-1 thereafter. For example, see Jauhiainen, J. A. Hooijer, and S. E. Page (2012). Carbon dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia. BioGeosciences, 9, 17 - 30; and Hooijer, A., S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari. (2012). Subsidence and carbon loss in drained tropical peatlands. BioGeosciences, 9, 1053 - 1071. There is a wealth of other references that support the emission factors found in the aforementioned studies, so the default value of 11.67 t C ha-1 listed in Table 2.1 appears as an anomoly, and out of line with current research. Is this because the default value applies to both tropical and subtropical organic soils? If so, then I suggest that these climatic zones be seperated, in order to better reflect the true rate of emissions from drained organic soils. Also, where are the references for these values? This seems highly unusual to cite an emission factor so out of step with contemporary research in this area, and then not provide a reference?		Accepted with modification	Update EFs
20234	RYAN, Zoe E	2	168	169		Table 2.1, emission factor for Forest Land in the Tropical/Sub Tropical region. While I agree that forest land can indeed be an emitter when the forest canopy has been partly removed, I think this qualifier needs to be added to the table to avoid giving the perception that all organic soils on forest lands are by default an emitter. If this were true, then the organic soils would not have accumulated in the first place. Therefore I suggest including a qualifier such as 'Secondary forest with removal of more than X% of original canopy'. However I am not aware of the threshhold canopy removal that triggers organic soils to become emitters, but perhaps this is something for the review committee to discuss. Again, it seems unsual not to cite a reference for this value.	Attachment_20234A.pdf, Attachment_20234B.pdf	Accepted with modification	Update EFs
20235	RYAN, Zoe E	2	168	169		Table 2.1, emission factor for oil palm plantation: The emissions factor of 5.24 t C ha-1 is OUTRAGEOUS. Apologies for using some emotive words, but this is such a gross underestimation of emissions from drained organic soils in oil palm plantations, it would not only be an absolute embarrassment for the IPCC to publicly release this figure, but it would likely cause a media scandal similar in scale to the 'ClimateGate' affair involving the University of East Anglica. The default value of 5.24 t C ha-1 listed in Table 2.1 appears as an anomoly, and out of line with current research. As mentioned in an earlier comment, contemporary research conducted in drained peatlands in the tropics has revealed emissions in the order of 50 t C ha-1 yr-1 for the first five years after drainage, and then in the order of 20 t C ha-1 yr-1 thereafter. For example, see Jauhiainen, et al (2012) attached, and Hooijer et al (2012), attached. Is this because the default value applies to both tropical and subtropical organic soils? If so, then I suggest that these climatic zones be seperated, in order to better reflect the true rate of emissions from drained organic soils in the tropics. Also, where are the references for these values? This seems highly unusual to cite an emission factor so out of step with contemporary research in this area, and then not provide a reference? The cross reference to Table 5.6 in Chapter 5 of the 2006 IPCC Guidelines is given. This Table shows an emission factor of 20 t C ha-1 yr-1 for tropical/sub-tropical organic soils. It is concerning that the default emission factor has decreased so much from the 2006 figure, when research released since that time has only shown the 2006 figures to be a gross underestimate?		Accepted with modification	Update EFs
20236	Strack, Maria	2	168	169		Table 2.1: the second column could be confusing because it is labeled at Climate zone, but also used to nutrient status. Maybe just adding the climate zone in front of the nutrient status would clarify this. This also applies to Table 2.3 and Table 2.5		Accepted with modification	Update EFs
20237	Thomson, Amanda	2	168	168	2	Table 2.1 Cropand Heading needs to be moved up a row		Accepted with modification	Update EFs
20238	Thomson, Amanda	2	168	168	2	Why is Hargreaves et al 2003. used for Grassland and Peatland but not for Forest Land?		Accepted with modification	Update EFs
20239	Tuomainen, Tarja	2	168	169	2	Table 2.1. The title is 'Tier 1 CO2 emission/removal factors…' and in the footnote 'Positive and negative values indicate net CO2 emissions and removals respectively.' Anyway the emission factors are in carbon and the signs are thus opposite. Some EF values includes DOM and some not, it is preferable to present comparable values, if possible.		Accepted with modification	Update EFs
20240	Gyldenkarne, Steen	2	169	169	2	Column 1. The naming should be the same as in the equations. It is ok with an explanation.		Accepted with modification	Update EFs
20241	Gyldenkarne, Steen	2	169	169	2	Column 2. Nutrient poor and Nutrient rich is not a climate zone. Please give the correct climate zone and NP and NR as sub categories		Accepted with modification	Update EFs
20242	Gyldenkarne, Steen	2	169	169	2	Column 3. EF for boreal and temperatue wetlands should be checked or commented on. Is it scientifically OK that the surface emission from a boreal area is higher than from a temperate area (1.47 versus 0.732)		Accepted with modification	Update EFs
20243	Huissteden, Ko van	2	169	169	2	in the 'Grasslands' rows, I miss recent publications by Hendriks et al. (2007, Biogeosciences 4:411-424) , Jacobs et al (Biogeosciences 4:803-816), Veenendaal et al. , Bigeosciences 4:1027-1040)		Accepted with modification	Update EFs
20244	Ishizuka, Shigehiro	2	169	169	2	With Table 2.1: The "Cropland" should translocate to 1-row up (between "Plantation" and "Cropland EFCO2CropBoreal")		Accepted with modification	Update EFs
20245	Rock, Joachim	2	169	169	2	Table 2.1, second column: You mix climate zone and nutrient status here, so please indicate so in the heading of the column.		Accepted with modification	Update EFs
20246	Rock, Joachim	2	169	169	2	Table 2.1: The row "cropland" is inserted too low. Raise one row and exchange with "cropland … boreal".		Accepted with modification	Update EFs
20247	Cai, Zucong	2	170	180	2	The rate of carbon loss changes with time after draining organic soil as described in Trie 3. The time factor shall be taken into account. It would be a choice to introduce a time factor in Eq. 2.		Accepted.	Clarify the text. The EF should be an average over a typical rotation period. Higher Tiers could consider rotation cycles.
20248	COUWENBERG, John_2	2	171	180		this listing can do with some optimisation, stating that specific EFs can in general be developed depending on a) climate, b) drainage lay-out and intensity (incl. slope), c) nutrient status and d) land use intensity and practises		Accepted.	Better organisation, revise.
20249	PARISH, Faizal	2	171	180		suggest to add an extra dot point: stratification of tropical forestland/cropland categories according to drainage intensity, surface vegetation type and fertilisation regime		Accepted.	Better organisation, revise.
20250	Rock, Joachim	2	172	173	2	You state "… drainage classes … defined here", but tehre are none given.		Accepted.	Define drainage classes by giving typical ranges of drainage for the Efs in Table 2.1- see comments 20163, 20164, 20171. If within a land-use category drainage classes can be differentiated, we could provide Tier 2 Efs as well.
20251	PARISH, Faizal	2	173	173		not clear where the drainage classes are defined		Accepted.	Define drainage classes by giving typical ranges of drainage for the Efs in Table 2.1- see comments 20163, 20164, 20171. If within a land-use category drainage classes can be differentiated, we could provide Tier 2 Efs as well.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20252	PENMAN, Jim	2	175			before "blanket bogs" insert "" giving rise to"		Rejected.	Not necessary.
20253	COUWENBERG, John_2	2	176	177		why only boreal forest land? Why not stratification by nutrient status for all land use classes in all climate zones?		Accepted.	Take a broader formulation. Our text is misleading.
20254	Lund, Herluf Gyde	2	176	176	2	Here and elsewhere in this supplement - Should forestland be one word or two - forest land - as shown in table 2.1?		Accepted.	
20255	MacDonald, James Douglas	2	176	176	2	Define rich/poor or use other measure (example pH).		Accepted.	link with 2006 GL page 7.12.
20256	Romanovskaya, Anna	2	176		2	rich/poor nutrient status - these terms are not explained		Accepted.	Revised and linked with 2006 GL page 7.12.
20257	COUWENBERG, John_2	2	178	180		why only boreal and temperatae grassland? Why not stratisfy by land use intensity for all land use classes in all climate zones?		Accepted.	Text has been revised
20258	Lund, Herluf Gyde	2	182	182	2	Consider inserting a comma between 'type' and 'should'		Accepted.	
20259	Lund, Herluf Gyde	2	182	183	2	Here and elsewhere in this supplement - Consider using the active voice rather than the passive. For example 'CO2 flux data, disaggregated by activity type should be used to develop more precise, locally appropriate emission factors, correcting for carbon losses through leaching of waterborne carbon' is clearer as follows: 'Use CO2 flux data, disaggregated by activity type, to....'.		rejected	Generally IPCC recommens good practice and guidelines avoid saying what 'should' be done
20260	Sperow, Mark	2	184	184	2	Pleae verify that "Annex 2A.1" is the correct annex to reference.		Accepted.	Reference corrected
20261	Thompson, Victoria	2	184	184	2	delete the before Annex 2A.1		Accepted.	
20262	Evrendilek, Fatih	2	186	186	2	A Tier 3 approach might use "process-based" models		Accepted.	Text changed
20263	Huissteden, Ko van	2	186	186	2	after models, add ', adequately validated using observation data,'		Accepted.	Text changed
20264	Thompson, Victoria	2	186	186	2	delete initial space. Hyphenate water-table		Rejected.	
20265	PARISH, Faizal	2	192	193		Any reason why no guidance is given with regard to drainage classes - various studies eg Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011). Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia (ICCT White Paper 15). Washington: International Council on Clean Transportation (FILE name ICCT Peat emissions september 2011 - "Attachment_20224C.pdf"). 2. Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment_20224D.pdf") COUWENBERG, J., DOMMAIN, R. and JOOSTEN, H. (2010), Greenhouse gas fluxes from tropical peatlands in south-east Asia. Global Change Biology, 16: 1715–1732. doi: 10.1111/j.1365-2486.2009.02016.x (sorry dont have soft copy to send) - derives a conservative relationship for emission of 9tCO2/ha/yr for each 10cm of drainage	Attachment_20224C.pdf, Attachment_20224D.pdf	Accepted.	Text has been revised
20266	Thompson, Victoria	2	198	198	2	Capitalize chapter		Accepted.	
20267	Thompson, Victoria	2	203	203	2	delete this line		Accepted.	
20268	COUWENBERG, John_2	2	205			forestry should be presented as just an example; other land use categories should be included, however.		Accepted.	Text has been revised
20269	COUWENBERG, John_2	2	206			disaggregation IS useful if different production systems use different drainage depths; in case of forestry for example, it does make a difference whether pine or alder is cultivated on organic soil.		Accepted.	Text has been revised
20270	Evrendilek, Fatih	2	211	211	2	"Tier 1 approach requires" information on managed land areas in each land use category on organic "soils. In"		Accepted.	
20271	FEDERICI, Sandro	2	211	211		Amend as follows: "Tier 1 approach requires information on managed land areas in each land use category on organic soils."		Accepted.	
20272	Lund, Herluf Gyde	2	211	211	2	For Tier 1 approach, requires information on managed land areas in each land use category on organic soils' - This sentence does not make sense. Do the authors mean 'The Tier 1 approach requires information on managed land areas in each land use category on organic soils. ' Note - in either case, insert a period after soils.		Accepted.	
20273	Navarrete Encinales, Diego Alej	2	211	211	2	Include a period (.) after "… organic soils".		Accepted.	
20274	Radunsky, Klaus	2	211	211	2	The first sentence is unclear. It should be clearly stated which kind of information is required for which land areas.		Accepted.	Clairfication added
20275	Rock, Joachim	2	211	213	2	Check format: "." missing following "soils", delete "," following "stocks" and insert "," after "etc.)".		Accepted.	
20276	Thompson, Victoria	2	211	211	2	Replace first word "For" with "A". Delete comma after approach. Add period after organic soils.		Accepted.	
20277	Thomson, Amanda	2	211	211	2	Reword start of sentence into proper English		Accepted.	
20278	Vitullo, Marina	2	211	211	2	Change of the text: "For Tier 1 approach, requires information on managed land areas in each land use category on organic soils" as follow: "Tier 1 approach requires nformation on managed land areas in each land use category on organic soils."		Accepted.	
20279	PENMAN, Jim	2	212	213		Would this information be better provided together with Tier 2 stratification?		Accepted.	Text has been added to Tier 2
20280	Thompson, Victoria	2	212	212	2	insert comma after mineral soils, delete comma after C stocks		Accepted.	
20281	Thomson, Amanda	2	212	212	2	Insert comma after mineral soils		Accepted.	
20282	Thompson, Victoria	2	213	213	2	insert comma after close parenthesis		Accepted.	
20283	Lund, Herluf Gyde	2	217	217	2	Define ISRIC and FAO		Accepted.	
20284	Garcia-Diaz, Cristina	2	218	219	2	comment: The document says that "The Center for International 218 Forestry Research will publish a map of carbon in wetlands for the tropics in 2012". Action: If the report is going to be finalized by 2013, a replica of this map could be included in the document.		Accepted.	Reference has been writhdrawn, publicaiotn of the map is stillpending
20285	Lund, Herluf Gyde	2	219	219	2	Consider inserting (CIFOR) after Research.		Accepted.	
20286	Evrendilek, Fatih	2	223	223	2	Activity data under Tier 2 generally "follow" the methods presented		Accepted.	
20287	Thompson, Victoria	2	224	224	2	insert comma after Guidelines		Accepted.	
20288	Sperow, Mark	2	225	225	2	Should "and/or" be added after "drainage class" and the comma deleted?		Accepted.	Text was changed.
20289	Thompson, Victoria	2	225	225	2	be further rather than "further be"		Accepted.	Text was changed.
20290	COUWENBERG, John_2	2	226	227		forestry should be presented as just an example; other land use categories should be included, however.		Accepted.	Text was changed.
20291	FEDERICI, Sandro	2	226	227		In many instances standard drainage depths are used in forestry production systems and thus, disaggregation by drainage depth is not useful in improving the accuracy of the inventory. This text is meaningless; if I have different standard drainage depths for different forest management systems why should I not stratify by drainage depth? Anyhow, the sentence that in the guidelines follows this text also addressess the fact that wheter a factor does not show significant differences it is useless to stratify for that factor'		Accepted.	Text was changed.
20292	Rock, Joachim	2	226	228	2	Check format (too many spaces)		Accepted.	Text was changed.
20293	COUWENBERG, John_2	2	227	228		disaggregation IS useful if different production systems use different drainage depths; in case of forestry for example, it does make a difference whether pine or alder is cultivated on organic soil.		Accepted.	Text was changed.
20294	Evrendilek, Fatih	2	227	227	2	production "systems, and thus,"		Accepted.	Text was changed.
20295	MacDonald, James Douglas	2	228	229	2	Poorly structured sentence, revise.		Accepted.	Text was changed.
20296	ADHYA, Tapan Kumar	2	229			During stratifying variations, anthropogenic interventions like fishing or reed clearing etc. to be included as they will result into turbation causig releae of trapped methane		Rejected	Rejected due to lack of sufficient scientific basis.
20297	Mu, Zhijian	2	229	229	2	Delete "by" following "stratifying".		Accepted.	Text was changed.
20298	Vitullo, Marina	2	231	231	2	Change of the text: "Tier 3 methods require activity data that are more disaggregated than lower Tiers." as follow: "Tier 3 method requires more disaggregated activity data."		Accepted.	
20299	Thompson, Victoria	2	233	233	2	hyphenate "often occurring"		Accepted.	Text was changed.
20300	Thomson, Amanda	2	233	233	2	Reword sentence in brackets		Accepted.	Text was changed.

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20301	Romanovskaya, Anna	2	238	240	2	probably it is necessary to determine for all year the soil stays dry or only for the part of the year (example, some rice fields) - in that case a scaling factor should be applied		Rejected	this chapter deals with managed - drained organic soils, which are drier in summer than in winter. This seasonality is implicit in the methods. Rice fields are in 2006 GL Chapter 5. Check in Table 2.1 for consistency.
20302	Thompson, Victoria	2	238	240	2	hyphenate land-use category (2x) and nutrient-poor organic soils		Accepted.	
20303	COUWENBERG, John_2	2	239	240		forestry should be presented as just an example; other land use categories should be included, however.		Rejected	because at Tier 1 there are different Efs for nutrient-poor and nutrient-rich soils only for Forest Land.
20304	Sperow, Mark	2	240	240	2	Do not believe the "In" at beginning of sentence is needed ("In Forest Land….").		Accepted.	
20305	Lapveteläinen, Tuija	2	241	242	2.2.1.1	Table 2.4 provides EFs for CH4.		Accepted.	Table 2.3 was meant.
20306	Sperow, Mark	2	241	241	2	Is "climatic temperture" supposed to be "climate type"?		Accepted.	Text was changed.
20307	Thompson, Victoria	2	241	241	2	2 of CO2 appears to be small text rather than subscript		Accepted.	
20308	Sperow, Mark	2	242	242	2	Tables 2.2 and 2.3 have not been introduced yet. They should be introduced and discussed before referring to them in the text.		Accepted.	Text was changed.
20309	Andren, Olof	2	251		2	(i.e., improve accuracy) DELETE - confusing!		Accepted.	Text was changed.
20310	Thompson, Victoria	2	251	251	2	while bias (i.e., improve accuracy)--the meaning of this is unclear		Accepted.	Text was changed.
20311	Thomson, Amanda	2	251	251	2	Should be (i.e. improved accuracy)? But bias is not rally equivalent to accuracy.		Accepted.	Text was changed.
20312	Evrendilek, Fatih	2	253	253	2	For Tier 1, "a" default uncertainty level of ±90% (expressed as "2 x standard deviations" as per cent of the mean) "is"		Accepted.	Text was changed.
20313	Lund, Herluf Gyde	2	253	253	2	For Tier 1, A default uncertainty level of ±90% (expressed as 2x standard deviations as per cent of the mean) are…the A between 1, and default should be lower case. The are should be is.		Accepted.	Text was changed.
20314	Lund, Herluf Gyde	2	253	253	2	Should 'per cent' be 'percent' or % as done elsewhere in this supplement?		Accepted.	
20315	Navarrete Encinales, Diego Alej	2	253	253	2	Change "… A default" by "… a dafault".		Accepted.	Text was changed.
20316	PENMAN, Jim	2	253			+/- 95%		Rejected.	+/-90% as provided is the uncertainty level and NOT how we define uncertainty (i.e., 95% confidence interval)
20317	Rock, Joachim	2	253	253	2	A default should be "a" in lower case		Accepted.	Text was changed.
20318	Romanovskaya, Anna	2	253		2	change "A default…" to "a default…"		Accepted.	Text was changed.
20319	Sperow, Mark	2	253	253	2	If the table contains confidence intervals, which Table 2.1 does for some cases, should the 90% error refer only to cases where little is known?		Accepted.	Text was changed.
20320	Thompson, Victoria	2	253	253	2	lowercase A. Per cent should be one word		Accepted.	Text was changed.
20321	Thomson, Amanda	2	253	254	2	Improve written English of sentence- 'For Tier 1, a default uncertainty level of ±90% (expressed as 2 times the standard deviation as a percentage of the mean) are assumed for emissions/removal factors for each soil-climate type.		Accepted.	Text was changed.
20322	PENMAN, Jim	2	256			delete "however"		Accepted.	
20323	Romanovskaya, Anna	2	262	263	2	the reference to existing guidelines with appropriate method should be given (2006 Guidelines? GPG?)		Accepted.	Text was changed.
20324	PENMAN, Jim	2	263			insert "Chapter 3 in volume 1 of the 2006 Guidelines provides advice on how to do this. "		Accepted.	Text was changed.
20325	Thomson, Amanda	2	264	264	2	It would be helpful to define what is meant by 'bias'- see comment for line 251		Accepted.	Text was changed.
20326	Thompson, Victoria	2	269	269	2	the meaning of "bias by estimation" is unclear		Accepted.	Text was changed.
20327	Andren, Olof	2	271		2	OFF-SITECO2 >> two words and subscript 2		Accepted.	
20328	Baltzer, Heiko	2	271	271	2	Use subscript formatting in CO2		Accepted.	
20329	Baltzer, Heiko	2	271	271	2	Insert a space after 'off site'		Accepted.	
20330	Evrendilek, Fatih	2	271	271	2	2.2.1.2 OFF-"SITE CO_2" EMISSIONS FROM WATERBORNE CARBON		Accepted.	
20331	Gyldenkarne, Steen	2	271	271	2	The numbering to the annexes is not always correct and double. There is both annexes and appendices. What should be included?		Accepted.	
20332	KIM, Raehyun	2	271	271		CO2 => CO2		Accepted.	
20333	Lund, Herluf Gyde	2	271	271	2	The 2 in CO2 should be a subscript.		Accepted.	
20334	Radunsky, Klaus	2	271	272	2	The following title is suggested: Off-site CO2 emission from waterborne carbon losses of drained organic soils		Accepted.	Change made
20335	Sperow, Mark	2	271	271	2	Space needed between "Off-Site" and "CO2".		Accepted.	
20336	Thompson, Victoria	2	271	272	2	Insert space between off-site and CO2. Subscript 2. "waterborne carbon losses" should not be in all caps		Accepted.	
20337	Thomson, Amanda	2	271	271	2	Correct formatting of title		Accepted.	
20338	Van Den Born, Gert Jan	2	271	306	2	The proposed approach leads to a separation of the emissions from organic soils and emissions that are waterborne (esp. DOC). This requires additional parameters and factors for the emission and activity. For a better understanding of the processes in ditches and lakes it is probably also necessary that the water quality (Sulphur content, pH) is included, since this affects disaggregation and dissolving of organic carbon. Also aspects of (water) management, maintenance of ditches etc. needs to be known as well. To prevent the use of an increasing number of parameters, each with a large uncertainty, I suggest to include in the guidelines a stock approach that is based on the whole system, and where the soils, ditches, specific water conditions, management aspects are not treated separately, but more as a system with a lot of internal processes and fluxes of carbon and nitrogen. In a stock-approach the net result of a broader monitoring system (field levels, ghg-emissions, chemical and physical characteristics of soil and water) are used to determine, in an integrated way, the net fluxes of the system. This is probably more accurate than if the system is split-up in separate fluxes.		Rejected	Stock change method not appropriate for organic soils
20339	COUWENBERG, John_2	2	273			what about airborne erosional losses? Address!		Accepted with modification	Add to Appendix
20340	Klemedtsson, Asa Kasimir	2	273	306	2	Good informative text		Accepted.	
20341	Sperow, Mark	2	273	293	2	The citations included in this section are not in the references section.		Accepted	Add references
20342	Thomson, Amanda	2	273	275	2	There is also PIC (particulate inorganic carbon)- put in a line to clarify that this is not relevant in this context, although it might be an issue for water sampling		Accepted	Add text
20343	Lund, Herluf Gyde	2	274	274	2	Is 'species' the correct term to use? Possibly 'compound' may be a better word. Also is there a superscript missing at the end of this line? What does the superscript - mean?		Rejected	Species ok
20344	Lund, Herluf Gyde	2	275	275	2	What does the 2 superscript indicate or mean?		Rejected	Chemical formula
20345	KIM, Raehyun	2	276	277		omit the references of Billett et al., 2004, Rowson et al., 2010		Accepted	Add references
20346	FAGGI, Ana	2	277			flux-based appraoches - needs citation		Accepted	Add references
20347	Sperow, Mark	2	279	280	2	This sentence seems incomplete - "required" to devlop what?		Accepted	Revise sentence
20348	KIM, Raehyun	2	286	286		omit the references of Dinsmore et al. 2011		Accepted	Add references
20349	Lund, Herluf Gyde	2	286	286	2	Dinsmore et al., 2011 not listed in the References		Accepted	As above
20350	MacDonald, James Douglas	2	286	286	2	Dinsmore reference missing.		Accepted	As above
20351	Strack, Maria	2	286	286		While this might be true, we still know very little about this flux under different land-uses and this statement may not apply in some situations (forestry, agriculture?). I agree that the data are not currently available to provide methodology, but perhaps this sentence could be clarified to indicate that this study is in undisturbed blanket bog.		Noted	No reason to think dissolved CO2 behaves differently but can clarify
20352	KIM, Raehyun	2	288	289		omit the references of Urban et al., 1989; Dawson et al., 2004; Jonsson et al., 2007; Dinsmore et al., 2011		Accepted	

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20353	Lund, Herluf Gyde	2	288	289	2	Urban et al., 1989; Dawson et al., 2004; Jonsson et al., 2007; Dinsmore et al., 2011 - all not listed in the References		Accepted	
20354	TIEMEYER, Barbel	2	288	289		All references missing in the list of references: Urban et al., 1989; Dawson et al., 2004; Jonsson et al., 2007; Dinsmore et al., 2011		Accepted	
20355	Strack, Maria	2	289	294		Is there any evidence from literature that land-use type will change the EF for DOC (differences between extraction, forestry or agriculture DOC export?) If yes, this would be a good place to reference this and suggest separation of these activities if country-specific data are available to support this separation		Accepted	No change required? Covered under Tier 2
20356	Thompson, Victoria	2	290	290	2	no hypen for "land-use"		Accepted	
20357	Lund, Herluf Gyde	2	291	291	2	Need to insert the proper appendix number where the X is.		Accepted	
20358	Rock, Joachim	2	291	291	2	make sure appendix is numbered correctly.		Accepted	
20359	Quintero, Adriana Patricia Yepes	2	293	296		However, there are some studies that have advanced in this respect or give important inputs for these calculations. Many of them are part of master's thesis would be worth reviewing.		For discussion	Can expand Appendix but unlikely to review all MScs…
20360	Huissteden, Ko van	2	294	301	2	POC export also from dredging of canals and ditches may be very large; in many cases this POC is exposed to oxidation by spreading on land. These amounts are not negligable and should be reported		Accepted	Add to Appendix
20361	Thompson, Victoria	2	299	299	2	emissions not emission		Accepted	
20362	Thompson, Victoria	2	305	305	2	delete "e.g."		Accepted	
20363	Romanovskaya, Anna	2	309		2	please, check if the reference to equation 2.2 is correct. Might be it is 2.3 A?		Accepted	Text revised
20364	Thompson, Victoria	2	310	325	2	Why are these two equations labeled 2.3A and 2.3B? Why not 2.3 and 2.4?		Accepted	Changed numbers
20365	Sperow, Mark	2	311	313	2	This equation needs to be introduced in the text. The nutrient status is not included in Equation 2.26, so the equations are in fact different.		Accepted	Revised text as for Eq 2.2
20366	KIM, Raehyun	2	312	312		Lorganic-CO2-c => Lorganic-CO2-c		Accepted	
20367	KIM, Raehyun	2	315	315		Lorganic-CO2-c => Lorganic-CO2-c		Accepted	
20368	Thompson, Victoria	2	315	315	2	units should be tonnes CO2-C yr-1		Rejected	See TSU comment
20369	Navarrete Encinales, Diego Alej	2	317	317	2	Land-use category should have a symbol (e.g. ct), and the variable "A" (i.e. Land area of drained organic soils) sould be "Act,c,n".		Rejected	Not used elsewhere
20370	Gyldenkarne, Steen	2	323	326	2	names and capital letters, underscores. FDOC-CO2 should be renamed to FracDOC. F is not normally in the guidelines used for fractions.		Accepted	Change variable name
20371	Romanovskaya, Anna	2	323	326	2	would be possible to simplify this equation and to use a share instead of percentage		Accepted	Change equation
20372	Wirth, Tom	2	323	325	2	Is this equation a Tier 2 approach that allows calculating a country-specific EF? It seems table 2.2 has the EF used in Equation 2.3A , so I assume this equation allows development of a country-specific EF. Please clarify if this is a Tier 2 approach.		Rejected	Equation needed to support data I think (but also to underpin Tier 2)
20373	Mu, Zhijian	2	326	326	2	I think that the "100+" in the parenthesis should be deleted to include in the inventory only CO2 derived from DOC export due to drainage.		Rejected	Full flux included according to MLP
20374	Huissteden, Ko van	2	330	330	2	There will be many cases where the fluxes from undrained peatlands are unknown. For instance for the large areas of drained fenlands in western Europe, where drainage has started several centuries ago, remnants of the original undrained fens from which data on C fluxes can be retrieved are practically absent. So in that case it the use of Equation 2.3B may be limited, and it may be better to report simply the present DOC fluxes.		Rejected	Possible but highly problematic due to lack of robust direct flux measurements from drained sites, spatial variability with rainfall etc
20375	KIM, Raehyun	2	330	331		ha-1yr-1 => ha-1 yr-1		Accepted	
20376	Gyldenkarne, Steen	2	333	333	2	FDOC-CO2 should be renamed to FracDOC. F is not normally in the guidelines used for fractions.		Accepted	Variable renamed
20377	KIM, Raehyun	2	333	333		FDOC-CO2 => FDOC-CO2		Accepted	
20378	Lund, Herluf Gyde	2	335	335	2	Consider dropping the , between 'losses' and 'and'		Accepted	
20379	COUWENBERG, John_2	2	340			to what extent do non-peatlands export DOC? Is this export covered in existing IPCC GLs? Does the stock-change approach for mineral soils already cover this? Must ditches in mineral soil also be included as a source of GHGs?		Noted	This is not an issue for this chapter, so no change required
20380	Radunsky, Klaus	2	340	343	2	Given that all peatlands export some DOC in their natural, un-drained state the guidance provided results in an overestimation. This could be only a Tier 1 approach; a higher Tier approach should allow for a more accurate estimate, subtracting the natural export before drainage		Rejected	See earlier response (MLP)
20381	Romanovskaya, Anna	2	340	341	2	please, provide some examples of published studies with such results		Accepted	Details provided in Annex
20382	Romanovskaya, Anna	2	341	341	2	Managed Land Proxy - it is not clear what it means, where and how the definition was developed and adopted? The reference source should be given or this wording should be deleted		Rejected	This was ppresented in the 2006 Guidelines and referenced in chapter 1
20383	Romanovskaya, Anna	2	343	343	2	change "drained lands" to "drained organic soils"		Accepted	Text revised
20384	Wirth, Tom	2	345	378	2	The discussion on Choice of EF mixes in choice of method discussion. Need to clearly describe under choice of method section the Tier 1, 2, 3 methods and then in the choice of EF section provide the Efs. Don't mix method discussion with EF discussion		Accepted	Text revised
20385	Klemedtsson, Asa Kasimir	2	347		2	Annex 2A.1 should be 2A.2		Accepted	Text revised
20386	Sperow, Mark	2	347	350	2	Should the reference Annex be Annex 2A.2 rather than 2A.1 as listed?		Accepted	
20387	Klemedtsson, Asa Kasimir	2	350		2	Annex 2A.1 should be 2A.2		Accepted	
20388	Gyldenkarne, Steen	2	352	352	2	FDOC-CO2 is given to 0.9. The chemical optimum for conversion of organic matter to CO2 without addition of O2 is 0.48 (BO-value). If it can be argued that the stream is adding oxygen then a factor of 0.9 is ok but not for stagnant water. Is the remaining 0.1 sedimented or converted to CH4. Just to get a feeling of the mass balance. The question should also be seen in light of the EF for CH4 in table 2.3 compared to the DOC factors in tabel 2.2		Rejected	DOC will be exposed to aerobic conditions at some point. Data and method focus on downstream (off-site) emissions
20389	KIM, Raehyun	2	352	352		FDOC-CO2 => FDOC-CO2		Accepted	
20390	Lund, Herluf Gyde	2	352	352	2	The 2 in CO2 should be a subscript		Accepted	
20391	PARISH, Faizal	2	354	355		Table 2.2 - collumn 4 - it is not clear of the meaning of the 50% factor - if it means that the natural DOC fluxes are to be increased by 50% when there is drainage - then the figures in the last column do not seem to match as they only seem to have been increased by about 30%		Rejected	Smaller changes due to 0.9 FracDOC-CO2
20392	Romanovskaya, Anna	2	354	355	2	not clear what are ranges for Efs are given in brackets in last column - 95% CI? Standard errors or just ranges? It should be consistent across all tables and data and should be in form of 95% confidence interval		Accepted	Table revised
20393	Tuomainen, Tarja	2	354	355	2	Table 2.2. Compare the DOC_flux_natural values and units to the values and units in Table 3.3 in Chapter 3.		Accepted	Units harmonize with Ch 3
20394	Oiumet, Rock	2	355		2	Table 2.2; The numbers are 10 times lower than they should be if the units in table 2A.2 are right.		Rejected	Checked, numbers are ok
20395	Oiumet, Rock	2	355		2	Table 2.2; The mean value and range for blanket bog in table 2A.2 is: mean= 1.9 range=1.3 - 2.6.		Accepted	Table revised
20396	Oiumet, Rock	2	355		2	Table 2.2; The mean value and range for tropical bog in table 2A.2 is: mean= 5.8 range=4.7 - 6.7.		Accepted	Table revised
20397	Oiumet, Rock	2	355		2	Table 2.2; The equation should be, according to data in table 2A.2: C-DOC (t/ha/yr) = 0.00316 x precip (mm) - 0.75, r2 = 0.66, RMSE = 0.5821.		Rejected	Checked, equation ok
20398	Rock, Joachim	2	355	355	2	Table 2.2: Please give the references with the table.		Accepted	References added
20399	PENMAN, Jim	2	358			replace "Refinements could include:" with "Possible refinements where supporting data are available include use of:"		Accepted	
20400	PENMAN, Jim	2	359	364		remove "use of" from each bullet point		Accepted	
20401	Lund, Herluf Gyde	2	362	362	2	Drop the comma between fens and or.		Accepted	
20402	Thompson, Victoria	2	365	365	2	insert semicolon at end of line		Accepted	
20403	Navarrete Encinales, Diego Alej	2	366	366	2	Include a bullet to separate the paragraph.		Accepted	
20404	Rock, Joachim	2	366	368	2	Sentence is incomplete, please check.		Accepted	
20405	Thompson, Victoria	2	366	366	2	this line should be a new bullet		Accepted	bullet added

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20406	PENMAN, Jim	2	369			delete " at the present time"		Accepted	
20407	Thompson, Victoria	2	369	369	2	delete first instance of other		Accepted	
20408	ORR, Harriet	2	374	378		I am concerned about an implication that tier three type approaches using process based models will actually deliver a more accurate assessment of flux. For example some recent work to look at how 3 diferent models work at 4 well monitored sites in the UK - to look at the strength of a carbon sink/source under climate change scenarios indicate that there was little agreement about C store or trajectory of change. This is most likley a reflection of our ability to confidently understand the processes at work. (J. M. Clark, M. F. Billett, M. Coyle, S. Croft, S. Daniels, C. D. Evans, M. Evans, C. Freeman, A. V. Gallego-Sala, A. Heinemeyer, J. I. House, D. T. Monteith, D. Nayak, H. G. Orr, I. C. Prentice, R. Rose, J. Rowson, J. U. Smith, P. Smith, Y. M. Tun, E. Vanguelova, F. Wetterhall, F. Worrall (2010d) Model inter-comparison between statistical and dynamic model assessments of the long-term stability of blanket peat in Great Britain (1940–2099). Clim Res 45:227–248). This was a sensitivity assessment of climate rather than land use but I'm not sure that peat process models are any better are indicating GHG flux from land use change. The various sections on uncertainty do mention limitations of models but there does seem to be an underlying implication that these will deliver a more accurate picture.		Accepted with modification	Good point. Tier 3 inventories are reviewed, so QA/QC and uncertainty assessments of the models will be required. IPCC has traditionally recommended this approach and we are not going to recommend differently at this pint
20409	PENMAN, Jim	2	374			delete first full sentence		Accepted	Section has been revised
20410	Gyldenkarne, Steen	2	392	392	2	Table reference shold be 2.2 not 2.4. Furthermore errors in the references to annexes.		Accepted	reference changed
20411	MIAO, Chiyuan	2	396	402		More details about uncertainty assessment is strongly suggested here .		Accepted	Section has been expanded
20412	Romanovskaya, Anna	2	397		2	please, check if the reference to table 2.4 is correct? Or it should be 2.2?		Accepted	The correct reference should be to Table 2.2.
20413	Sperow, Mark	2	397	397	2	Table 2.4 relates to CH4, but this section is for DOC. Is this the correct table to reference?		Accepted	The correct reference should be to Table 2.2.
20414	TIEMEYER, Barbel	2	397			Ranges are provided for DOC emission factors in Table 2.2		Accepted	no action needed?
20415	Sperow, Mark	2	398	398	2	It is not clear what "Annex A.2" is (it is not included). Is this the correct reference?		Accepted	Table reference has been corrected
20416	Sperow, Mark	2	399	399	2	Does "classes" refer to "land use"? Is Table 2A.2 the correct table to reference?		Accepted	Table reference has been corrected
20417	Romanovskaya, Anna	2	400	400	2	uncertainty ranges should be given as 95% confidential interval		Accepted	Changed to 95% CIs
20418	Kiyono, Yoshiyuki	2	403		2	The guidance for CO2 emissions by burning of peat on the drained peat land should be inserted here. According to our monitoring of the subsidence rate of the tropical peat soil, the peat soil burnt to a depth of around 20 cm at a fire, while the ordinary subsidence rates were estimated to be only 2.4 cm yr-1 on the forest land remaining forest land (Kiyono et al. 2011).	Attachment_20418,419,688,689.pdf	Accepted.	New section added
20419	Kiyono, Yoshiyuki	2	403	403		The guidance for CO2 emissions by burning of peat on the drained peat land should be inserted here. According to our monitoring of the subsidence rate of the tropical peat soil, the peat soil burnt to a depth of around 20 cm at a fire, while the ordinary subsidence rates were estimated to be only 2.4 cm yr-1 on the forest land remaining forest land (Kiyono et al. 2011). * I will e-mail a pdf file of Kiyono et al. (2011) to ipccreview@iges.or.jp later.	Attachment_20418,419,688,689.pdf	Accepted.	New section added
20420	Baltzer, Heiko	2	404	404	2	Use subscript formatting in CO2		Accepted.	
20421	Evrendilek, Fatih	2	404	404	2	2.2.2 Non-"CO_2" emissions		Accepted.	
20422	KIM, Raehyun	2	404	404		CO2 => CO2		Accepted.	
20423	Mu, Zhijian	2	404	404	2	CO2 should be correctly subscripted.		Accepted.	
20424	Thompson, Victoria	2	406	406	2	capitalize section		Accepted.	
20425	Couwenberg, John	2	408		2	CH4 emissions AND removals		Accepted.	if there are removals in the EF table, Yes, if not NO
20426	Evrendilek, Fatih	2	409	409	2	dead organic matter in "water-saturated"		Accepted.	
20427	Klemedtsson, Asa Kasimir	2	409	430	2	Good informative text		Accepted.	
20428	Lapveteläinen, Tuija	2	409		2.2.2.1	According to EF's given in table 2.3, CH4 from drained organic soils can act also as "sink" (EF for for boreal Cropland in the table is negative indicating removals)? These kind of situations should be opened/explained in the text.		Noted	if there are removals in the EF table, Yes, if not NO
20429	Lund, Herluf Gyde	2	409	410	2	Consider changing 'Organic soils are mostly formed due to incomplete decomposition of dead organic matter in water saturated conditions and management of organic soils, especially peatlands, involves drainage by ditching' to two sentences- 'Organic soils are mostly formed due to incomplete decomposition of dead organic matter in water saturated 409 conditions. Management of organic soils, especially peatlands, involves drainage by ditching.'		Accepted.	Section reviesd
20430	Evrendilek, Fatih	2	412	412	2	some CH4 "emissions"		Accepted.	
20431	Hamilton, Stephen K.	2	412		2	It would be good to cite reference(s) to back up this statement. Perhaps they are in the next paragraph but that should be made clear if so.		Accepted.	References are mentioned in the following two paragraphs.
20432	Thompson, Victoria	2	412	412	2	delete comma after surface; emissions not emission		Accepted.	
20433	Cai, Zucong	2	414	424	2	We take into account carbon loss due to drainage of organic soils. Why do not take into account reduction of CH4 emission induced this activity? The reduction of CH4 emission is samilar to carbon sequestration.		Rejected.	We use the managed land proxy.
20434	Evrendilek, Fatih	2	414	414	2	"water-saturated"		Accepted.	
20435	Punyawardena, BVR	2	416	same	2	add "soil hardness" after the word potential		Accepted with modification	References have been updated. The Murdiyarso reference is not being used as a source of data, but their analysis supports this statement
20436	Couwenberg, John	2	417		2	references are not in the reference list; Murdiyarso strikes me as 'strange'		Accepted	Murdiyarso reference checked. Include in SOD.
20437	Ishizuka, Shigehiro	2	417	417	2	Murdiyarso et al. 2010 is not found in the reference list.		Accepted	References have been updated
20438	Jauhiainen, Jyrki	2	417	417	2	Murdiyarso 2010 is a summary study. It does not present results on methane production or oxidation.		Rejected	The reference is not being used as a source of data, but their analysis supports this statement
20439	KIM, Raehyun	2	417	417		omit the references of Blodau, 2002; Treat et al., 2007; Murdiyarso et al. 2010		Accepted	References have been updated
20440	Sperow, Mark	2	417	431	2	The citations included in this section are not in the references section.		Accepted	References have been updated
20441	KIM, Raehyun	2	418	418		confirm Martikainen et al., '2010' to Martikainen et al., '2010a or 2010b'		Accepted	References have been updated
20442	Sperow, Mark	2	418	418	2	It is not clear which is the correct reference for Martikainen et al - two are listed with the 1995 publication date. Should it be a or b or another paper?		Accepted	References have been updated
20443	Huissteden, Ko van	2	421	421	2	add after reduced: ', or soils may become a sink for CH4.'		Accepted with modification	if after revision of the Efs, there are removals in the EF table, Yes, if not NO
20444	Schreir & Silvius, Arina & Marc	2	421		2	In general…reduced. Not only production is reduced, also the transport route of CH4 through the soil is increased and therefore the oxidation of CH4 tot CO2 will increase.	Attachment_20050.pdf	Accepted with modification	if after revision of the Efs, there are removals in the EF table, Yes, if not NO
20445	Romanovskaya, Anna	2	423	424	2	remaining CH4 emissions from the drained organic soils (if any??) should NOT be included in the guidelines for GHG national inventories as it is natural. Inclusion such "background" emissions in national inventories from wetlands would make it inconsistent between sectors and other land use categories - for example, background N2O emissions from agricultural soils is NOT included in estimations and reporting.		Rejected.	We use the managed land proxy, so if the soil is drained, it is managed.
20446	COUWENBERG, John_2	2	425			to what do ditches in mineral soil lead to CH4 emissions? Is this a gap in IPCC reporting?		Accepted	Raises with other chapters
20447	Rock, Joachim	2	425	431	2	How is ditch maintenance to be considered? If organic material and mud are removed from the ditch the decomposition of organic material and thus the emission of C from tihs materials is altered. In addition, if material is deposited next to the ditch, do emissions from this have to be accounted for under the land use category of this adjacent land, or has this to be assessed as "from drainage" nevertheless?		Rejected.	This is an issue for tier 2 or 3, not tier 1

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20448	Schreir & Silvius, Arina & Marc	2	425		2	see also earlier comment. Not only drainage ditches emit because of the surrounding land use, also lakes and ponds that are located in the peat area and where the drainage ditches drain to; why not making a separate LU category in table 2.3 for 'water bodies' which are part of the 'drained-peat-landscape'.	Attachment_20050.pdf	Rejected	Agree that this is a potential source of emissions but guidance restricted to open water created during drainage, not existing pools/lakes/reservoirs
20449	Thompson, Victoria	2	425	425	2	emissions not emission		Accepted	
20450	COUWENBERG, John_2	2	426			If lateral input is a considerable factor, ditch width may not be a good proxy for efflux.		Receted	Noted, but difficult to adjust method - given data we have proportion of open water seems best proxy
20451	KIM, Raehyun	2	427	429		omit the references of Roulet and Moore, 1995 confirm Van den Pol - Van Dasselaar et al., '1999' to Van den Pol - Van Dasselaar et al.,'1999a or 1999b or 1999c' omit the references of The et al., 2011, Vermaat et al., 2011, Roulet and Moore, 1995, Schrier-Uijl et al., 2011		Accepted	
20452	Lund, Herluf Gyde	2	427	427	2	Van den Pol – Van Dasselaar et al., 1999 - should this be van den Pol – van Dasselaar et al., 1999 a, b or c as listed in references?		Accepted	
20453	Thompson, Victoria	2	428	428	2	these emissions, not this emission		Accepted	
20454	Klemedtsson, Asa Kasimir	2	431		2	2A.2 should be 2A.1		Accepted	
20455	Sperow, Mark	2	431	431	2	This section relates to CH4, but Annex 2A.2 addresses DOC. Is this the correct Annex to reference here?		Accepted	The correct reference should be to "Annex 2A.1".
20456	Vitullo, Marina	2	435	436	2	Change of the text: "CH4 emission from the land surface is estimated using a simple emission factor (see Eq. 2.4). It depends on climate and type of land use." as follow: "CH4 emissions from the land surface are estimated using a emission factor (see Eq. 2.4), depending on climate and type of land use.".		Accepted	
20457	COUWENBERG, John_2	2	438			delete 'almost entirely' ; a similar statement is not made for CO2 and N2O data: streamline		Accepted	Text changed
20458	Couwenberg, John	2	439		2	ditto, again a 'strange' reference		Accepted	Refereces haave been updated
20459	Lund, Herluf Gyde	2	439	439	2	Hirano et al. 2007 not listed in References		Accepted	
20460	Sperow, Mark	2	439	439	2	The citation for Hirano et al is not included in the references.		Accepted	
20461	Lund, Herluf Gyde	2	442	442	2	Drop the comma between class and and.		Accepted	
20462	TIEMEYER, Barbel	2	444	474		Calculation of L_Organic_CH4-C is wrong --> see spreadsheet "methane" in this file	Methane_calculation.xlsx	Accepted	Eq 2.4 is erroneous
20463	TIEMEYER, Barbel	2	444	461		I would propose the following more simple equation: L_Organic_CH4-C = Sum (A * (1-f_open_water)*EF_CH4_land + A * f_open_water * EF_CH4_ditch) This would only require one parameter, the fraction of open water (f_open_water) which could be tabulated or calculated (if this data is available, Tier 2)		Accepted	Equation midified
20464	Romanovskaya, Anna	2	446	462	2	the equation should be deleted (see comment #54)		Accepted	Removed; this equation as now captured in 2.4
20465	Tuomainen, Tarja	2	446	448	2	Equation 2.4. If the land area of drained organic soils includes the area of ditches and area of surface between ditches, it is not clear if the emissions calculated using the EF for land includes emissions only from surface. It seems there is a possibility for duble counting the emissions from the area of ditches. Some explanation would be helpful to understand the equation.		Accepted	Addressed with preceding changes to equations
20466	FEDERICI, Sandro	2	448	448		the emission factor EFCH4_landc,n should be corrected for the portion of drained land covered by ditches i.e. it should be converted in an emission factor for landscape drained areas by multypling the current EFCH4_landc,n by [1 - Ditch_width/(Ditch_width + Ditch_spacing)]		Accepted	See above
20467	KIM, Raehyun	2	448	459		LorganicCH4-C => LorganicCH4-C		Accepted	
20468	KIM, Raehyun	2	448	471		EFCH4 -> EFCH4		Accepted	
20469	Lund, Herluf Gyde	2	451	451	2	Here and elsewhere in the equations, the 4 in the first CH4 should be a subscript.		Accepted	
20470	Navarrete Encinales, Diego Alej	2	453	453	2	Land-use category should have a symbol (e.g. ct), and the variable "A" (i.e. Land area of drained organic soils) sould be "Act,c,n,p".		Rejected	Not standard IPCC terminology
20471	Sperow, Mark	2	463	465	2	The first RHS variable should be "EF" not "EFD" as presented.		Accepted	
20472	Strack, Maria	2	463	465		Check that terms in equation match exactly the terms used in the definition below. Also, is a conversion factor missing here? Right now the ditch area will be expressed in m2, but the EF is expressed per hectare.		Accepted	
20473	TIEMEYER, Barbel	2	463	465		ditch spacing is generally given from center to center, but equation is not really necessary		Accepted	See above
20474	Wirth, Tom	2	463	473	2	The EF calculation should be part of the choice of EF section, not in methodology.		Accepted	Section reviesd
20475	FEDERICI, Sandro	2	465	465		EFD should be "EF"		Accepted	
20476	Gyldenkarne, Steen	2	465	465	2	Error in eq 2.5 in the naming		Accepted	
20477	Rock, Joachim	2	465	465	2	What is the meaning of "EFD"? (not explained / given)		Accepted	
20478	Tuomainen, Tarja	2	469	470	2	In the Eq. 2.5 the unit for the EF_ditch_landscape is CH4 ha-1 yr-1. In the line 461 is a reference to this variable but the unit is different, CH4-C ha-1 yr-1.		Accepted	Use CH4-C throughout
20479	Romanovskaya, Anna	2	470	471	2	units should be CH4-C ha-1 yr-1 instead of CH4 ha-1 yr-1		Accepted	Units corrected
20480	Thompson, Victoria	2	470	470	2	Units here are in tonnes CH4/ha/yr whereas in line 461 they are in tonnes CH4-C/ha/yr. They should be consistent.		Accepted	Units corrected
20481	Stenhouse, Michel	2	471		2	Term should be EFD_CH4_ditch; similarly in Table 2.4		Accepted	
20482	PENMAN, Jim	2	472			re: any surrounding saturated area "I don't understand this. If the influence of the ditch is drainage how can it be correct to include 'any surrounding saturated area'? Surely that risks including the entire bog??? "		Accepted	Relevant to some of literature, but method will leave the definition to national inventory compilers
20483	Thompson, Victoria	2	477	477	2	was cleared, not is cleared. Insert comma after cleared.		Accepted	
20484	Vitullo, Marina	2	480	482	2	Change of the text: "Countries wishing to apply Tier 2 methods for CH4 from drainage ditches should follow the Tier 1 approach described above, with country-specific measurements of annual mean ditch CH4 emissions, and national or regional estimates of ditch width and spacing that reflect local drainage practices." as follow: "Tier 2 methods for CH4 from drainage ditches require country-specific measurements of annual mean ditch CH4 emissions, and national or regional estimates of ditch width and spacing that reflect local drainage practices."		Accepted	
20485	Evrendilek, Fatih	2	488	488	2	drainage "depth, the" management systems		Accepted	
20486	Kolka, Randy	2	488	488	2	Explain the term "peat maturity"		Accepted	Changed to "peat degradation"
20487	Xu, Xiaofeng	2	489	489	2	our new study found that the global change factors are also important in controlling methane production and consumption. So I would suggest adding "and many global environmental factors including elevated CO2, ozone pollution, nitrogen deposition etc. (Xu and Tian, 2012)" Xu, X. and Tian H., 2012, Methane exchange between marshland and the atmosphere over China during 1949-2008, Global Biogeochemical Cycles, 26, GB2006, DOI 10.1029/2010GB003946		Rejected	Noted, but these indirect effects are not part of the methodology, and not covering marshland
20488	Schreir & Silvius, Arina & Marc	2	491		2	on substrate…ditches: should maybe add length of transport route through water and the oxygen status of the water since this is related to the oxidation of CH4 to CO2.	Attachment_20050.pdf	Accepted	Tier 3 text edited
20489	Baltzer, Heiko	2	492	492	2	Use subscript formatting in CH4		Accepted	
20490	Evrendilek, Fatih	2	492	492	2	"CH4 emissions" associated		Accepted	
20491	KIM, Raehyun	2	492	492		CH4 => CH4		Accepted	
20492	Lund, Herluf Gyde	2	492	492	2	The 4 in CH4 should be a subscript.		Accepted	
20493	Thompson, Victoria	2	492	492	2	subscript 4 in CH4		Accepted	
20494	PENMAN, Jim	2	498	500		SO what is the Tier 1 assumption? That the corresponding emissions are zero?		Rejected	No assumption of zero flux has been made - Tier 1 Efs provided
20495	Wirth, Tom	2	498	503	2	Why only discuss EFCH4_ditch? Why not EFCH4_land? And isn't it called EFCH4_ditch_landscape?		Rejected	Covered in lines 408-431 and table
20496	Romanovskaya, Anna	2	500	501	2	low- and high-intensity land use categories are mentioned, however, it is not clear defined what are these		Accepted	Clarification has been provided

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20497	Thompson, Victoria	2	502	502	2	hyphenate "higher tier"		Rejected	It is not hyphenated in the 2006 Guidelines.
20498	Lund, Herluf Gyde	2	508	508	2	Here and elsewhere in the supplement consider being consistent in inserting a comma before 'and' or 'or' when a series of more than two items precede.		Accepted	
20499	Thompson, Victoria	2	508	508	2	factors, not factor		Accepted	
20500	Lund, Herluf Gyde	2	510	510	2	Drop the comma between data and when.		Accepted	
20501	Sperow, Mark	2	513	513	2	The Schrier-Uijl et al. paper is either 2010 as listed in the references, or it is not included in the references. Please verify.		Accepted	
20502	Thompson, Victoria	2	516	516	2	emissions not emission		Accepted	
20503	FEDERICI, Sandro	2	518	519		Table 2.3 reports for the land use category cropland under boreal climate conditions a net removals of CH4. are the resulting CO2 emissions accounted by the proposed method? I guess CO2 emissions have to be accounted for. Furthermore, I guess that it should be made explicit in the text that the microbial oxidation of methane is not confined to drained organic soils, however it is accounted only here because only in this case it is to be considered directly/indirectly influenced by the management activities.		Accepted	The CO2 emissions from CH4 removal are included in the CO2 Efs.
20504	Klemedtsson, Asa Kasimir	2	518	519	2	Table 2.3 Reference for Cropland EF temperate, complete reference should be Kasimir Klemedtsson et al. 2009		Accepted	All references have been updated and corrected
20505	Klemedtsson, Asa Kasimir	2	518	519	2	Table 2.3 Grassland temperate has EF =0, no reference. There are numbers for CH4 emission from grassland in the same article Kasimir Klemedtsson et al. 2009 mentioned above, with EF 1 +-0.1		Accepted	All references have been updated and corrected
20506	Klemedtsson, Asa Kasimir	2	518	519	2	Table 2.3 The headline "Wetlands" is very general, I suggest "Drained for other purposes"		Rejected.	Wetlands is the land-use category. But for consistency, "settlements and other lands" should be bold.
20507	Lapveteläinen, Tuija	2	518	519	2.2.2.1	Missing references in table 2.3 (grassland, temperate, shrubland temperate)		Accepted	All references have been updated and corrected
20508	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Column 4 Wetlands BMBF Report 2006-10 not listed in references.		Accepted	All references have been updated and corrected
20509	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land Nykanen should be Nykänen		Accepted	All references have been updated and corrected
20510	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land Should Von Arnold be von Arnold as in the References. If so, may need to change in several other places in the text.		Accepted	All references have been updated and corrected
20511	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land Should Makiranta et al. be Mäkiranta et al.		Accepted	All references have been updated and corrected
20512	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land - Should Nykanen be Nykänen?		Accepted	All references have been updated and corrected
20513	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land -Jauhiainen et al. 2008 not listed in References		Accepted	All references have been updated and corrected
20514	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Forest land - Hirano et al. 2009 not listed in References.		Accepted	All references have been updated and corrected
20515	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.16 Column 4 Cropland - Should Hadi et al. 2001 be Hadi et al 2000 as in references?		Accepted	All references have been updated and corrected
20516	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.17. Column 4. Cropland - Should Melling et al. 2005 be Melling et al. 2007 as in References?		Accepted	All references have been updated and corrected
20517	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.17. Column 4. Cropland - Should Inubushi et al., 1998 be Inubushi et al. 2003 as in References?		Accepted	All references have been updated and corrected
20518	Lund, Herluf Gyde	2	518	519	2	Table 2.3 Page 2.17. Column 4. Wetlands. Change Nykanen to Nykänen		Accepted	
20519	Mu, Zhijian	2	518	519	2	Please check if the unit of emission factor is right.		Accepted	kg CH4-C/(ha yr) is correct.
20520	PARISH, Faizal	2	518	519		Table 2.3 heading column 3 - should this be tCH4-C/ha/yr? The title of this table is for drained organic soils - so what is the difference bwtween forest drained and forest land and forest burned in rows 4, 5, 6 cropland line 5 - melling 2005 did not look at hte issue of emissions from drainage ditches		Accepted	kg CH4-C/(ha yr) is correct.
20521	Tuomainen, Tarja	2	518	519	2	Table 2.3. The units of emission factors are in C, compare to Table 2.4 units in CH4-C.		Accepted	kg CH4-C/(ha yr) is correct.
20522	Gyldenkarne, Steen	2	519	519	2	EF for drained organic soils in all land use categories. A consequence of this is that these emissions shall be included in cropland and grassland, both in land converted to and land remaining. This will give a new source in the inventories. In the 2006 GL there is no worksheet for CH4 from soils, 3C7 except for rice		Accepted	New worksheets will need to be developed
20523	Gyldenkarne, Steen	2	519	519	2	EF in table 2.3 is very likely wrong, given as CH4 emission with and EF in t C ha-1 yr-1. Eg. 3.57 ton C emitted as CH4 in forest land is not likely.		Accepted	kg CH4-C/(ha yr) is correct.
20524	Gyldenkarne, Steen	2	519	519	2	Table 2.3: EF from cropland, Boreal is a sink and temperate is a source. In Chapter 1 page 1.6 line 129 is written that CH4 emission from drained soils are neglible. therefore no consistence. Check also the formulation in 1.6 line 129.		Accepted	Text has been reconciled
20525	Gyldenkarne, Steen	2	519	519	2	wetlands, temperate emission is very high, factor of 100 compared to boreal, so the variation in the data indicates that the data should be double checked.		Accepted	Efs have been revised
20526	Gyldenkarne, Steen	2	519	519	2	Naming in column 1 should be discussed.		Accepted	EF with subscripts are not needed
20527	Huissteden, Ko van	2	519	519	2	Table 2.3, Graslands, row 2, temperate grasslands: see Hendriks et al. (2007, Biogeosciences 4:411-424) ,Kroon et al (Biogeosciences 4:715-728), Veenendaal et al. , Biogeosciences 4:1027-1040)		Accepted	Efs revised for temperate grasslands
20528	Jauhiainen, Jyrki	2	519		2	Table 2.3. /Croplands/Tropical. Estimate for Acacia plantation CH4 emission is available from IPS 2012 Stockholm proceedings. Jauhiainen, Hooijer & Page. Greenhouse gas emissions from a plantation on thick tropical peat.		Accepted	Data from paper integrated into table
20529	Romanovskaya, Anna	2	519		2	table 2.3 should be deleted (see comment #54), however problems identified in the comments 39, 40 and 41 are relevant to that table as well		Rejected.	Table contains important guidance, and will be updated.
20530	Klemedtsson, Asa Kasimir	2	524		2	Section 2.2.1… should be "section 2.2.1.1.."		Rejected.	the reference is correct.
20531	Evrendilek, Fatih	2	527	527	2	Activity data required to estimate ditch CH4 emissions at Tier 1 "consist" of		Accepted	
20532	Lund, Herluf Gyde	2	528	528	2	Consider adding 'land' after forest to be in line with the other land uses.		Accepted	
20533	Freibauer, Annette	2	530	535	2	What is really required is fractional ditch area in the drained organic soil. I suggest to use this term in the equation and then give guidance on how to arrive at this fraction, e.g. by ditch width times spacing, or by ditch length times typical width, or land cover maps... to allow for more flexibility of using national data sources		Accepted	Provided guidance on calculation of open water area following change to equations
20534	Evrendilek, Fatih	2	531	531	2	Table "2.4; however, it" is		Rejected	Unclear if changed
20535	Thompson, Victoria	2	532	532	2	hyphenate "higher tier"		Rejected	
20536	PENMAN, Jim	2	533	535		This information should be incorporated into the Tier 2 and 3 guidance immediately below.		Accepted	Moved text
20537	Klemedtsson, Asa Kasimir	2	539	541	2	It is discussed for "peat extraction areas" that effects of drainage are present also for abandoned areas. This may be valid also for other use of drained organic soils, and the gases CO2 and N2O.		Accepted	Point taken, section rewritten and split tiers 2-3
20538	Baltzer, Heiko	2	543	543	2	Use subscript formatting in CH4		Accepted	
20539	Evrendilek, Fatih	2	543	543	2	"CH_4"		Accepted	
20540	KIM, Raehyun	2	543	543		CH4 -> CH4		Accepted	
20541	Lund, Herluf Gyde	2	543	543	2	4 should be a subscript		Accepted	
20542	Thompson, Victoria	2	543	543	2	subscript 4 in CH4		Accepted	
20543	Thompson, Victoria	2	545	545	2	hyphenate "higher tier"		Rejected	
20544	Romanovskaya, Anna	2	552	559	2	all uncertainties in the Supplement should be presented in consistent way as 95% confident interval		Accepted	Change made in FD

<Review comments on First Order Draft of Chapter 2 of Wetlands Supplement>

ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20545	Tuomainen, Tarja	2	552	559	2	It seems that the text is about the UC assessment for EFs for CH4 emissions from ditches. It would be helpful inventory agency if also about other components are discussed.		Accepted	Change made in FD
20546	KIM, Raehyun	2	553	553		EFCH4 -> EFCH4		Accepted	
20547	KIM, Raehyun	2	559	559		EFCH4 -> EFCH4		Accepted	
20548	Thompson, Victoria	2	559	559	2	There are 2 periods at the end of the sentence and they are subscripted.		Accepted	
20549	Choowaew, Sansanee	2	560	560	2	Table 2.4 There is no default for tropical / sub-tropical region. What would be the guidance ?		Accepted	deleted because there is no data
20550	Rock, Joachim	2	560	560	2	Table 2.4: Please add references.		Accepted	
20551	Romanovskaya, Anna	2	560		2	table 2.4 does not contain a column with reference sources for default Efs. It should be included here.		Accepted	
20552	Romanovskaya, Anna	2	560		2	commercial forestry is not IPCC category and it is not clear what is mentioned here. Managed forest land remaining forest land. please, clarify		Accepted	Changed to "managed forest"
20553	Romanovskaya, Anna	2	560		2	grasslands and croplands with low and high intensity - there are not such IPCC land use categories and that should be clarified		Accepted	Terms have been defined.
20554	Tuomainen, Tarja	2	560	560	2	Table 2.4. The values of EF_ditch_landscape need to check.		Accepted	Column has been deleted.
20555	Couwenberg, John	2	562	564	2	delete first sentence		Accepted.	deleted first paragraph
20556	PENMAN, Jim	2	562	564		first full sentence - delete; Important, but not relevant to this guidance		Accepted.	deleted first paragraph
20557	Romanovskaya, Anna	2	562	564	2	the general information about N2O might be deleted from this specific guidelines		Accepted.	deleted first paragraph
20558	Smith, Keith	2	563	563	2	Insert "per annum" after 0.26%		Accepted.	deleted first paragraph
20559	KIM, Raehyun	2	566	566		omit the references of Aulakh et al. 1984		Accepted.	deleted first paragraph
20560	Lund, Herluf Gyde	2	566	566	2	Aulakh et al.1984 not listed in References		Accepted.	deleted first paragraph
20561	Sperow, Mark	2	566	566	2	The Aulakh et al paper is either 1997 as listed in the reference or it is not included in the references. Please verify.		Accepted.	deleted first paragraph
20562	Thompson, Victoria	2	570	570	2	emission factors, not emissions factors		Accepted.	
20563	COUWENBERG, John_2	2	571	572		wetland under peat extraction should be peatland under peat extraction		Accepted.	Text changed
20564	Jauhiainen, Jyrki	2	573	574	2	There are plenty of N2O data available from tropical peatlands: (listed in separate cells below)		Accepted.	References have been updated
20565	Thompson, Victoria	2	573	573	2	replace comma after peatlands with semicolon; insert comma after however.		Accepted.	
20566	Evrendilek, Fatih	2	578	578	2	applicable to "Equation" 11.1 presented		Accepted.	
20567	Thompson, Victoria	2	578	578	2	capitalize equation		Accepted.	
20568	Evrendilek, Fatih	2	581	581	2	"Equations" 11.1 and 11.2 can		Accepted.	
	Klemedtsson, Asa Kasimir	2	582		2	Many abbreviations, not explained here but after the equation. For a new reader this may be difficult.		Accepted.	Subscripts explained
20570	Romanovskaya, Anna	2	582	582	2	the list of acronyms presented here, but no explanations on those. Explanations for acronyms should be at first time it appears in the text		Accepted.	Subscripts explained
20571	Thompson, Victoria	2	582	582	2	delete the before equations, capitalize equations		Accepted.	
20572	Thompson, Victoria	2	583	583	2	emission factors, not emissions factors		Accepted.	
20573	Klemedtsson, Asa Kasimir	2	588	592	2	The eq 2.6, Croplands and Grasslands are shortened CG, check that this is consitent in the equation, since it is GC on two places.		Accepted.	
20574	FENTON, Nicole J	2	589	592		Typo in formula - N2O		Accepted.	
20575	Romanovskaya, Anna	2	589	599	2	it is not clear if equation 2.6 is for direct N2O emissions only or include both direct and indirect?		Accepted	changed title into "direct N2O…"
20576	TIEMEYER, Barbel	2	589	599		Equation 2.6: Use consistently "A" instead of "F" as an abbreviation for "Area"		Rejected.	This follows Eq. 11.1 given in the 2006 Guidelines.
20577	Wirth, Tom	2	589	589	2	In equation 2.6, the subscript "GC" should be replaced with "CG"		Accepted.	
20578	Couwenberg, John	2	591		2	this equation should use a sum-(sigma-)sign like e.g. used in eq. 2.4; why is there a subscript 2 with 'EF'? I know the equation is copied from Ch. 11 Vol. 4 of the 2006 GLs, but also there it a) looks too complicated and b) is wrong for leaving out the boreal climate zone		Rejected	This follows Eq. 11.1 given in the 2006 Guidelines.
20579	KIM, Raehyun	2	591	591		N2O => N2O, EF2GC, Temp => EF2CG, Temp		Accepted.	
20580	Thompson, Victoria	2	591	591	2	subscript 2 in N2O		Accepted.	
20581	KIM, Raehyun	2	593	593		managed organic soils => managed Organic Soils		Accepted.	
20582	KIM, Raehyun	2	594	594		the subscripts CG, F, => the subscripts OS, CG, F		Accepted.	
20583	Stenhouse, Michel	2	594		2	Equation 2.6: "F" seems a strange letter representing area, cf. "A" previously		Rejected.	This follows Eq. 11.1 given in the 2006 Guidelines.
20584	KIM, Raehyun	2	595	595		refer to Oargnic Soils, Cropland		Accepted.	
20585	Gyldenkarne, Steen	2	597	597	2	Naming should be the same as in 2006 GL eg. Npoor and Nrich		Accepted.	Align with 2006 GL
20586	Thompson, Victoria	2	601	601	2	replace en-dashes with hyphens, insert space after "country–" and "or"		Accepted.	
20587	Tuomainen, Tarja	2	604	609	2	About tier 3 methods is said that models should only be used after validation against named factors including the climate factor. This apply to all tier 3 methods and therefore an appropriate chapter to discuss these issues would be Ch7.		Accepted.	Referred to Ch 7
20588	Romanovskaya, Anna	2	605		2	please, provide some examples of models or web references to them, if possible		Accepted	Reference inserted
20589	PENMAN, Jim	2	608	609		This is the sort of area where the advice from the Sydney meeting may be useful		Accepted	Reference inserted
20590	Thompson, Victoria	2	616	616	2	should read "nutrient-poor and nutrient-rich"		Accepted	
20591	Thompson, Victoria	2	617	617	2	hyphenate "nutrient rich"		Accepted	
20592	Romanovskaya, Anna	2	618	618	2	poor bogs and rich fens are mentioned, however, it is not clear what are these and there are not any explanations or definitions		Accepted	We have changed and now just use bogs and fens, linked to definition.
20593	Evrendilek, Fatih	2	619	619	2	all "cases, the" residual		Accepted	
20594	Evrendilek, Fatih	2	619	619	2	There "are" not enough		Accepted	
20595	Lund, Herluf Gyde	2	619	619	2	Change is to are.		Accepted	
20596	PENMAN, Jim	2	619			replace "is not enough" with "are insufficient"		Accepted	
20597	Thompson, Victoria	2	619	619	2	There are not "There is"		Accepted	
20598	Andren, Olof	2	620	table	2	Question: characters in Nordic languages - should they be correct - like in Hyvönen, Nykänen, Grønlund? Or o, a, o etc…? THEY SEEM TO BE CORRECT IN REF LIST.		Accepted	
20599	Kishitomo, Ayaka	2	620	621	2	Table 2.5: Comments are same as above.		Accepted	Aligned table 2.5 with 2.4
20600	Klemedtsson, Asa Kasimir	2	620	621	2	Table 2.5 Both for temperate croplands and grasslands the complete reference should be Kasimir Klemedtsson et al. 2009		Accepted	
20601	Lapveteläinen, Tuija	2	620	621	2.2.2.2	Title of the Table 2.5 refers to N2O emission factors, but EFs are given as N.		Accepted	column heading changed to N2O-N instead of N
20602	Lund, Herluf Gyde	2	620	621	2	Table 2.5 Page 2.22. Column 5. Grassland - Change Van Beek to van Beek as in References		Accepted	
20603	Lund, Herluf Gyde	2	620	621	2	Table 2.5 Page 2.21. Forest land Column 5 Page 2.21 - Kjoller should be Kjöller		Accepted	
20604	Lund, Herluf Gyde	2	620	621	2	Table 2.3 - Page 2.21. Change Forestland to Forest Land		Accepted	
20605	Lund, Herluf Gyde	2	620	621	2	Table 2.3 Page 2.22 Cropland - Seems line oil palm plantation would fall under forest land if the trees were dense and tall enough. I believe it is counted as forest land in some SE Asia countries.		Rejected	OP is an oil crop. Countries need to use national definitions. Most countries include it in agriculture in national inventories

<Review comments on First Order Draft of Chapter 2 of Wetlands Supplement>

ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20606	Mu, Zhijian	2	620	630	2	It is somewhat difficult to acknowledge that the N2O emission factors for the same land-use categories are lower in tropical region than in boreal/temperate region, as shown in Table 2.5. Therefore, more cogent information should be given to justify it.		Accepted	Updated Ef tables
20607	PARISH, Faizal	2	620	621		emission factors for tropical croplands appears low. Compared to those in eg Couwenberg 2010 (see FILE Couwenbery 2010 mires and peatlands - "Attachment_20224A.pdf"). Are these figures related to N2O from the soil only or do they also include N2O related to fertilisation of the soils - which will be significantly more? more recent info in Paper - Nitrous oxide fluxes from tropical peat with different disturbance history and management. J. Jauhiainen, H. Silvennoinen, R. Hämäläinen, K. Kusin, S. Limin, R. J. Raison, and H. Vasander file: Jauhiainen at al N2O flux bg-9-1337-2012.pdf - "Attachment_20607.pdf"	Attachment_20224A.pdf, Attachment_20607.pdf	Accepted	Updated Ef tables
20608	Romanovskaya, Anna	2	620	621	2	the uncertainties should be given in consistent way across the table, across all tables in the Supplement and consistent with requirements of IPCC GPG and 2006 IPCC Guidelines - please provide everywhere just 95% confident interval, which is required for GHG inventories		Accepted	Updated Ef tables
20609	Romanovskaya, Anna	2	620	621	2	for Settlements the same EF assumed as for Croplands. That is WRONG assumption, which led to overestimations. Croplands are intensively managed lands, while settlements are not. EF for settlements should be assumed zero if where are not more exact information		Accepted	there is no conservativeness argument - if there is no info there cannot be any EF. Assumption should be the same for Table 2.3. Check analogy assumption.
20610	Romanovskaya, Anna	2	620	621	2	the footnote on positive and negative values should be moved to the subtitle of the table		Accepted.	the footnote is moved to the first place of footnotes.
20611	Gyldenkarne, Steen	2	621	621	2	Naming in column 1 should be discussed and be similar as in 593-599.		Accepted.	Aligned with table 2.3.
20612	Jauhiainen, Jyrki	2	621		2	Table 2.5. /Forest land/Tropical. To be added for undrained and drained forestland: Jauhiainen, J., Silvennoinen, H., Hämäläinen, R., Kusin, K., Limin, S., Raison, R.J. and Vasander, H. (2012): Nitrous oxide fluxes from tropical peat with different disturbance history and management. Biogeosciences, 9: 1337-1350. doi:10.5194/bg-9-1337-2012, 2012		Rejected.	Undrained forest is not managed.
20613	Jauhiainen, Jyrki	2	621		2	Table 2.5. /Cropland except rice/Tropical. To be added: Jauhiainen, J., Silvennoinen, H., Hämäläinen, R., Kusin, K., Limin, S., Raison, R.J. and Vasander, H. (2012): Nitrous oxide fluxes from tropical peat with different disturbance history and management. Biogeosciences, 9: 1337-1350. doi:10.5194/bg-9-1337-2012, 2012		Rejected	Data are only for drainage canals.
20614	Jauhiainen, Jyrki	2	621		2	Table 2.5. /Plantation: pulp wood/Tropical. To be added: Estimate for Acacia plantation N2O emission is available from IPS 2012 Stockholm proceedings. Jauhiainen, Hooijer & Page. Greenhouse gas emissions from a plantation on thick tropical peat.		Accepted	Publications were reviewed, and used
20615	PENMAN, Jim	2	623	630		So what does one do? Assume the corresponding emissions are zero? Use the 2006 GL advice notwithstanding the reservations? It is not acceptable to leave the user suspended.		Accepted	Guidance has been added that this is to be used for all tropics until better data becomes available
20616	Sperow, Mark	2	627	627	2	The second citation for Verchot et al is either 2006 or is not included in the references. Please verify. The spelling for Ishizuka is Ishizuk in the references. Please verify which is correct.		Accepted	Revised references
20617	COUWENBERG, John_2	2	628			no disaggregation of emissions due to drainage and fertilizer application: why not? Takakai et al. 2006, Melling et al. 2007, Toma et al. 2011, Hadi et al. 2000 all provide data on fertilizer application. The question is also, whether and how this disaggregation is done for other climate zones. I doubt it is done, actually... Some text should be included on how this issue is dealt with.		Accepted.	Fertilizer emissions are dealt with in the 2006 GL chapter 11.
20618	Evrendilek, Fatih	2	629	629	2	all measurements "of" N2O emissions		Accepted.	
20619	Thompson, Victoria	2	629	629	2	delete "on" after "measurements"		Accepted.	
20620	Thompson, Victoria	2	633	633	2	delete space between 50 and %		Accepted.	
20621	PENMAN, Jim	2	635			after "seasons" insert "and representative of the seasonal average"		Accepted	Text added
20622	Evrendilek, Fatih	2	636	636	2	"C:N ratio" in boreal		Accepted	
20623	Gyldenkarne, Steen	2	636	637	2	spacing between C:Nratio		Accepted	
20624	KIM, Raehyun	2	636	636		C:Nratio => C:N ratio		Accepted	
20625	Klemedtsson, Asa Kasimir	2	636	637	2	Yes, when nutrient poor the emissions are low, but why say that both low and high emissions can occur when <25 C:N, the graph in Klemedtsson et al. 2005 show at least 10 kg N2O ha-1 yr-1, which is not low.		Accepted	Reformulated
20626	Thompson, Victoria	2	636	637	2	insert space betweeb "C:N" and "ratio" (x2)		Accepted	
20627	Evrendilek, Fatih	2	637	637	2	low (< 25) "C:N ratios."		Accepted	
20628	FAGGI, Ana	2	637			space after "C:N"		Accepted	
20629	Sperow, Mark	2	637	637	2	Space between "N" and "ratios.		Accepted	
20630	PENMAN, Jim	2	643			provide an exact reference		Accepted	
20631	Wirth, Tom	2	645	645	2	Need to clearly state what are the activity data inputs, it's not obvious from this discussion		Accepted	Add a sentence what activity data are needed.
20632	Evrendilek, Fatih	2	647	647	2	data for "CO2" and "CH4" emissions		Accepted	
20633	Klemedtsson, Asa Kasimir	2	647	648	2	Should be "Activity data for N2O should be consistent with activity data for CO2 and CH4…." This section could be made more complete. Compare with lines 523-.		Accepted	extended section.
20634	Lund, Herluf Gyde	2	647	647	2	The 2 in the second CO2 should be a subscript.		Accepted	
20635	Schreir & Silvius, Arina & Marc	2	647		2	non-CO2 <-> CO2? CH4, N2O?	Attachment_20050.pdf	Accepted	Just N2O
20636	PENMAN, Jim	2	650	662		What about temperate and boreal conditions?		Accepted	Guidance added
20637	Schreir & Silvius, Arina & Marc	2	651		2	does that make sense? Secondary forest is usually affected by drainage. Is meant primary forest?	Attachment_20050.pdf	Accepted	reformulated, say that stratification could be done by different forest types
20638	Thompson, Victoria	2	651	651	2	insert comma after "between" and after "e.g."		Accepted	
20639	Thompson, Victoria	2	656	656	2	grassland not grasslands		Accepted	
20640	Wirth, Tom	2	679	680	2	These two lines don't provide useful guidance. Remove or clarify.		Accepted	Guidance provided
20641	PENMAN, Jim	2	680			Rather a vague reference; would be helpful to give section or page numbers.		Accepted	Guidance provided
20642	Baltzer, Heiko	2	681	681	2	Use subscript formatting in CO2		Accepted	
20643	Evrendilek, Fatih	2	681	681	2	2.2.2.3 NON-CO2 EMISSIONS FROM BURNING ON ORGANIC SOILS		Accepted	
20644	KIM, Raehyun	2	681	681		Non-CO2 => Non-CO2		Accepted	
20645	Lund, Herluf Gyde	2	681	681	2	The 2 in CO2 should be a subscript.		Accepted	
20646	PARISH, Faizal	2	681	682		It is very important that CO2 emissions from burning on organic soils in included. This is a significant gap in the current version. Since non co2 gasses are normally derived as asubset of CO2 emission from fires		Accepted	will be included
20647	Romanovskaya, Anna	2	682	683	2	where is subsection on indirect N2O emissions?		Rejected.	indirect N2O emissions are dealt with in 2006 GL Chapter 11.
20648	Klemedtsson, Asa Kasimir	2	683	739	2	the section 2.3 feels unfinnished		Accepted	Section reviesd
20649	Schreir & Silvius, Arina & Marc	2	683	685	2	changes in GHG sinks and sources related to LUC are: 1. Direct losses/gains because of biomass clearance/(re)planting (direct loss of carbon), 2. Indirect losses/gains because of biomass clearance/(re)planting (indirect losses because of reduced photosynthesis and increased respiration because increased soil temp),3. Losses/gains because of drainage/rewetting (oxidation of peat), 4. Losses/gains because of increased fire frequency/dercreased fire frequency after drainage/rewetting. These sources and sinks have to be capture somewhere in the IPCC guidelines.	Attachment_20050.pdf	Rejected	This chapter deals only with loss from drained organic soils. For other components of the ecosystem, inventories should be compiled using the 2006 GL
20650	Wirth, Tom	2	683	683	2	As mentioned with section 2.2, I don't think you need to break out the guidance by land remaining and land converted. Additionally, this guidance appears to be identical to the guidance in 2.2, so this could be eliminated.		Rejected.	Consistency is needed with other chapters and 200 6GL.
20651	Baltzer, Heiko	2	685	685	2	Use subscript formatting in CO2		Accepted	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20652	Evrendilek, Fatih	2	685	685	2	2.3.1 "CO2" emissions in organic soils		Accepted	
20653	Gyldenkarne, Steen	2	685	685	2	CO2 emissions from organic soils?		Accepted	
20654	KIM, Raehyun	2	685	685		CO2 => CO2		Accepted	
20655	Klemedtsson, Asa Kasimir	2	685		2	I suggest a better headline, perhaps this: CO2 emissions due to drainage and management of organic soils		Accepted with modification	Revised text and references
20656	Klemedtsson, Asa Kasimir	2	685	701	2	this section 2.3.1. is not compatible with section 2.2.1 however they begin the same, but 2.2.1 deals only with heterotrophic respiration, not inputs and outputs as in 2.3.1., it has to be consistent, I suggest as in 2.2.1.		Accepted	Section reviesd
20657	Lund, Herluf Gyde	2	685	685	2	The 2 in CO2 should be a subscript.		Accepted	
20658	Mu, Zhijian	2	685	686	2	CO2 should be correspectly subscripted.		Accepted	
20659	PARISH, Faizal	2	685	701		Conversion of eg forested peatlands to cropland or grassland peatlands leads to significant emission from above ground biomass (presumably the methodology for this is described elsewhere - but also the upper layers of the peat soil are also impacted by the clearance and loss of vegetation cover and appear to have a much larger emission rate in the first few years. this may need to be referenced in this section. for information related to the tropics - see 2. Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment 20224D.pdf")	Attachment_20224D.pdf	Accepted	Elaborate this section
20660	Thomson, Amanda	2	685	685	2	Correct CO2		Accepted	
20661	Evrendilek, Fatih	2	686	686	2	and management "on CO2" emissions in organic		Accepted	
20662	Hopfensperger, Kristine	2	686	686	2	space needed between the word "on" and "CO2"		Accepted	
20663	KIM, Raehyun	2	686	686		onCO2 => on CO2		Accepted	
20664	Klemedtsson, Asa Kasimir	2	686		2	space between on and CO2		Accepted	
20665	Klemedtsson, Asa Kasimir	2	686	701	2	Parts of this text could also fit in 2.2.1 wher a more sparse description is given		Accepted	Section reviesd
20666	Navarrete Encinales, Diego Alej	2	686	686	2	Include a space between "on'-'CO2".		Accepted	
20667	Sperow, Mark	2	686	686	2	Space between "on" and "CO2".		Accepted	
20668	Thompson, Victoria	2	686	686	2	insert space between "on" and "CO2"; replace "in organic" with "from organic"		Accepted	
20669	Thomson, Amanda	2	686	686	2	Correct onCO2		Accepted	
20670	Evrendilek, Fatih	2	688	688	2	(peat decomposition), "erosion" losses		Accepted	
20671	Thomson, Amanda	2	688	688	2	Insert comma after (peat decomposition)		Accepted	
20672	Wang, Changke	2	688	689	2	see above.		Accepted	Section reviesd
20673	Bedard-Haughn, Angela	2	697	698	2	Are there references to back up this assumption? If so, please cite them here.		Accepted	Section reviesd
20674	Cai, Zucong	2	697	698	2	The assumption is hard to accept. Suggest presenting some references.		Accepted	Section reviesd
20675	Klemedtsson, Asa Kasimir	2	704		2	The influence of water table depth cannot at this stage be used as a ground for emission estimation at tier 1 level, and thus only climate (partly influencing water table) and land use are included. May be rewritten.		Accepted	Section reviesd
20676	PENMAN, Jim	2	706			add after "level", "and therefore the methods used to estimate emission and rempovals will be those in the land remaining categories.."		Accepted	Section reviesd
20677	Bedard-Haughn, Angela	2	707	736	2	Ch.5 refers to a 10-year transition period following change to a new land use, which is a perfectly reasonable approach (although labour intensive). I wonder why this transition period is not included for LUC in organic soils (this chapter)? Instead, this section refers to immediately switching accounting to the new land use (i.e., Cropland remaining Cropland, etc.). I would think the approach re: transition periods should be consistent across wetland types. NOTE: I have included a similar comment for Ch. 5.		Rejected.	transition periods in mineral soils are different from the treatment of organic soils. Organic soils do not reach a new steady state
20678	Thompson, Victoria	2	707	707	2	delete space after "land-"		Accepted	
20679	PENMAN, Jim	2	711			replace "could further" with "should" Since we have just said that we cannot differentiate at Tier 1 and 2		Accepted with modification	Text has been revised, but IPCC does not tell governments what they should do.
20680	Thompson, Victoria	2	712	712	2	hyphenate "land use"		Accepted	
20681	Evrendilek, Fatih	2	713	713	2	2.3.1.2 OFF-"SITE CO2" EMISSIONS FROM WATERBORNE CARBON		Accepted	
20682	Sperow, Mark	2	713	713	2	Space between "Off-site" and "CO2".		Accepted	
20683	Thomson, Amanda	2	713	713	2	Insert space after off-site		Accepted	
20684	Klemedtsson, Asa Kasimir	2	715	724	2	The same text as line 703 to 712. Not very informative.		Accepted	Section has been revised and this has been corrected
20685	Thompson, Victoria	2	716	716	2	losses FROM orgaic soils are dominated by THE water table		Accepted	
20686	Thompson, Victoria	2	717	717	2	at THE Tier 1		Accepted	
20687	PENMAN, Jim	2	723			replace "could further" with "should" Since we have just said that we cannot differentiate at Tier 1 and 2		Accepted	Section has been added
20688	Kiyono, Yoshiyuki	2	724	725	2	The guidance for CO2 emissions by burning of peat on the drained peat land should be inserted here. According to our monitoring of the subsidence rate of the tropical peat soil, the peat soil burnt to a depth of around 20 cm at a fire, while the ordinary subsidence rates were estimated to be only 0.79 cm yr-1 on the land converted from forest land to cropland (Kiyono et al. 2011).	Attachment_20418,419,688,689.pdf	Accepted	Section has been added
20689	Kiyono, Yoshiyuki	2	724	725		The guidance for CO2 emissions by burning of peat on the drained peat land should be inserted here. According to our monitoring of the subsidence rate of the tropical peat soil, the peat soil burnt to a depth of around 20 cm at a fire, while the ordinary subsidence rates were estimated to be only 0.79 cm yr-1 on the land converted from forest land to cropland (Kiyono et al. 2011). * I will e-mail a pdf file of Kiyono et al. (2011) to ipccreview@iges.or.jp later.	Attachment_20418,419,688,689.pdf	Accepted	Section has been added
20690	Thompson, Victoria	2	724	724	2	delete space after "land-"		Rejected.	land use is hyphenated in the 2006 IPCC Guidelines.
20691	Andren, Olof	2	725		2	Non-CO2 ----subscript		Accepted	
20692	Baltzer, Heiko	2	725	725	2	Use subscript formatting in CO2		Accepted	
20693	Evrendilek, Fatih	2	725	725	2	2.3.2 Non-"CO2" emissions		Accepted	
20694	KIM, Raehyun	2	725	725		Non-CO2 => Non-CO2		Accepted	
20695	Thomson, Amanda	2	725	725	2	Correct CO2		Accepted	
20696	Romanovskaya, Anna	2	726	732	2	this subsection should be deleted (see comment #54)		Rejected.	We use the managed land proxy.
20697	Cai, Zucong	2	727	732	2	What are differences in the descriptions of land use changes in these two para?		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20698	Evrendilek, Fatih	2	727	732	2	On land converted to a new "land-use" category (e.g. Forest land converted to Cropland)", CH4"		Accepted	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20699	Lund, Herluf Gyde	2	727	732	2	Can we combine these two sentences to On land converted to a new land- use category (e.g. Forest land converted to Cropland) the CH4 emissions from organic soils are calculated as in land remaining in the new land-use category (e.g. Cropland remaining Cropland). Guidance is given in Sections 2.2.2.1 and 2.2.2.2.		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20700	Rock, Joachim	2	727	732	2	These two paragraphs are identical.		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20701	Thompson, Victoria	2	727	727	2	delete space after "land-"		Rejected.	"land use" is hyphenated in the 2006 IPCC Guidelines.
20702	Thompson, Victoria	2	727	732	2	Paragraph is repeated. Which Section (2.2.2.1 or 2.2.2.2) is appropriate to refer to?		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20703	Evrendilek, Fatih	2	730	732	2	Repitition!		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20704	Klemedtsson, Asa Kasimir	2	730	732	2	Only repetition of the text above, lines 727 to 729. Thus delete.		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20705	Mu, Zhijian	2	730	732	2	Delete this paragraph since it is the same as the preceding one.		Accepted	Actually the sentence should read, "On land converted to a new land- use category (e.g. Forest land converted to Cropland) CH4 emissions from organic soils are calculated as in land remaining in a land-use category (e.g. Cropland remaining Cropland).
20706	Evrendilek, Fatih	2	734	734	2	On land converted to a new "land-use" category (e.g. Forest land converted to Cropland), "N2O"		Accepted	
20707	KIM, Raehyun	2	734	734		N2O => N2O		Accepted	
20708	Lund, Herluf Gyde	2	734	734	2	The 2 should be a subscript.		Accepted	
20709	Navarrete Encinales, Diego Alej	2	734	734	2	Change "N2O" by "N2O"		Accepted	
20710	Thompson, Victoria	2	734	734	2	delete space after "land-". Subscript 2 in N2O		Accepted	
20711	Klemedtsson, Asa Kasimir	2	736		2	Section 2.2.2.3 should be changed to Section 2.2.2.2		Accepted	
20712	Baltzer, Heiko	2	737	737	2	Use subscript formatting in CO2		Accepted	
20713	Evrendilek, Fatih	2	737	737	2	2.3.2.3 NON-"CO2" EMISSIONS FROM BURNING ON ORGANIC SOILS		Accepted	
20714	KIM, Raehyun	2	737	737		Non-CO2 => Non-CO2		Accepted	
20715	Quintero, Adriana Patricia Yepes	2	741	748		The IPCC should make an invitation to researchers, so they send their research results, and thus, improve and update the tables with default values and / or emission factors.		Accepted with modification	LAs have approached individual researchers with data already. IPCC do not issue general invitations to submit results
20716	COUWENBERG, John_2	2	744	745		intensive' and 'extensive; rephrase to 'high' and 'low intensity' (also in the table)		Accepted with modification	high and low intensity have been explained in the text
20717	Evrendilek, Fatih	2	752	752	2	TABLE 2A.: the use of "et al."is not in the same format.		Accepted	
20718	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26 Column 3 - Vermaat et al (2011) is not listed in references.		Accepted	
20719	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Best & Jacobs (1997)is not listed in references.		Accepted	
20720	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 - McNamara et al (2012) not listed in references.		Accepted	
20721	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Sirin et al (2012) not listed in references.		Accepted	
20722	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Chistotin et al (2006) not listed in references		Accepted	
20723	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Teh et al (2011) not listed in references		Accepted	
20724	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 - Van den Pol-Van Dasselaar et al. (1999) - there are three van den Pol-van Dasselaar et al. listed in the references - 1999 a, b, c. Is the one in table 2A.1 any of these? Also note Van vs. van in the author's name.		Accepted	
20725	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 - Hendricks et al (2007, 2010) - neither 2007 or 2010 are listed in the references		Accepted	
20726	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Roulet & Moore (1995) not listed in references		Accepted	
20727	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.26. Column 3 -Glagolev et al (2008) not listed in References.		Accepted	
20728	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.27. Column 3 - Waddington & Day (2007) not listed in References		Accepted	
20729	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.27. Column 3 -Jauhiainen et al (2012) not listed in References		Accepted	
20730	Lund, Herluf Gyde	2	752	753	2	Table 2A.1. Page 2.27. Column 3 - Cooper et al (2012) not listed in References		Accepted	
20731	Lund, Herluf Gyde	2	752	753	2	Table 2A.1 - here and elsewhere - there should be a period after the 'al' in "et al" Also some et als are in italics and some are not. Should be consistent throughout. I think they should all be in italics since it is Latin.		Accepted	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20732	Sperow, Mark	2	752	753	2	None of the citations included in this table are included in the references section. Please correct.		Accepted	
20733	Gyldenkarne, Steen	2	753	752	2	flux is given in g CH4 m-2 yr-1, should be in ton per ha, however inventory people will not be able to see a dicth in hectares so maybe OK.		Accepted	Changed units
20734	Huissteden, Ko van	2	753	753	2	Table, row 11, Hendricks should be Hendriks		Accepted	
20735	MacDonald, James Douglas	2	755	800	2	I find this whole discussion around DOC flux very questionable. The source, tranfer and dynamics of DOC in a given hydrological basin are extremely complex; Wetlands cannot be extracted from their hydrological basin. The drainage of a wetland, essentially the lowering of the shallow ground water for a given drainage basin will have complex impacts on not only the wetland, but all of the surrounding basin. Furthermore, the disturbance of the wetland, may also include other changes that have occurred in the area surrounding the wetland. As a consequence there is not a clear understanding of the potential changes of input of carbon in the aquatic form (runoff, changes in microbial biomass, root exudates, in areas surrounding surrounding the wetland) Furthermore, most of these studies are short term, therefore, what you are measuring is a transistional phase as the wetland attains another equilibrium state (vegetation transition, soil microbial community transition). There are no guarantees that DOC increases would be sustained over time, as the vegetation and microbial community of the soils shifts to another equilibrium phase. In that sense, while the measurement is accurate for the first years of disturbance, it may not be afterwards, yet the proposed methodology would continue to estimate losses from DOC. I would recommend removing this section from the document, and revising the text elsewhere to assure that countries take into account fluxes of DOC from wetlands when determining overall fluxes of C from wetlands during the development of country specific emission factors. This is not sound science.		Accepted with modification	Comments relate entirely to fen peat systems, not bogs, but agree that data and methodology may not be sufficiently robust to apply to fens at Tier 1 currently. Revise text to reflect this. Comments about short duration of studies and transitional effects is not correct (many studies long-term) but will clarify this.
20736	Thompson, Victoria	2	755	755	2	The two annexes have the same number (2A.1), except the first is with a capital A and the second lowercase		Rejected	
20737	Van Den Born, Gert Jan	2	755	832	2	The report lacks a proper scientific explanation of the various processes that lead to waterborne emissions (esp. DOC). It refers to a number of studies (natural, drained), with a rather large variation in concentrations. Conditions differ from place to place. Some regions are basins of peatland, which lack a natural stream carrying the DOC out of the region. How to deal with these fundamentally different conditions.		Accepted with modification	How much detail should we include? (how much for CO2 and CH4?). Variations related to rainfall and peat type as captured in equation shown in Table 2.2 and associated equation. All flux data are based on measurements on outflow channels (part of reason for quantifying natural fluxes as more measurable), all water has to go somewhere... add reference
20738	TIEMEYER, Barbel	2	757			Please use consistent units (t ha-1 yr-1) throughout the document		Accepted with modification	Accept for CO2 and DOC, kg/ha for N2O or CH4 according to GLs
20739	Lund, Herluf Gyde	2	758	758	2	Gorham, 1991 not listed in references.		Accepted	
20740	Lund, Herluf Gyde	2	759	759	2	Should Turunen et al., 2004 be Turunen et al., 2002 as listed in the references?		Accepted	Check
20741	Lund, Herluf Gyde	2	760	760	2	Billett et al., 2004 not listed in the references.		Accepted	
20742	Lund, Herluf Gyde	2	760	760	2	Rowson et al., 2010 not listed in references.		Accepted	
20743	Sperow, Mark	2	764	764	2	Add "the" between "in" and "future".		Rejected	Not necessary
20744	Evrendilek, Fatih	2	768	768	2	report concentration		Accepted	
20745	Sperow, Mark	2	775	782	2	It may be useful to include the equation that demonstrates the linear relationship because you cannot really tell from the data included in the table.		Accepted with modification	In Table 2.2 but could include here
20746	Evrendilek, Fatih	2	783	783	2	TABLE 2A.2: (g "C" m-2 yr-1)		Accepted	
20747	Klemedtsson, Asa Kasimir	2	783	784	2	Table 2A.2 in the headline for DOC flux , the unit for carbon should have a capital C.		Accepted	
20748	Lund, Herluf Gyde	2	783	784	2	Table 2A.2. Page 2.29 Column 3 Koprivnjak & Moore (1992), Juutinen et al (in prep), Jager et al (2009), Moore (2003), Agren et al (2007), Kortelainen et al (2006), Rantakari et al (2010), Nilsson et al (2008), Kolka et al (1999), Roulet et al (2007), Clair et al (2002), Billett et al (2010), Koehler et al (2009,2011), Di Folco & Kirkpatrick (2011), Baum et al (2008), Alkhatib et al (2007), Yule et al (2009), Zulkifli (2002) and Moore et al (2011) not listed in References		Accepted	References updated
20749	Romanovskaya, Anna	2	783	784	2	uncertainties for data are not provided, please, include these as 95% Confidential interval		Rejected	Not appropriate/possible for each individual study
20750	Romanovskaya, Anna	2	783	784	2	it is not clear if DOC flux represent full year average or not		Accepted	Clarify
20751	Savolainen, Ikka	2	783	784	2	Table 2A.2 - The reference Nilsson et al (2008) is missing from the reference list.		Accepted	
20752	Oiumet, Rock	2	784		2	Table 2A.2; Are the units OK? (see Table 2.2 on page 12)		Accepted	Change to t C/ha/yr for consistency
20753	TIEMEYER, Barbel	2	785	799		The approach of using DDOC_Drainage is questionable as it relies on the assumption that the water balance is not changed - but the aim of drainage is to change the hydrological conditions. I would rather suggest using measured DOC fluxes from different land use types (and not only from paired studies).		Accepted with modification	Noted, and agree in principle but difficult/impossible to do this in practice due to lack of robust flux data from drained sites. Assume changes in water balance minor for bogs, flux data used for tropics, method no longer used for fens given uncertainties
20754	Klemedtsson, Asa Kasimir	2	787		2	Exchange (Table 2A2.3) into (Table 2A.3)		Accepted	
20755	MacDonald, James Douglas	2	787	787	2	Table reference is wrong.		Accepted	
20756	Sperow, Mark	2	787	787	2	I believe the correct Table to reference is 2A.3, not "2A2.3". Please verify.		Accepted	
20757	Thompson, Victoria	2	796	796	2	insert % symbol after 15		Accepted	
20758	Evrendilek, Fatih	2	800	800	2	TABLE 2A.3: DOC (g C m-2 "yr-1")		Accepted	
20759	Klemedtsson, Asa Kasimir	2	800	801	2	Table 2A.3 should have bold letters the third and fourth row from the bottom		Accepted	
20760	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Strack et al (2008) not listed in references		Accepted	
20761	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Kane et al (2010) not listed in references		Accepted	
20762	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Heikkinen (1990) not listed in references		Accepted	
20763	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Moore et al (2007) not listed in references		Accepted	
20764	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Urbanova et al (2011) not listed in references		Accepted	
20765	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Wallage et al (2006) not listed in references		Accepted	
20766	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Inubushi et al (1998) not listed in references		Accepted	
20767	Lund, Herluf Gyde	2	800	801	2	Table 2A.3 - Moore et al (2012) not listed in references		Accepted	
20768	Romanovskaya, Anna	2	800	801	2	two rows in the middle repeat titles for columns, please delete		Accepted	
20769	Thompson, Victoria	2	800	800	2	move Table 2A.3 up to this page		Accepted	Will change with revision
20770	Thomson, Amanda	2	800	800	2	Heading rows in Table 2A.3 have been repeated within the table		Accepted	
20771	Gyldenkarne, Steen	2	801	801	2	Table 2A.3 has not the same figures as table 3.A.1 page 3-19		Accepted with modification	Compare to Ch 3 table
20772	Rock, Joachim	2	801	801	2	Table 2A.3: Row "Peat type …" is doubled. Please rework format. The text of the first four columns can be deleted in the second "appearance" of this row.		Accepted	
20773	Gyldenkarne, Steen	2	802		2	FDOC-CO2 should be renamed to FracDOC. F is not normally in the guidelines used for fractions.		Accepted	renamed
20774	TIEMEYER, Barbel	2	802	832		Given the high uncertainties and the relatively low proportion of DOC losses for the total C losses from drained peatlands, wouldn't it be more honest to use F_DOC-CO2 = 1?		Accepted with modification	Value of 0.9 adopted after discussion with Ch 3, to reflect uncertainty about fate of all DOC. Will revisit

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20775	PENMAN, Jim	2	804			replace "even" with "possibly"		Rejected	Clearer as is
20776	Sperow, Mark	2	806	806	2	Add "the" between "in" and "estimation".		Accepted	
20777	Thompson, Victoria	2	806	807	2	in THE estimation. …from peats THAT is ultimately		Accepted	
20778	FAGGI, Ana	2	809			Cole, Wickland, not referenced		Accepted	
20779	KIM, Raehyun	2	809	809		omit the references of Cole et al. 2007, Wickland et al. 2007; Battin et al. 2009;		Accepted	
20780	Sperow, Mark	2	809	832	2	None of the citations included in this section are included in the references section. Please correct.		Accepted	
20781	KIM, Raehyun	2	811	811		omit the references of Opsahl and Benner, 1998; Dawson et al. 2001		Accepted	
20782	KIM, Raehyun	2	812	812		omit the references of Jonsson et al. 2007		Accepted	
20783	KIM, Raehyun	2	814	814		omit the references of Wickland et al. 2007		Accepted	
20784	MacDonald, James Douglas	2	814	814	2	observed or measured, can't be both		Accepted	
20785	Thompson, Victoria	2	815	816	2	insert % symbol after first number in range of percents, and use "to" rather than hyphen (x3) (e.g., 6% to 15%)		Accepted	
20786	KIM, Raehyun	2	816	816		omit the references of Worrall et al. 2012		Accepted	
20787	Lund, Herluf Gyde	2	816	816	2	Worrall et al. (2012) not listed in References.		Accepted	
20788	KIM, Raehyun	2	819	820		omit the references of Bianchi 2011; Opsahl and Benner 1997		Accepted	
20789	Lund, Herluf Gyde	2	819	820	2	Bianchi, 2011; Opsahl and 819 Benner, 1997 - not listed in References.		Accepted	
20790	Thompson, Victoria	2	825	825	2	insert % symbol after first number in range of percents, and use "to" rather than hyphen (e.g., 6% to 15%)		Accepted	
20791	KIM, Raehyun	2	827	830		omit the references of Ward et al. 2007; Worrall et al. 2007b		Accepted	
20792	Lund, Herluf Gyde	2	827	827	2	Yallop et al., 2010; Di Falco et al., 2011 not listed in References		Accepted	
20793	Lund, Herluf Gyde	2	827	828	2	Ward 827 et al., 2007; Worrall et al., 2007b not listed in References		Accepted	
20794	Klemedtsson, Asa Kasimir	2	833		2	The numbering of this section is odd, change!		Accepted	
20795	Rock, Joachim	2	833	833	2	Appendix number is wrong, so all table and equation numbers in this sub-chapter are wrong, too.		Accepted	Need to fix Annex/Appendix numbering in general
20796	Romanovskaya, Anna	2	834		2	insert word "drained" before organic soils		Accepted	word inserted
20797	Klemedtsson, Asa Kasimir	2	836	857	2	In this text it is referred to papers by Evans et al. And Pawson et al. but are not found in the reference list. All references should be checked.		Accepted	
20798	Huissteden, Ko van	2	839	839	2	add here: dredging of drainage canals and ditches		Accepted	Add text
20799	KIM, Raehyun	2	841	841		Pawson et al. 2008; Worrall et al. 2011		Accepted	
20800	Sperow, Mark	2	841	857	2	None of the citations included in this section are included in the references section. Please correct.		Accepted	references have been updated
20801	KIM, Raehyun	2	843	843		Equation 2a.1 => Equation 2A.1		Accepted	See above
20802	Klemedtsson, Asa Kasimir	2	843		2	The equation numbering, should be a caps A.		Rejected	
20803	Sperow, Mark	2	843	843	2	The referenced equation should be listed as "2A.1" rather than "2a.1".		Rejected	
20804	KIM, Raehyun	2	848	848		omit the references of Evans et al. 2012		Accepted	
20805	Lund, Herluf Gyde	2	848	848	2	Evans et al., 2012 not listed in References.		Accepted	
20806	Evrendilek, Fatih	2	851	851	2	Finally, there is little information "currently" available		Accepted	
20807	Huissteden, Ko van	2	851	857	2	An additional source of POC is the maintenance of drainage ditches by dredging. This is POC generated by recent vegetation or derived from peat. A large part of this POC is stored on land, and subject to rapid oxidation, another part is transported by water to enter the fluvial system. Not much actual data are known but it is certainly something that should be included.		Accepted	Add text
20808	Klemedtsson, Asa Kasimir	2	851		2	This sentence needs improvements, maybe "currently available" would do.		Accepted	
20809	Huissteden, Ko van	2	853	853	2	It is unlikely that POC is unreactive in rivers. E.g. Sinsabaugh and Findlay (1995, Microbial Ecology 30:127-141) report large POC decomposition rates		Accepted	Add reference
20810	Klemedtsson, Asa Kasimir	2	855	857	2	These sentences are about cycling of carbon and mineralisation, which could not be found to be discussed by Pawson et al., so delete or another reference.		Accepted	Revised text and references
20811	KIM, Raehyun	2	856	857		omit the references of Pawson et al. 2008		Accepted	
20812	Klemedtsson, Asa Kasimir	2	856		2	The impression is that there are a difference between biological cycled and mineralized, how come? Unclear text.		Accepted	Clarify text -
20813	Romanovskaya, Anna	2	858	861	2	it seems that "/100" inserted in the equation wrongly as POC is estimated per 1%, so there is not need to divide by 100% again. Please, check		Accepted	Equation is correct but can be more clearly expressed without using percentages
20814	Gyldenkarne, Steen	2	861		2	FDOC-CO2 should be renamed to FracDOC. F is not normally in the guidelines used for fractions.		Accepted	variable changed
20815	Gyldenkarne, Steen	2	864	866	2	emission is given in m-2 should be ha-1		Accepted	Units have been standardized
20816	FEDERICI, Sandro	2	865	865		To avoid misinterpretation of the text, please replace "Flux of POC per 1% of the total peat area comprising bare peat", with "Flux of POC from a peat area comprising 1% of bare peat"		Accepted	Needs re-wording but can probably improve on suggested text
20817	FEDERICI, Sandro	2	867	867		DOC should be "POC"		Accepted	
20818	Sperow, Mark	2	867	867	2	Change "DOC" to "POC" since the equation is addressing POC, not DOC.		Accepted	
20819	COUWENBERG, John_2	2	869			Accepted		Accepted	this is a second appendix
20820	Gyldenkarne, Steen	2	869		2	This should maybe be a new annex as it has nothing to do with POC		Accepted	this is a second appendix
20821	Klemedtsson, Asa Kasimir	2	869		2	Here starts a section of its own, should not be in the POC appendix.		Accepted	this is a second appendix
20822	PARISH, Faizal	2	869	1056		It is unclear how this entire section fits into appendix 2a1 as it is much broader than estimations for POC. Is it meant to be a new appendix separately on emission factor development?		Accepted	this is a second appendix
20823	Strack, Maria	2	869	1057		It is unclear to me where this fits. It seems that this section provides guidance on deriving emission factors/accounting in general and is not specific to POC, although it sits in the POC appendix.		Accepted	this is a second appendix
20824	COUWENBERG, John_2	2	870			actually there are three methods. For organic soils IPCC 2006 GLs explicitly state that a direct flux approach should be followed		Accepted with modification	methods for derivation of EF are provided in box
20825	Klemedtsson, Asa Kasimir	2	870	878	2	In 2006 GL 2.3.3.1 two methods for assessing C-losses are described, one for mineral soil, the delta method, and one for organic, loss to air. Thus it is odd to describe both methods here, since the delta method is not used and described for organic soils.		Accepted with modification	Data for peatlands are from subsidence (volume change) and flux measurements (dark chambers) Both have been used in the SOD
20826	Rock, Joachim	2	870	870	2	Add "The" before "Stock-difference …".		Accepted	The section has been revised taking this comment into account
20827	FEDERICI, Sandro	2	872	873		To avoid misunderstanding it is suggested to redraft as follows: "Annual stock change in an area is calculated as the difference between the stock in the area at time t2 and time t1, divided by the number of years between the inventories"		Accepted	The section has been revised taking this comment into account
20828	COUWENBERG, John_2	2	873			Estimating emissions from wetland soils was not included… 'Wetland soils' should be 'organic soils' and a method WAS included in the 2006 GLs, namely direct flux estimates		Accepted	The section has been revised taking this comment into account
20829	COUWENBERG, John_2	2	875	878		why include so much detail on mineral soils in a chapter dedicated to organic soils?		Accepted	The section has been revised taking this comment into account
20830	MacDonald, James Douglas	2	876	876	2	what are high activity clays?		Accepted	The section has been revised taking this comment into account

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20831	Klemedtsson, Asa Kasimir	2	879	904	2	This section of Gain-Loss method is not consistent with other parts of this report. It is not the way suggested for C-loss estimations. However part of this text may be used in an introduction.		Accepted	The section has been revised taking this comment into account
20832	Rock, Joachim	2	879	879	2	Sentence is incomplete, please check.		Accepted	The section has been revised taking this comment into account
20833	Sperow, Mark	2	879	879	2	Either delete "is the" and add a comma after "approach" and after "Method" or add ", which" after "Method".		Accepted	The section has been revised taking this comment into account
20834	COUWENBERG, John_2	2	880			Gains can be attributed… :: Gains to the SOC pool can be attributed…		Accepted	The section has been revised taking this comment into account
20835	COUWENBERG, John_2	2	883			…has not been applied…' The current approach to organic soils (using EFs based on subsidence or direct flux measurements) is actually an integrated gain/loss approach.		Accepted	The section has been revised taking this comment into account
20836	Klemedtsson, Asa Kasimir	2	883		2	make sense in the context of organic soils… I do not agree with the conclusions made in this method section, comments can be found in attached file "comments_method"	Attachment_20836.pdf	Accepted	The section has been revised taking this comment into account
20837	COUWENBERG, John_2	2	884			Below is a list of 'problems' that may be encountered when applying a stock difference or stock change approach. It does not clarify why the gain-loss method 'makes sense'.		Accepted	The section has been revised taking this comment into account
20838	COUWENBERG, John_2	2	885			In most peatlands of the world, they actually are; just that the soil itself vanishes and the upper 30 cm of the soil falls relative to sea level with ongoing degradation and consequent subsidence.		Accepted	The section has been revised taking this comment into account
20839	FAGGI, Ana	2	885	899		check that citations are referenced		Accepted	The section has been revised taking this comment into account
20840	KIM, Raehyun	2	885	886		omit the references of Hergoualc'h and Verchot 2011		Accepted	The section has been revised taking this comment into account
20841	Lund, Herluf Gyde	2	885	886	2	(Hergoualc'h and 885 Verchot, 2011) not listed in References.		Accepted	References for FOD were incomplete because of time constraints
20842	Sperow, Mark	2	885	995	2	None of the citations included in this section are included in the references section. Please correct.		Accepted	References for FOD were incomplete because of time constraints
20843	TIEMEYER, Barbel	2	885	893		All references missing in the list of references		Accepted	References for FOD were incomplete because of time constraints
20844	COUWENBERG, John_2	2	887			How does this compare to forest biomass estimates that are based on a limited number of samples of 'representative' trees.		Rejected	The comment does not require a change
20845	COUWENBERG, John_2	2	888			formation' :: Meaning what? Variability in the formation process or variability in peat thickness?		Accepted	The section has been revised taking this comment into account
20846	KIM, Raehyun	2	888	888		omit the references of Verwer and van der Meer, 2010; Kool et al. 2006		Accepted	The section has been revised taking this comment into account
20847	Lund, Herluf Gyde	2	888	888	2	(Verwer and van der Meer, 2010; Kool et al., 2006) not listed in References		Accepted	References for FOD were incomplete because of time constraints
20848	COUWENBERG, John_2	2	889			The reference is to tropical swamp forest peat. Does this apply to the rest of the world as well?		Rejected	Reference refers to peatland
20849	COUWENBERG, John_2	2	890			How large are the errors? Do you have an indication?		Accepted	The section has been revised taking this comment into account
20850	KIM, Raehyun	2	891	891		omit the references of Murdiyarso et al. 2010		Accepted	The section has been revised taking this comment into account
20851	Lund, Herluf Gyde	2	891	891	2	(Murdiyarso et al., 2010) not listed in References.		Accepted	References for FOD were incomplete because of time constraints
20852	COUWENBERG, John_2	2	892			Clarify why this is problematic or a good reason to apply the gain-loss method. In the end all peat is heterogenous and measuring is a matter of adequate techniques.		Accepted	The section has been revised taking this comment into account
20853	Thompson, Victoria	2	892	892	2	hyphenate "forest derived"		Accepted	accepted
20854	COUWENBERG, John_2	2	894	895		If tropical PSF is meant, then maybe, but as it is, this statement is too generalized and seems uninformed; moreover, why deal with stocks if we are interested in fluxes? IPCC 2006 GLs already recognised this and the approach presented seems a step backward		Accepted	The section has been revised taking this comment into account
20855	COUWENBERG, John_2	2	895	896		This would be gain-loss then? Most studies that attempt to estimate emissions do just that: estimate emissions		Accepted	The section has been revised taking this comment into account
20856	Klemedtsson, Asa Kasimir	2	895	900	2	Deals with emission as total soil respiration or only the part attributet to decomopsition. Which is interesting but needs to couple to the EF suggested in Table 2.1, for which it is not clear how these were derived.		Accepted	The section has been revised taking this comment into account
20857	COUWENBERG, John_2	2	896			delete 'annual'		Accepted	The section has been revised taking this comment into account
20858	COUWENBERG, John_2	2	896	898		Is it necessary to put down the work of others? Cannot you focus on how it should be done? (See also comment to line 884 on listing problems)		Accepted	There is no putdown. The section has been revised taking this comment into account
20859	KIM, Raehyun	2	898	899		omit the references of Hooijer et al. 2010; Hadi et al. 2005		Accepted	The section has been revised taking this comment into account
20860	Lund, Herluf Gyde	2	898	899	2	Hooijer et al., 2010; Hadi et al., 2005 not listed in References		Accepted	The section has been revised taking this comment into account
20861	Klemedtsson, Asa Kasimir	2	901	904	2	..we have adopted… Who are we? And what chapter? SOC stocks are not calculated. I suggest to delete this paragraph, it does not fit.		Accepted	The section has been revised taking this comment into account
20862	COUWENBERG, John_2	2	902			considering the mentioned heterogeneity, particularly of tropical peatlands, I do not think it is a valid approach to use 'average values'. You cannot just transfer measurements from one site to the other without good knowledge of what these values pertain to.		Rejected	This approach is maintained as part of the calculation in the SOD
20863	Thompson, Victoria	2	905	905	2	delete this line		Rejected	No need ot delete
20864	COUWENBERG, John_2	2	906	944		I very much doubt whether this section is of much value; it is very technical and hardly has any relevance for the chapter		Accepted	Moved to box 2.1
20865	Hopfensperger, Kristine	2	906	906	2	Great review of the pros and cons of these method options at 2012 SWS/INTECOL conference by Dr. Patrick Megonigal		Accepted	The section has been revised taking this comment into account
20866	Klemedtsson, Asa Kasimir	2	906		2	Headline could be improved, telling what it is about, like "Measurement techniques used for emission estimations"		Accepted	The section has been revised taking this comment into account
20867	Klemedtsson, Asa Kasimir	2	906	944	2	This section needs revision.		Accepted	The section has been revised taking this comment into account
20868	Romanovskaya, Anna	2	906		2	it is not clear what data are mentioned? Activity data or EF? Please, clarify		Accepted	The section has been revised taking this comment into account

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20869	Thompson, Victoria	2	908	908	2	hyphenate "land use"		Accepted	The section has been revised taking this comment into account
20870	COUWENBERG, John_2	2	909			individual flux measurements' :: Meaning what? Eddy and clear chambers also measure fluxes…		Accepted	The section has been revised taking this comment into account
20871	PARISH, Faizal	2	909	911		the sentence about derivation of CO2 emissions from subsidence being little used and uncertain is not accurate. This method has been used for 50 years or more in many studies and is generally much more accurate than for example chamber methods, eddy covariance etc. it is therefore important that this matter be given full recognition and description in the methods in this section. Data on carbon loss derived from subsidence monitoring data are generally considered to be more reliable for estimating carbon losses from drained peat than those obtained from closed chambers, because they are capable of providing a time-integrated measure of the net carbon balance of the peat. The relatively long integration period required for successful application of the subsidence method means, however, that it is not sufficiently sensitive to detect changes in carbon dynamics over short time scales — i.e, the impact of possible diurnal or even seasonal differences on carbon loss cannot be measured. For experimental studies on carbon dynamics (such as studies on the impact of fertilization on peat decomposition), the method requires long time periods and large-scale experiments across reference areas. Information on this is given in 1. Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011). Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia (ICCT White Paper 15). Washington: International Council on Clean Transportation (FILE name ICCT Peat emissions september 2011 - "Attachment_20224C.pdf"). 2. Hooijer 2012 Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment_20224D.pdf") and Stephens et al (Stephens, J. C. and Stewart, E. H.: Effect of climate on organic soil subsidence, in: Proceedings of the 2nd Symposium on land subsidence, Anaheim, California, 1976 IAHS-AIHS Publication No. 121, 647–655, 1977 (sorry I dont have a soft copy). A review of literature on chamber and eddy covariance methods has recently been produced fro the round table on sustainable palm oil (schrier 2012) - see FILE: RSPO methods for peatland emissions - "Attachment_20871.pdf"	Attachment_20224C.pdf, Attachment_20224D.pdf, Attachment_20871.pdf	Accepted with modification	We disagree with many of the points in this comment, but we have taken them into account when we revised the section.
20872	COUWENBERG, John_2	2	910			Include Wösten & Ritzema 1997 and Hooijer et al. 2012; note that these are all restricted to the tropical zone. There are many more references for this well-established method.		Accepted	The section has been revised taking this comment into account
20873	Jauhiainen, Jyrki	2	910	910	2	Critical review and empirical study on the subject ispresented in: Hooijer, A., Page, S., Jauhiainen, J., Lee, W.A., Lu, X.X., Idris, A., Anshari, G. (2012). Subsidence and carbon loss in drained tropical peatlands. Biogeosciences, 8: 9311-9356. Critical review on tropical peat emission data quality and use is presented in: Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011) Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia. White Paper No. 15, International Committee on Clean Transportation (ICCT), Washington DC, USA, 76 pp.		Accepted with modification	Hooijer et al (2012) was pulished after the draft of this report was submitted. We do not all fully agree with the assessment in the Page et al paper, but we have considered these points in the revision.
20874	KIM, Raehyun	2	910	910		omit the references of Kool et al. 2006; Couwenberg et al. 2010		Accepted	The section has been revised taking this comment into account
20875	Lund, Herluf Gyde	2	910	910	2	Couwenberg et al. 2010 not listed in References		Accepted	References for FOD were incomplete and have been corrected
20876	COUWENBERG, John_2	2	911			Not necessarily: see studies by Hooijer, vd Akker, Leifeld. Note that subsidence integrates a number of fluxes separated here and that uncertainty of this integrated approach is lower than when not integrated. The assessment made here lacks a thorough and fair discussion on using subsidence as a proxy for soil emissions. Subsidence is observed all over the world and relationships are thoroughly investigated. Here, you simply skip over them as being uncertain, without assessing this uncertainty alongside the uncertainty your approach entails. Uncertainty in your approach also lies in extrapolation of non-peat data and relationships to peatland ecosystems, which cannot be said of subsidence studies.		Accepted with modification	The section has been revised taking this comment into account
20877	COUWENBERG, John_2	2	913			CO2 and other trace gases		Accepted	Change integrated into revision
20878	KIM, Raehyun	2	914	915		omit the references of Baldocchi 2003		Accepted	Change integrated into revision
20879	Lund, Herluf Gyde	2	914	915	2	(Baldocchi 2003) not listed in References		Accepted	References for FOD were incomplete and have been corrected
20880	COUWENBERG, John_2	2	916			whole ecosystem :: indicate how large		Accepted	The section has been revised taking this comment into account
20881	COUWENBERG, John_2	2	916			hours to years :: Seconds actually, although eddy stability of app. 30 min is required.		Accepted	The section has been revised taking this comment into account
20882	Lund, Herluf Gyde	2	919	919	2	Consider changing 5 to five.		Accepted	The section has been revised taking this comment into account
20883	COUWENBERG, John_2	2	923			add after 'production and respiration' 'of the entire ecosystem, including live and dead biomass as well as soil'		Accepted	The section has been revised taking this comment into account
20884	COUWENBERG, John_2	2	924			Usually multiple regressions are carried out to fit a model to the measurements, using variables such as temperature, photon flux, humidity, etc. As night time fluxes only show respiration, these fluxes are used for fitting the respiration part of the model.		Accepted	The section has been revised taking this comment into account
20885	Thompson, Victoria	2	924	924	2	lowercase Night-time		Accepted	The section has been revised taking this comment into account
20886	Lund, Herluf Gyde	2	926	926	2	Lasslop et al., 2010 not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20887	Thomson, Amanda	2	926	926	2	More explanation for 'respiration can then be estimates from the intercept of the ordinate' is required.		Accepted	The section has been revised taking this comment into account
20888	COUWENBERG, John_2	2	927	928		But not all compartments of the ecosystem; usually only heterotrophic respiration of the soil and litter compartments are addressed		Accepted with modification	We are only concerned with the heterotrophic respiration in this chapter
20889	COUWENBERG, John_2	2	928			…And are not carried out using eddy covariance.		Accepted	The section has been revised taking this comment into account
20890	KIM, Raehyun	2	928	929		omit the references of Hanson et al. 2000		Accepted	The section has been revised taking this comment into account
20891	Lund, Herluf Gyde	2	928	929	2	Hanson et al. 2000 not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20892	Romanovskaya, Anna	2	928	928	2	after word "components" to add "of respiration" for clarity		Accepted	The section has been revised taking this comment into account
20893	COUWENBERG, John_2	2	930			Of course these only work if the vegetation can fit inside the box.		Accepted	The section has been revised taking this comment into account
20894	PARISH, Faizal	2	932	933		emphasise that this method is not suitable for tropical, temperate and boresl forested peatlands, most fen peatlands - with eg sedges and phragmites etc where the plants cant fit in the chamber		Accepted	The section has been revised taking this comment into account
20895	Romanovskaya, Anna	2	934	934	2	GPP is used for the first time and it is required to be explained. Please, spell out the acronym		Accepted	The section has been revised taking this comment into account
20896	Thomson, Amanda	2	935	936	2	What is meant by 'to estimate stop photosynthesis'? Is there some punctuation missing here?		Accepted	The section has been revised taking this comment into account

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20897	Lund, Herluf Gyde	2	936	937	2	Welker et al., 2994 not listed in References		Accepted	References for FOD were incomplete and have been corrected
20898	Klemedtsson, Asa Kasimir	2	938	942	2	Mass balance of SOM as a method for emissions for organic soils? Litterfall and and other plant residue inputs, is a method used for mineral soils as discussed in 686-698. It is a need to be much more clear about techniques used for deriving EF.		Rejected	Mass balance can be used for organic soils
20899	Klemedtsson, Asa Kasimir	2	938	939	2	In this reference (Hergoualc'h & Verchot 2011), flux was not measured, taken from literature and IPCC, I cannot see how this could be a good method. And as said above it is double counting of dead biomass.		Accepted	The section has been revised taking this comment into account
20900	PARISH, Faizal	2	938	944		It should be noted that this is rather new approach that has not been widely applied and is dependent on having appropriate information on the range of fluxes. Some figures generated through this method do not match with figures generated by other more developed methods. Constraints faced by some papers using similar approaches have been highlighted eg on page 43-44 of Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J.(2011). Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia (ICCT White Paper 15). Washington: International Council on Clean Transportation (FILE name ICCT Peat emissions september 2011 - "Attachment_20224C.pdf")	Attachment_20224C.pdf	Rejected	The approach in not new
20901	KIM, Raehyun	2	941	942		omit the references of Tuomi et al. 2009		Accepted	The section has been revised taking this comment into account
20902	Lund, Herluf Gyde	2	941	942	2	Tuomi et al., 2009 not listed in References		Accepted	The section has been revised taking this comment into account
20903	COUWENBERG, John_2	2	944			Which both have their drawbacks…		Accepted	The section has been revised taking this comment into account
20904	Romanovskaya, Anna	2	945		2	what is conclusion from this subsection? Which method is preferable to use to obtain Efs?		Accepted	The section has been revised taking this comment into account
20905	COUWENBERG, John_2	2	947	956		why reference to life-stock? Makes this look like the hasty copy-paste job it is… Do you need to repeat Ch. 1 of IPCC 2006GLs?		Accepted	The section has been revised taking this comment into account
20906	Thomson, Amanda	2	947	956	2	This paragraph is appropriate for a stand-alone document but does not need to be included here, as it is just describing the difference between Tiers 1 and 2, which are described elsewhere.		Accepted	The section has been revised taking this comment into account
20907	PENMAN, Jim	2	951			replace "can"" with ""characteristically"		Accepted	The section has been revised taking this comment into account
20908	Klemedtsson, Asa Kasimir	2	956		2	delete: "or livestock categories" not needed to say here.		Accepted	The section has been revised taking this comment into account
20909	Klemedtsson, Asa Kasimir	2	957	960	2	Text said before, repetition. Suggest deletion.		Accepted	The section has been revised taking this comment into account
20910	Gyldenkarne, Steen	2	967	967	2	Mg should be converted to ton		Accepted	The section has been revised taking this comment into account
20911	KIM, Raehyun	2	967	968		omit the references of Robinson and Moore 1999; Dommain et al. 2011; Page et al. 2004		Accepted	The section has been revised taking this comment into account
20912	Lund, Herluf Gyde	2	967	967	2	Robinson and Moore, 1999 not listed in References		Accepted	References for FOD were incomplete because of time constraints
20913	Lund, Herluf Gyde	2	968	968	2	Dommain et al., 2011; Page et al., 2004 not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20914	PENMAN, Jim	2	968	971		replace last two sentences with "There are also natural methane emissions, so that some natural wetlands at least are in approximate greenhouse gas balance. Because we use managed land as a proxy for anthropogenic emissions, we account for neither this lost sink associated with conversion nor the methane emissions that would also have been associated with the natural wetland. " as I think this is a more complete account than the existing text.		Accepted	The section has been revised taking this comment into account
20915	FEDERICI, Sandro	2	972	974		Is there any evidence supporting such semplification? The semplification seems rather arbitrary as drafted now; without providing any logic.		Accepted	The section has been revised taking this comment into account
20916	Klemedtsson, Asa Kasimir	2	972	974	2	What is the implication of inputs of dead wood ? This text is not clear. Also unclear if dead wood should be included or not into this wetlands supplement.		Accepted	The section has been revised taking this comment into account
20917	COUWENBERG, John_2	2	973	974		input to SOC equals dead wood and litter fall? This is an utterly stupid assumption as it denies any decomposition of litter before it enters the SOC pool; moreover, in peatlands only a VERY limited amount of litter enter the peat at all; do you mean belowground dead wood? state so		Accepted with modification	The section has been revised taking this comment into account. However, when CO2 measurements from the soil surface are used, one must account for the contribution of deadwood and litter pools to the flux
20918	FEDERICI, Sandro	2	973	973		add the text: "inputs to" after the word "equal" and before the word "dead organic matter"		Accepted	The section has been revised taking this comment into account
20919	Romanovskaya, Anna	2	973	974	2	it is not clear what are equal dead wood and litter fall? Are they assumed to be equal to each other? Please, clarify		Accepted	The section was ambigouos and has been revised taking this comment into account
20920	Evrendilek, Fatih	2	978	978	2	after 20 years, "and therefore," they emit		Accepted	The section has been revised taking this comment into account
20921	Evrendilek, Fatih	2	978	979	2	The term "equilibrium" should be replaced with "steady state".		Accepted	The section has been revised taking this comment into account
20922	Sperow, Mark	2	978	981	2	The last part of this sentence is unclear - "between land converted to a new land use and land converted to a new land use"….something is missing.		Accepted	The section was ambiguous and has been revised taking this comment into account
20923	Evrendilek, Fatih	2	979	979	2	emissions", and therefore," there is		Accepted	The section has been revised taking this comment into account
20924	ORR, Harriet	2	979	981		there seems to be something missing from this sentence		Accepted	The section was ambiguous and has been revised taking this comment into account
20925	Thomson, Amanda	2	979	981	2	Revise text to 'no distinction is made in emission factors between land remaining in a category and land converted to a new land use.'		Accepted	The section was ambiguous and has been revised taking this comment into account
20926	COUWENBERG, John_2	2	980			such a distinction is made in Chapter 3… Also the logic of this conclusion is stretched		Accepted	The section was ambiguous and has been revised taking this comment into account
20927	FEDERICI, Sandro	2	980	981		Replace the last "land converted to a new land use" with "land remainig in the land use"		Accepted	The section has been revised taking this comment into account
20928	Evrendilek, Fatih	2	981	981	2	"factors between land converted to a new land use and land converted to a new land use" (REPETITION!).		Accepted	The section has been revised taking this comment into account

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20929	Couwenberg, John	2	983	998	2	The study of Hergoualc'h & Verchot is much disputed among the scientific community and in no way constitutes a common view. Various recent papers on emissions from drained tropical peatlands arrive at much higher emissions (e.g. Couwenberg et al. 2010 Glob. Ch. Biol., Jauhiainen et al. 2012 Biogesc., Hooijer et al. 2010, 2012 Biogeosc., all referenced in other papers dealing e.g. with the climate impact of oil palm plantations on peat), which Hergoualc'h & Verchot have not been able to dispute in a convincing manner. On the contrary: the references cited in the study of Hergoualc'h & Verchot are to a large extent not applicable at all to the objective of deriving EFs for drained tropical peat soils. To me it seems Hergoualc'h & Verchot may have much practise in flux studies but have little idea of the peculiarities of peatland ecosystems. IPCC would not do well to include the EFs presented for tropical peatland (in general) without consulting other experts like e.g. Jauhiainen, Hooijer, Hirano, Takakai or Couwenberg. If the current EFs were maintained, IPCC would become an enemy and laughing stock of dedicated NGOs and the best friend of industrial (palm oil, Acacia wood pulp) interest groups, neither of which should be satisfactory.		Accepted with modification	We note that at the time of writing, there were only 2 subsidence papers published (Wosten et al 1997 and Othman et al. 2011). Hooijer et al. (2010) was based on other studies used in this analysis and did not present novel data from specific sites. New references have been included in the SOD. Nevertheless, there are only a few subsidence studies, covering a limited number of land uses, and some of these studies do not meet our quality criteria for inclusion. Among those studies deemed acceptable, the data are available only for oil palm and Acacia plantations. If we are going to develop a comprehensive set of EFs we need to be able to use flux data and we need to integrate flux data with the subsidence estimates that are acceptable. Additional contributions have been solicited from contributing authors. The authors have not been able to come to a consensus and the tropical EFs have been moved to an Appendix while the group continues its work.K931
20930	COUWENBERG, John_2	2	983			wetlands should be 'organic soils'		Accepted	The section has been revised taking this comment into account
20931	Gyldenkarne, Steen	2	983		2	only tropical soils, New appendix?		Accepted	The section has been revised taking this comment into account
20932	PARISH, Faizal	2	983	983		why does the title refer to tropical wetlands not tropical peatlands or tropical organic soils?		Accepted	The section has been revised taking this comment into account
20933	PARISH, Faizal	2	984	985		It is not clear the purpose of this section - are we assuming that the mehtods used by Hergoualc'h and Verchot - is the best and most appropriate approach for peatland GHG flux assessments - the estimates that they make are significantly lower that for almost all other methods and so the methodology may not be appropriate as a basis for an IPCC review.		Rejected	Given the small number of studies published (2) using an alternative subsidence approach at the time of writing, the FOD EFs were based on the method developed by Hergoualc'h and Verchot. New studies have been publishde subsequently and the author team is seeking to combine the gain-loss approach and the subsidence approaches, however there are still very few subsidence papers and numerous flux studies. Nevertheless, at the time of writing of the SOD, the subsidence literature that meets our criteria for inclusion is limited to two land uses.
20934	PARISH, Faizal	2	987	988		it is unclear where the carbon losses from land clearing fires are taken into account - I could not find any reference in other sections		Accepted	The section has been revised taking this comment into account. Land clearing fires have been removed from this calculation.
20935	Romanovskaya, Anna	2	988	988	2	please, provide the reference where exactly these C losses are already taken into account		Accepted	The section has been revised taking this comment into account
20936	Klemedtsson, Asa Kasimir	2	989		2	Table 2a.1 should be 2A.1		Accepted	Table number changed
20937	COUWENBERG, John_2	2	990	994		compare with table 2.2 and correct your mistakes.		Accepted	The section has been revised taking this comment into account
20938	PARISH, Faizal	2	990	991		wording "we asumed" - is more appropriate to a paper methodology rather than an IPCC report - wjho is the "we"?		Accepted	The section has been revised taking this comment into account
20939	Thomson, Amanda	2	991	991	2	Use 'land use catgories' rather than 'LUs'		Accepted	The section has been revised taking this comment into account
20940	COUWENBERG, John_2	2	994	998		total soil respiration data is referred to in line 994 and heterotrophic soil respiration is deducted in line 998; the step between these two is the most interesting one, actually and hardly any reliable data exist for tropical peatlands. You cannot just take the ratio developed by Jauhiainen for example, as these ratios are site specific. Moreover the measured rates of total soil respiration in tropical peatlands are to be used with extreme caution as every scientist uses his own chamber design and it is very much unclear what is actually being measured and how large the errors are (and there are bound to be substantial errors)		Rejected	Many of the co-authors disagree with some of the assertions made here. Chamber design has been well studied and there is a robust literature on this. The probles with inadequate design are well known. With respect to application of ratios, new data since the FOD is being considered and this approach has been refined in the SOD
20941	PARISH, Faizal	2	994	995		It is unclear what is the basis of table 2a.4 - is it the work of the IPCC process or entirely extracted from Hergoualc'h and Verchot?		Accepted with modification	This represents a new calculation, it is not the same as Hergoualc'h and Verchot, but it uses that approach. The SOD is working toward integrating this approach with subsidence approaches, but there remain some different points of view among the author team

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20942	Klemedtsson, Asa Kasimir	2	1000	1001	2	Table 2A1, I agree that CO2 fluxes from many pools exists, but where should litter and root mortality be reported? In the forest section of 2006 GL or here? Heterotrophic respiration is oxidation of the peat, which is of course important in this report.		Accepted	The section was ambiguous and has been revised taking this comment into account
20943	Lund, Herluf Gyde	2	1000	1001	2	Table 2A.1 Sources - 1, Brady (1997); 2, Rahajoe et al. (2000); 3, Sulistiyanto (2004); 4, Chimner and Ewel (2005); 5, Shimamura and Momose (2005); 6, Harrison et al. (2007); 7, Chimner and Ewel (2004); 8, Ishida et al. (2001); 9, Hertel et al. (2009); 10, Hairiah et al. (2000); 11, database of Gill and Jackson (2000); 12, Hairiah et al. (1999); 13, Matthews et al. (2000); 14, Lamade and Bouillet (2005); 15, Henson and Dolmat (2003); 16, Tsai (1988); 17, Bernhard-Reversat et al. (1993); 18, Ihwanudin (1994); 19, Pudjiharta (1995); 20, Mindawati (2000); 21, Laclau et al. (2008); 22, Furukawa et al. (2005); 23, Hadi et al. (2005); 24, Hirano et al. (2008); 25, Inubushi et al. (1998); 26, Inubushi et al.(2003); 27, Jauhiainen et al. (2008); 28, Melling et al. (2005) not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20944	Navarrete Encinales, Diego Alej	2	1000	1001	2	Sources cited in Table 2A.1 are not listed in the section "References"		Accepted	References for FOD were incomplete and have been corrected
20945	PARISH, Faizal	2	1000	1001		It is unclear on the purpose of this table - it appears to be only related to the methodologyused for one paper(Hergoualc'h and Verchot 2011) and so utility in IPCC report is unclear. It only gives the methods and sources and does not give the actual emissions etc - unles this is in other tables. References given are only up to 2009 and much recnet literatre id not included - there is no source for reference 29.		Accepted	The table has been removed
20946	Romanovskaya, Anna	2	1000	1001	2	in the table should not be empty cells. Please, put for sources under heterotrophic respiration (if that is an expert judgment of the group of authors - it should be clearly stated) and put appropriate wording for CH4 for acacia - if not data, please, indicate that. If no emissions - please, indicate		Accepted	The table has been removed
20947	Sperow, Mark	2	1000	1001	2	Table 2A.1: The citations included in this table are not included in the references section. Please correct.		Accepted	The table has been removed
20948	Gyldenkarne, Steen	2	1001		2	Table number are the same as on page 2.26		Accepted	The table has been removed
20949	Jauhiainen, Jyrki	2	1001		2	Table 2A.1. /Acacia plantation/Soil outputs/Heterotrophic respiration sources. In Jauhiainen, J., Hooijer, A. and Page, S.E. (2012): Carbon Dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia. Biogeosciences, 9: 1053–1071. doi:10.5194/bg-9-1053-2012 paper there is made complete separation between autotrophic and heterotrophic respiration sources in empirical study on Acacia plantation. See also paper from Hooijer, A., Page, S., Canadell, J.G., Silvius, M., Kwadijk, J., Wösten, H. & Jauhiainen, J. (2010). Current and future CO2 emissions from drained peatlands in Southeast Asia. Biogeosciences 7:1505-1514. DOI: 10.5194/bg-7-1505-2010 gives net C emission from Acacia plantation.		Accepted with modification	Hooijer et al (2012) was pulished after the FOD was submitted. Hooijer et al (2010) did not present specific emissions data from a site, but extrapolted observations from other authors across a large region. The work of those other authors was part of the analysis in the FOD.
20950	Jauhiainen, Jyrki	2	1001		2	Table 2A.1. /Acacia plantation/Soil outputs/CH4 sources. Estimate for Acacia plantation CH4 emission is available from IPS 2012 Stockholm proceedings. Jauhiainen, Hoooier & Page. Greenhouse gas emissions from a plantation on thick tropical peat.		Addressed in pending revision	Elaborate this annex to display the different methodologies and approaches for deriving Efs. Explain the criteria used to select the literature and give the rationale for our choice, about pros and cons of measurement methodologies for all climate zones. Guidance for measurements applicable to higher Tiers. More generic description.
20951	Jauhiainen, Jyrki	2	1001	1001	2	Table 2A.1. /xx plantation/Soil outputs/Heterotrophic respiration sources. It should be critically inspected the presented data quality as the presented heterotrophic emissions from Acacia (suggested reference here to be included) and existing oil palm emission from unknown literature review differ greatly. This can not be the case in practise		Accepted with modification	This paper was published after the FOD was submitted
20952	Jauhiainen, Jyrki	2	1001	1001	2	Table 2A.1. /xx plantation/Soil outputs/Heterotrophic respiration sources. The review by Hergoualc'h and Verchot (2011) should be updated against recent empirical studies where autotrophic and heterotrophic emissions are not just estimated but separated i.e. Jauhiainen, J., Hooijer, A. and Page, S.E. (2012): Carbon Dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia. Biogeosciences, 9: 1053–1071. doi:10.5194/bg-9-1053-2012		Accepted with modification	This paper was published after the FOD was submitted
20953	PARISH, Faizal	2	1003	1015		This seems to be an extract of the methodology section of Hergoualc'h and Verchot 2011 - No sources are provided for much of the data in table 2A2. The estimates for root growth for oil palm and acacia seem very high especially for growth in peat soils - if a 25 year cycle is asumed a growth rate of 3.6 tC/annum would mean a root mass of about 90tC on maturity. This is more than the total biomass of the mature oil palm (above and below ground) which is normally about 85-90tC. Normally the below ground biomass is normally less than 20% of the AGB. Even if this data is taken from mineral soils where roots may be larger (root systems in peat are not so well deevloped due to high water tables) it does not seem correct as the root mass is never as large as the AGB. If this data is suspect then the whole table may be suspect and better not be included		Rejected	The reviewer misunderstands somewhat, root growth is not net growth, but a gross production figure. There is mortality and turnover. Work that is emerging suggests a high R:S ratio for OP in peatlands. The section was revised considering these comments and with additional data from the literature.
20954	Rock, Joachim	2	1003	1052	2	All references include here are missing in the references' section!		Accepted	References for FOD were incomplete and have been corrected
20955	Klemedtsson, Asa Kasimir	2	1004	1015	2	What said above is also applicable here.		Accepted with modification	The section has been revised taking this comment into account
20956	FAGGI, Ana	2	1005			uncited		Accepted	References for FOD were incomplete and have been corrected
20957	KIM, Raehyun	2	1005	1005		omit the references of Hertel et al. 2009		Accepted	The section has been revised taking this comment into account
20958	Lund, Herluf Gyde	2	1005	1005	2	Hertel et al., 2009 not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20959	Thompson, Victoria	2	1005	1005	2	Hertel should not be italicized		Accepted	Italics removed
20960	Rock, Joachim	2	1006	1006	2	Table 2 is missing. Is this table 2A.2?		Accepted	Table number changed
20961	COUWENBERG, John_2	2	1009			Did you do any analysis to check whether this is okay? Did you compare data from systems where both mineral soil and peat were studied?		Accepted	The section has been revised taking this comment into account
20962	KIM, Raehyun	2	1009	1009		omit the references of Hertel et al. 2009		Accepted	The section has been revised taking this comment into account
20963	Romanovskaya, Anna	2	1010	1012	2	it is not clear on which literature sources these relationships were based. Please, provide references to them.		Accepted	The section has been revised taking this comment into account
20964	Romanovskaya, Anna	2	1014	1015	2	it is not explained in the table what is SE. Please, change standard deviation to 95% confidence interval, as required for GHG inventories		Accepted	Tables use 95% CI for the most part
20965	Sperow, Mark	2	1014	1015	2	While there may be some rounding, to be consistent, should the "Total C Inputs" for Cropland and Shrubland be 4.3 and Oil Palm Plantation be 5.1?		Accepted	The section has been revised taking this comment into account and taking new literature into consideration
20966	Rock, Joachim	2	1015	1015	2	Table 2A.2: sources missing		Accepted	References for FOD were incomplete and have been corrected
20967	Sperow, Mark	2	1017	1017	2	The Annex for this caddresses POC, why is the discussion about CH4 at this location? Please verify.		Accepted	Table has been deleted
20968	Jauhiainen, Jyrki	2	1020	1020	2	Mispelled and outdated reference. Jauhiainen. This paper is now in final form and the reference is: Jauhiainen, J., Hooijer, A. and Page, S.E. (2012): Carbon Dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia. Biogeosciences, 9: 1053–1071. doi:10.5194/bg-9-1053-2012		Accepted	The reference has been updated
20969	KIM, Raehyun	2	1020	1020		omit the references of Jauainen et al. 2011 confirm 'Melling, 2007' to 'Melling et al. 2007'		Accepted with modification	References have been updated and citations are consistent with the revised calculation.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
20970	Lund, Herluf Gyde	2	1020	1020	2	(Jauainen et al., 2011; Melling, 2007) not listed in References.		Accepted	References for FOD were incomplete and have been corrected
20971	PARISH, Faizal	2	1020	1021		studies by Hooijer ET AL 2012 Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment_20224D.pdf")indicate Rh of up to 92%	Attachment_20224D.pdf	Accepted with modification	This new paper was taken into consideration in the revision
20972	KIM, Raehyun	2	1024	1024		omit the references of Mahli and Grace, 2000; Chambers et al. 2004		Accepted with modification	Final references reflect the papers that were ultimately used in the revised Efs
20973	Lund, Herluf Gyde	2	1024	1024	2	Mahli and Grace, 2000; Chambers et al., 2004 not listed in References		Accepted with modification	References for FOD were incomplete and have been corrected
20974	Evrendilek, Fatih	2	1025	1025	2	R_h		Rejected	The meaning of the comment is unclear
20975	Lund, Herluf Gyde	2	1025	1025	2	Persch et al, in prep) not listed in References		Accepted	References for FOD were incomplete and have been corrected
20976	Sperow, Mark	2	1027	1037	2	The presentation of values with different units makes it difficult to determine the relationships. Please convert presented values into the same units.		Accepted	Units have been standardized
20977	KIM, Raehyun	2	1029	1029		omit the references of Holden 2005		Accepted	reference removed
20978	Lund, Herluf Gyde	2	1029	1029	2	(Holden, 2005) not listed in References. Why in italics?		Accepted	reference removed
20979	KIM, Raehyun	2	1030	1031		omit the references of Yoshioka et al. 2002; Yule and Gomez, 2009 y-1 => yr-1		Accepted	reference removed, units corrected
20980	Lund, Herluf Gyde	2	1030	1031	2	(Yoshioka et al., 2002; Yule and Gomez, 2009) not in References. Why in italics?		Accepted	reference removed
20981	KIM, Raehyun	2	1033	1034		omit the references of Yoshioka et al. 2002; Baum et al. 2007		Accepted	reference removed
20982	Lund, Herluf Gyde	2	1033	1034	2	Baum et al., 2007 not in References. Why in italics?		Accepted	References corrected
20983	Klemedtsson, Asa Kasimir	2	1034		2	here is used the unit Mg, but elsewhere in the chapter 2, especially headlines in tables use t and tonnes expressing the same. I prefer Mg.		Accepted	Units have been standardized
20984	Evrendilek, Fatih	2	1036	1036	2	"carbon, while"		Accepted	The whole section has been revised and this comment has been considered
20985	Gyldenkarne, Steen	2	1037		2	HWP should not be discussed. This is a seperate issue.		Accepted	Reference removed
20986	PARISH, Faizal	2	1041	1042		Table 2A.3 - assume units are MgC /ha/yr; what is the source of this information? methane emissions given are not the same as in table 2.3 (line 518-519) the CO2 data is not the same as in table 2.1 (line 168-169)		Accepted	Units have been standardized
20987	Romanovskaya, Anna	2	1041	1042	2	it is not explained in the table what is SE. Please, change standard deviation to 95% confidence interval, as required for GHG inventories		Accepted	Units have been standardized
20988	Rock, Joachim	2	1042	1042	2	Table 2A.3: sources missing		Accepted	References have been updated and citations are consistent with the revised calculation.
20989	Klemedtsson, Asa Kasimir	2	1043		2	This section EFdelta SOM is not appropriate.		Accepted	The section has been revised and the subsections now agree with the equation used earlier in the chapter
20990	Rock, Joachim	2	1043	1043	2	What is meant by "EFdSOM" and where has this been defined?		Accepted	The section has been revised and the subsections now agree with the equation used earlier in the chapter
20991	Sperow, Mark	2	1043	1044	2	Is the subscript correct as Efdelta"SOM" or should it be "SOC"? Please verify.		Accepted	The section has been revised and the subsections now agree with the equation used earlier in the chapter
20992	Klemedtsson, Asa Kasimir	2	1044	1052	2	Seems taken from some report elsewhere, difficult to see how it fits.		Accepted	The section has been revised and the subsections now agree with the equation used earlier in the chapter
20993	Romanovskaya, Anna	2	1045	1046	2	uncertainties should be reported as 95% confidence interval		Accepted	95% CI is being used where appropriate
20994	FAGGI, Ana	2	1049			uncited		Accepted	Citations have been corrected
20995	KIM, Raehyun	2	1049	1049		omit the references of Lo 2005		Accepted	Citations have been corrected
20996	Lund, Herluf Gyde	2	1049	1049	2	Lo 2005 not in References		Accepted	Citations have been corrected
20997	MacDonald, James Douglas	2	1049	1052	2	missing references in list		Accepted	Citations have been corrected
20998	FEDERICI, Sandro	2	1050	1052		Malhi et al., 2009 is not referenced in the bibliography. It should be: "Malhi, Y., Aragão, L.E.O.C., Metcalfe, D.B., Paiva, R., Quesada, C.A., Almeida, S., Anderson, L., Brando, P., Chambers, J.Q., da Costa, A.C.L., Hutyra, L.R., Oliveira, P., Patino, S., Pyle, E.H., Robertson, A.L., Teixeira, L.M. (2009) Comprehensive assessment of carbon productivity, allocation and storage in three Amazonian forests, Global Change Biology, 15, 1255-1274". Moreover, here it would be appropriate to make reference to equation 3.1 and 3.2 of chapter 3 of volume 1 of 2006 IPCC Guidelines		Accepted with modification	Citations have been corrected. The equations do not refer to propagation of errors
20999	KIM, Raehyun	2	1050	1050		omit the references of Malhi et al. 2009		Accepted	Citations have been corrected
21000	Lund, Herluf Gyde	2	1050	1050	2	Malhi et al., 2009 not in References.		Accepted	Citations have been corrected
21001	COUWENBERG, John_2	2	1051	1052		Then why are the errors in table 4 so similar to those in table 3?		Accepted	Tables have been deleted
21002	KIM, Raehyun	2	1052	1052		omit the references of Malhi et al. 2009		Accepted	Citations have been corrected
21003	PENMAN, Jim	2	1053			Equation 2.26 - This equation is a sum over climate types (see page 2.35 of vol 4 part 1 of 2006 GL), not a sum over land uses as the table below suggests. Is this reference correct?		Accepted	Section has been revised and this has been corrected
21004	Romanovskaya, Anna	2	1053	1053	2	please, do not use acronym name for 2006 IPCC Guidelines		Accepted	Acronym removed
21005	Klemedtsson, Asa Kasimir	2	1054		2	No indication of which section of the GL (should be written guidelines) that these numbers of table 2A.4 update. This is confusing.		Accepted	Table has been deleted
21006	Klemedtsson, Asa Kasimir	2	1054		2	2a.4 should be 2A.4		Accepted	Table has been deleted
21007	Sperow, Mark	2	1054	1054	2	The table referenced should be "2A.4" instead of "2a.4".		Accepted	Table has been deleted
21008	Evrendilek, Fatih	2	1057	1057	2	TABLE 2A.4: (Mg C ha-1 yr-1)		Accepted	Table has been deleted
21009	Gyldenkarne, Steen	2	1057		2	Emissions are given as negative values, should be positive and vice versa. Please change.		Accepted	presentaiton of EFs has been revised
21010	Klemedtsson, Asa Kasimir	2	1057		2	it may be important in this kind of report to use consistent signs, in Table 2A.4 minus numbers indicate loss whearas in most part it is sequestration.		Accepted	presentaiton of EFs has been revised

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21011	PARISH, Faizal	2	1057	1058		what is the source of this table? The emission factor for oil palm seems very low and not in line with most literature - which shows 17-25 tC/ha/yr eg 1. Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011). Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia (ICCT White Paper 15). Washington: International Council on Clean Transportation (FILE name ICCT Peat emissions september 2011 - "Attachment_20224C.pdf"). 2. Hooijer 2012 Subsidence and carbon loss in drained tropical peatlands A. Hooijer, S. Page, J. Jauhiainen, W. A. Lee, X. X. Lu, A. Idris, and G. Anshari (FILE Hooijer et al 2012 subsidence - "Attachment_20224D.pdf") If it is low as a resulk of assuming very large growth of oil palm roots of 3.6TC per year (as in table 2A2) then this conclusion is eroneous as data in table 2A2 is suspect - see comment above.	Attachment_20224C.pdf, Attachment_20224D.pdf	Addressed in pending revision	Page et al., 2011 did not provide new data, but reinterpreted other studes. We used data from the references used by Page et al in developing our Efs. Hooijer et al 2012 was published subsequently to the submission of the FOD and has been integrated into the SOD. The root system inputs are used to adjust surface CO2 flux measurements. Amongh the two calculations in the appendix, one disregards root inputs and the second one includes them.
21012	Rock, Joachim	2	1057	1057	2	Table 2A.4: sources missing		Accepted	Sources provided I revised table in the appendix
21013	Romanovskaya, Anna	2	1057	1058	2	it is not explained in the table what is SE. Please, change standard deviation to 95% confidence interval, as required for GHG inventories		Accepted	Revised talbe uses 95%CI
21014	Huissteden, Ko van	2	1058		2	References: Missing references are Hendriks et al., 2007, 2010		Accepted	check when Tables and text are updated
21015	Jauhiainen, Jyrki	2	1058		2	Many raferences noted in text are missing from the listed references		Accepted	check when Tables and text are updated
21016	Lund, Herluf Gyde	2	1058	1307	2	Need to get each references in the same format. Most are - but some are not. For example, it is unclear as to how multiple authors are listed. Some have a comma before the last author's last name, some have the word 'and', and others have &.		Accepted	check when Tables and text are updated
21017	PARISH, Faizal	2	1058	1307		Many references are missing from the list eg couwenberg et al 2010, Hergoualc'h and Verchot 2011 etc		Accepted	check when Tables and text are updated
21018	Lund, Herluf Gyde	2	1060	1061	2	Not cited in text. But Ahlholm et al. 1990 is. See line 168		Accepted	check when Tables and text are updated
21019	Thomson, Amanda	2	1060	1310	2	A large number of references used in the tables are missing from this reference list- please check		Accepted	check when Tables and text are updated
21020	Thomson, Amanda	2	1060	1310	2	Please correct formatting and use correct subscripts for greenhouse gases		Accepted	check when Tables and text are updated
21021	Lund, Herluf Gyde	2	1064	1064	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber12/ber12-191.pdf		Accepted	check when Tables and text are updated
21022	Lund, Herluf Gyde	2	1065	1066	2	Not cited in text.		Accepted	check when Tables and text are updated
21023	Lund, Herluf Gyde	2	1068	1068	2	Delete 'and' between authors and put in a , as done elsewhere or change others to include 'and'.		Accepted	check when Tables and text are updated
21024	Thomson, Amanda	2	1069	1069	2	Journal name spelling		Accepted	check when Tables and text are updated
21025	Thomson, Amanda	2	1079	1079	2	What language- German?		Accepted	check when Tables and text are updated
21026	Lund, Herluf Gyde	2	1083	1083	2	Delete 'and' between authors and put in a , as done elsewhere.		Accepted	check when Tables and text are updated
21027	Lund, Herluf Gyde	2	1088	1088	2	Consider adding URL http://www.geog.mcgill.ca/faculty/moore/Geoderma_113_397.pdf		Accepted	check when Tables and text are updated
21028	Lund, Herluf Gyde	2	1091	1091	2	Delete 'and' between authors and put in a , as done elsewhere.		Accepted	check when Tables and text are updated
21029	Lund, Herluf Gyde	2	1092	1092	2	The 2s and 4 should be subscripts		Accepted	check when Tables and text are updated
21030	Lund, Herluf Gyde	2	1094	1095	2	Not cited in text, but Hadi et al 2001 is. See line 518		Accepted	check when Tables and text are updated
21031	Lund, Herluf Gyde	2	1095	1095	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21032	Lund, Herluf Gyde	2	1097	1097	2	Consider adding URL http://forestry.oxfordjournals.org/content/76/3/299.full.pdf		Accepted	check when Tables and text are updated
21033	Lund, Herluf Gyde	2	1103	1103	2	Delete '&' between authors and put in a , as done elsewhere.		Accepted	check when Tables and text are updated
21034	Lund, Herluf Gyde	2	1106	1106	2	The 2 and 4 should be subscripts.		Accepted	check when Tables and text are updated
21035	Lund, Herluf Gyde	2	1108	1110	2	Not cited in text, but Inubushi et al 1998 is (See line 518)		Accepted	check when Tables and text are updated
21036	Lund, Herluf Gyde	2	1108	1108	2	The 2s and 4 should be subscripts		Accepted	check when Tables and text are updated
21037	Lund, Herluf Gyde	2	1110	1110	2	Consider adding URL http://www.h.chiba-u.ac.jp/research/pdf/030723soil.pdf		Accepted	check when Tables and text are updated
21038	Ishizuka, Shigehiro	2	1111	1111	2	Ishizuk is "Ishizuka".		Accepted	check when Tables and text are updated
21039	Lund, Herluf Gyde	2	1113	1113	2	Consider adding URL http://repository.ipb.ac.id/bitstream/handle/123456789/35176/THE%20VARIATION.pdf?sequence=1		Accepted	check when Tables and text are updated
21040	Klemedtsson, Asa Kasimir	2	1117		2	should be Kasimir Klemedtsson instead of Kasimir-Klemedtsson		Accepted	check when Tables and text are updated
21041	Lund, Herluf Gyde	2	1118	1118	2	Consider adding URL http://onlinelibrary.wiley.com/doi/10.1111/j.1475-2743.1997.tb00595.x/pdf		Accepted	check when Tables and text are updated
21042	Klemedtsson, Asa Kasimir	2	1119		2	should be Kasimir Klemedtsson instead of Kasimir-Klemedtsson		Accepted	check when Tables and text are updated
21043	Lund, Herluf Gyde	2	1123	1124	2	Not cited in text, but Klemedtsson et al 1997 is. See line 168		Accepted	check when Tables and text are updated
21044	Lund, Herluf Gyde	2	1129	1129	2	The 2 should be a subscript.		Accepted	check when Tables and text are updated
21045	Lund, Herluf Gyde	2	1142	1142	2	Consider adding URL http://www.mmm.fi/attachments/mmm/julkaisut/julkaisusarja/2008/5BKZGKG1a/MMM11a2007_nettiversio_turve.pdf		Accepted	check when Tables and text are updated
21046	Klemedtsson, Asa Kasimir	2	1143		2	change 2007 into 2008		Accepted	check when Tables and text are updated
21047	Lund, Herluf Gyde	2	1146	1146	2	Make 2 a subscript.		Accepted	check when Tables and text are updated
21048	Lund, Herluf Gyde	2	1146	1146	2	The 2 should be a subscript.		Accepted	check when Tables and text are updated
21049	Lund, Herluf Gyde	2	1150	1150	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber12/ber12-141.pdf		Accepted	check when Tables and text are updated
21050	KIM, Raehyun	2	1151	1151		Lorenz et al. 2002 ?		Accepted	check when Tables and text are updated
21051	Lund, Herluf Gyde	2	1151	1151	2	Need rest of citation.		Accepted	check when Tables and text are updated
21052	Sperow, Mark	2	1151	1151	2	Citation is not complete.		Accepted	check when Tables and text are updated
21053	Thomson, Amanda	2	1151	1151	2	Missing reference		Accepted	check when Tables and text are updated
21054	Lund, Herluf Gyde	2	1154	1154	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber12/ber12-159.pdf		Accepted	check when Tables and text are updated
21055	Lund, Herluf Gyde	2	1155	1155	2	The 2 should be a subscript.		Accepted	check when Tables and text are updated
21056	Lund, Herluf Gyde	2	1157	1157	2	The 2s and 4 should be subscripts		Accepted	check when Tables and text are updated
21057	Lund, Herluf Gyde	2	1170	1170	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber12/ber12-133.pdf		Accepted	check when Tables and text are updated
21058	Lund, Herluf Gyde	2	1172	1172	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber15/ber15-034.pdf		Accepted	check when Tables and text are updated
21059	Lund, Herluf Gyde	2	1189	1190	2	Not cited in text, but Melling et al 2005 is. See line 518,		Accepted	check when Tables and text are updated
21060	Thomson, Amanda	2	1191	1193	2	What language- German?		Accepted	check when Tables and text are updated
21061	Sperow, Mark	2	1198	1198	2	Consistency of citation format using "&" or "and".		Accepted	check when Tables and text are updated
21062	Lund, Herluf Gyde	2	1201	1201	2	Consider adding URL http://www.borenv.net/BER/pdfs/ber12/ber12-127.pdf		Accepted	check when Tables and text are updated
21063	Thomson, Amanda	2	1204	1205	2	What language- German?		Accepted	check when Tables and text are updated
21064	Lund, Herluf Gyde	2	1206	1206	2	The 2s and 4 should be subscripts		Accepted	check when Tables and text are updated

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21065	Lund, Herluf Gyde	2	1208	1208	2	The 2s and 4 should be subscripts		Accepted	check when Tables and text are updated
21066	Thomson, Amanda	2	1215	1216	2	What language- German?		Accepted	check when Tables and text are updated
21067	Lund, Herluf Gyde	2	1217	1219	2	Not cite in text.		Accepted	check when Tables and text are updated
21068	Lund, Herluf Gyde	2	1225	1225	2	The 2 should be a subscript.		Accepted	check when Tables and text are updated
21069	Lund, Herluf Gyde	2	1228	1228	2	The 2 in N2O should be a subscript.		Accepted	check when Tables and text are updated
21070	Lund, Herluf Gyde	2	1233	1233	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21071	Lund, Herluf Gyde	2	1235	1235	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21072	Lund, Herluf Gyde	2	1238	1238	2	According to web sites, the publication date is 1977 not 1976. If that is the case, the text will need to be changed accordingly (Line 168, Table 2.1, Page 2.7. Grasslands)		Accepted	check when Tables and text are updated
21073	Lund, Herluf Gyde	2	1242	1242	2	Consider adding URL http://edepot.wur.nl/14539		Accepted	check when Tables and text are updated
21074	Thomson, Amanda	2	1243	1243	2	What language- German?		Accepted	check when Tables and text are updated
21075	Lund, Herluf Gyde	2	1246	1246	2	Consider adding URL http://www.tellusb.net/index.php/tellusb/article/download/16915/18873		Accepted	check when Tables and text are updated
21076	Lund, Herluf Gyde	2	1255	1255	2	The 2 in CO2 should be a subscript.		Accepted	check when Tables and text are updated
21077	Lund, Herluf Gyde	2	1256	1256	2	Delete ( ) around year as done elsewhere.		Accepted	check when Tables and text are updated
21078	Lund, Herluf Gyde	2	1258	1258	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21079	Lund, Herluf Gyde	2	1265	1266	2	Not cited in text, but Tuittila et al 1995 is See line 168		Accepted	check when Tables and text are updated
21080	Lund, Herluf Gyde	2	1265	1265	2	The 2 in CO2 should be a subscript.		Accepted	check when Tables and text are updated
21081	Lund, Herluf Gyde	2	1271	1272	2	2002 not listed in text, but there is a citation for 2004.		Accepted	check when Tables and text are updated
21082	Lund, Herluf Gyde	2	1273	1273	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21083	Lund, Herluf Gyde	2	1290	1290	2	Consider adding URL http://www.worldagroforestry.org/downloads/publications/pdfs/ja06265.pdf		Accepted	check when Tables and text are updated
21084	Lund, Herluf Gyde	2	1291	1292	2	The 2s and 4 in CO2, CH4 and N2O should be subscript.		Accepted	check when Tables and text are updated
21085	Lund, Herluf Gyde	2	1292	1292	2	Consider adding URL http://www.planta.cn/forum/files_planta/fluxes_of_co2_ch4_and_n2o_from_drained_organic_soils_124.pdf		Accepted	check when Tables and text are updated
21086	Klemedtsson, Asa Kasimir	2	1293		2	larger font size of authors names		Accepted	check when Tables and text are updated
21087	Lund, Herluf Gyde	2	1293	1293	2	von Arnold, K., Hånell, B., Stendahl, J. and Klemedtsson, L. 2005c Has a different font.		Accepted	check when Tables and text are updated
21088	Lund, Herluf Gyde	2	1301	1301	2	The 2 in CO2 should be a subscript.		Accepted	check when Tables and text are updated
21089	Lund, Herluf Gyde	2	1302	1302	2	Consider adding URL http://www.gret-perg.ulaval.ca/uploads/tx_centrerecherche/Waddington_et_al._2010_BDB_CO2_01.pdf		Accepted	check when Tables and text are updated
21090	Lund, Herluf Gyde	2	1303	1303	2	The 2 in CO2 should be a subscript.		Accepted	check when Tables and text are updated
21091	Lund, Herluf Gyde	2	1305	1305	2	The 2 in N2O should be a subscript		Accepted	check when Tables and text are updated
21092	Lund, Herluf Gyde	2	1306	1306	2	The 4 in CH4 should be a subscript.		Accepted	check when Tables and text are updated
21093	Rieley, Jack	2	2.2.1.2			1) The guidance presented for this component is interesting but rather surprising. Most of the carbon that is incorporated into vegetation biomass on peatlands is decomposed in situ. Some (most) is released as CO2 while the remainder is removed off-site in drainage water. This is a natural process and takes place on every peatland in the world. Since at least 90% of annual plant production (perhaps as high as 99%) is transferred from plants to the peat surface as litter (dead parts) and only 10% (as little as 1%) is incorporated into accumulating peat then it is to be expected there is a fairly high POC and DOC loading in drainage streams and rivers. That is why we have blackwater draining from them and this is nothing to do with land use change deforestation and drainage. The baseline for waterborne CO2e emissions therefore should be this high natural output (which may now be impossible since all tropical peat swamps have been impacted to a greater or lesser extent) and the amount included in Table 2.3A for the difference between the natural state and that after and during land use change may well be positive (i.e. less POC and DOC after LUC). The reason for this is that following LUC the plant biomass and litter production may be lower than in the highly stratified natural peat swamp forest and therefore will contribute less after decomposition to waterborne carbon losses. The difference under LUC of course is that the surface peat is now decomposing as it oxidises under a lowered water table regime. Data on waterborne carbon losses are sparse, especially for peatlands converted to arable agriculture and plantations and should be addressed. 2) CO2 emissions based on GHG emissions measurements do not include POC and DOC carbon lost in drainage water (e.g. Jauhiainen, 2012) while emissions based on subsidence rates include this component. The IPCC Guidelines need to be clear on which method to use. It would be simpler, and no less accurate, to ignore inputs from litter and fine roots produced by the new vegetation after LUC since these will be decomposed and lost from the system without contributing to permanent carbon stock. 3) For all LUC categories emissions from CH4 can be regarded as zero and from N2O as negligible (0.8-3.4% according to Rieley & Page 2012).	Attachment_v2_20007.pdf	Accepted with modification	1) Rejected. Background fluxes have not been deducted from fluxes in managed land. 2) Accepted, to be included in Appendix on methodologies. 3) Rejected, because even small emissions have to be reported. General: Points made are correct but largely relate to the presence of a natural DOC and POC flux, and following MLP we do not subtract the natural baseline. Suggestion that DOC and POC fluxes from tropical peatlands should be lower after deforestation are not supported by measurements - although few in number these suggest higher DOC fluxes due to a) higher water runoff and b) accelerated decomposition of peat.
21094	Kabo-Bah, Amos Tiereyangn	2	88, 686		2	The word "onCO2" should be checked. I think it stands to mean "on CO2.		Accepted	
21095	TIEMEYER, Barbel	2	Annex 2A.2	all		Why was the approach used for the GHG-fluxes of pooling all available data for one land use type / climate zone not used for DOC fluxes?		Accepted with modification	the flux measurements are very error prone, so the relation to the natural flux was used as a more robust proxy to calculate anthropogenic DOC emissions. Problems with limited number of reliable DOC flux estimates from drained systems and underlying variability due to rainfall, as discussed in earlier response; adressed in pending version
21096	TIEMEYER, Barbel	2	Annex 2A.2	all		Examples for further studies containing DOC fluxes from non-natural peatlands: Kieckbusch, 2003, Dawson et al. (2002), Gibson et al. (2009), Rowson et al. (2010)		Rejected	Rowson et al based on a recently re-wetted peatland (within 1 year), Gibson et al comparing very different catchment sizes (as they note). Unable to locate Kieckbosch reference - request to reviewer?
21097	TIEMEYER, Barbel	2	Annex 2A.2	all		Given that DOC fluxes are only a relatively small part of the C-balance of drained peatlands (in contrast to natural ones), simple emission factors not depending on precipitation seem to be advisable, especially as temperature seems to be a second variable in Table 2A.2. Furthermore, data for temperate sites is sparse and cannot be simply extrapolated from boreal sites with the sam amount of precipitation.		Accepted with modification	DOC fluxes are non-trivial, even from many drained peatlands. Data appear sufficient to support a simple relationship with rainfall amount. More flux data from temperature (non-blanket bog) peats would be welcome to refine Efs if available
21098	TIEMEYER, Barbel	2	Annex 2A.2	all		Apart from the applicability for reporting, the classes 700-900 mm and > 900 mm are defined by two studies each. I doubt this is enough stratification.		Rejected	Not that simple - strong linear regression across
21099	Schreir & Silvius, Arina & Marc	2	Annex 2A.2, Table 2A.2		2	To be consistent use t C ha-1 yr-1	Attachment_20050.pdf	Accepted	Units have been standardized
21100	Schreir & Silvius, Arina & Marc	2	Annex 2A.2, Table 2A.2		2	Because this is an IPCC report, I would again translate this also in CO2 (equivalents), assuming a certain fraction of C released to drainage ditches and rivers converted into CO2 before it enters the ocean.	Attachment_20050.pdf	Rejected	Conversion described in Eq 2.3B, retain unconverted 'raw' DOC values in Annex 2A.2
21101	Schreir & Silvius, Arina & Marc	2	Annex 2A.2, Table 2A.2		2	Oechel et al., 2012 (in preparation, see conference proceedings) did a very extensive study in Kalimantan, Indonesia, Kapuas river: upto 13.200 ppm p CO2, CO2 flux = 3.4 g C m-2 d-1 (range 1-6.5), DOC concentration of 30 g m-3 (range 5.38-60.3).	Attachment_20050.pdf	Accepted	Useful data if available (not in AGU abstract). Contact Walter Oechel

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21102	Rieley, Jack	2	Appendix 2a.1			This appendix is confusing because the title only refers to the first three paragraphs and most is concerned with other aspects. From line 869 onwards the text has been transferred virtually intact from Hergoualc'h & Verchot (2011) without much modification. This paper is a review and metadata analysis using methods that are not universally accepted and with results that are disputed. The text contains over simplification of peatland formation, ecology and management and contains many errors and inconsistences. I believe it is a mistake to include it as a template for discussing important issues relevant to IPCC Chapter 2. Instead there should be an independent appraisal carried out by internationally accepted peatland experts with practical experience to resolve problems and suggest ways forward. This appendix, for example, refers to Kool et al (2006) who state that canal construction has led to subsidence of more than 4 metres in a peat dome in Central Kalimantan. The data produced are flawed and do not support the proposition. Just because papers have been peer reviewed and published does not mean their content is accurate and meaningful. Results and conclusions must be reviewed and evaluated by other experts in order to determine their validity or not. The paper by H&V proposes a system for determining carbon inputs and outputs that is too complex, uncertain and unworkable. It would be better to disregard components that provide carbon that enters the system but leaves it quickly and focus on the carbon stock and losses from it. This would be workable and verifiable. The high degree of uncertainty referred to arises from the inclusion of every piece o data that can be found irrespective of its provenance and reliability. All data should be assessed for consistency of field technique, measurement, standardization and statistical analysis. Unsatisfactory or meaningless data should be excluded and disparate data should not be combined to give meaningless means and standard errors. The individual data sets are not part of a normally distributed continuum and their transformation using metadata analysis or modelling should be treated with caution.	Attachment_v2_20007.pdf	Accepted	Appendix will be re-written
21103	ADHYA, Tapan Kumar	2	Equation 2.1			Lorganic-CO2-C = Lorganic-CO2-C (on-site) + Lorganic-CO2-C (off-site)		Accepted	
21104	ADHYA, Tapan Kumar	2	Equation 2.3A			In the equation, 'Annual off-site carbon loss should also include CH4 and should be replaces with Lorganic-CO2-C(off-site) with Lorganic gaseous-C (off-site) after integrating eq. 2.3 and 2.4		Rejected.	Only on-site CH4 is considered.
21105	Evrendilek, Fatih	2	General		2	(R2 = 0.67, p < 0.001) - italicize "R" and "p"		Accepted	
21106	Hooijer, Aljosja	2	General		2	A) There have been a number of recent publications specifically on CO2 emissions from drained tropical peatlands converted to agriculture, especially acacia and oil palm plantations. Most of these publications are not used by the authors, including the recent review papers by Couwenberg et al. (2010), Hooijer et al. (2010), Page et al. (2011), as well as the papers representing recent field studies by Hooijer et al. (2011, 2012) and Jauhiainen et al. (2011, 2012) and several others. Recent reviews of emissions from oil palm plantations for the EU (Marelli et al., 2011), for the International Council for Clean Transportation (Page et al., 2011), and for the Round Table for Sustainable Palm Oil (RSPO-PLWG, 2012) are also completely ignored. Moreover, widely used older literature is ignored, including the enlightening studies in the (subtropical) USA Everglades (e.g. Stephens and Speir 1969, Stephens et al., 1984).	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed.
21107	Hooijer, Aljosja	2	General		2	As the publications referred to above are the ones most frequently cited in most other work on this subject, this is a major oversight that is difficult to understand. Nearly all of the peer-reviewed recent publications, and reviews, conclude that emissions from oil palm and pulp plantations on tropical peatlands are above 60 t/ha/yr for typical plantation water depths. This is at least 1.5 to 3 times higher than the numbers now proposed in this Chapter.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed.
21108	Hooijer, Aljosja	2	General		2	B) The few relevant review papers on tropical emissions that are cited in the discussion (Murdiyarso et al., 2010; Hergoualc'h et al., 2011) are co-authored by the same small group of people in Bogor that now contribute to this IPCC review. Moreover, these cited papers are controversial as they come to conclusions on low CO2 emissions that are in the end supported by only one credible original source proposing low emissions (Melling et al., 2005), a study that is widely considered to be biased as it was funded by the Sarawak oil palm industry and was reported to be methodologically flawed by (e.g. by Page et al., 2011; amongst others because of the very small number of measurements: 36, vs 2300 in Jauhiainen et al. 2012). It is unacceptable in an IPCC review to selectively focus on own work and ideas alone, or on reviews based on very limited evidence, especially as these papers are limited in number and scope, and unrepresentative of the scientific mainstream.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21109	Hooijer, Aljosja	2	General		2	C) There are also quite a number of studies on CO2 emissions from drained and degraded tropical peatlands (e.g. Jauhiainen et al., 2008; Hirano et al., 2009). While the numbers presented from these studies do include root respiration, they can not just be ignored.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21110	Hooijer, Aljosja	2	General		2	D) The emission number now provided in the Draft for oil palm is less than half that of acacia. This goes against the evidence that is available, and also against common sense. Oil palm and acacia plantations both have severely disturbed top soils during clearing of natural forest, similar water table depths (in the range of 0.5 - 1 m on average), and similar high soil temperature in the absence of a closed canopy cover (see e.g. Jauhiainen et al. 2012). The main differences are that oil palm requires more fertilization, but that acacia harvesting on a 5 year rotation causes more frequent soil disturbance. On balance, peat oxidation emissions from both plantation types is likely to be similar, and that is indeed what most studies report. Again, the Chapter fails to even indicate any of these issues.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21111	Hooijer, Aljosja	2	General		2	(E) If the authors really would think they have justification to suggest that net CO2 emissions from oil palm plantations (low water tables, high soil temperature, high soil disturbance, high fertilization in the case of OP) are hardly higher than those from drained natural forest (higher water tables, lower soil temperature, no soil disturbance, no fertilization), as they are now in fact doing while ignoring massive evidence to the contrary, they should provide very strong arguments.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21112	Hooijer, Aljosja	2	General		2	(G) Furthermore, the numbers now presented for tropical peatlands are out of line with those presented for drained temperate peatlands. It is undisputed that biological oxidation is a temperature-dependent process that proceeds much faster in hot climates, and that the resulting carbon emissions are therefore much higher in the (sub-)tropics. For that reason alone, it is clearly impossible that emissions from temperate oil palm plantations would be lower than from temperate cropland as is now indicated in Table 2.1 (p. 2.6). It appears that the authors have chosen to consider emissions from drained tropical peatlands in isolation, resulting in inconsistency and not befitting the broad integrated review that this is supposed to be.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21113	Hooijer, Aljosja	2	General		2	(F) Finally, the decision by the authors to systematically ignore all studies that determine carbon loss from peat soils by determining subsidence and changes in peat characteristics (bulk density, carbon content) goes against nearly 100 years of international peat science. The only two papers referred to in this respect (Kool et al., 2006; Couwenberg et al. 2010; see above) are only a very small sample and moreover are misrepresented: e.g. Kool et al. (2006) did NOT unsuccessfully "attempt to estimate emissions from changes to peat elevations" as the authors indicate, but rather tried (and failed, that is widely agreed) to reconstruct historical subsidence from changes in peat characteristics.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21114	Hooijer, Aljosja	2	General		2	Numerous peer-reviewed papers report subsidence rates and the contribution that oxidation makes to that subsidence, which allows calculation of carbon loss if carbon content and bulk density are also known. It goes too far to discuss this in-depth here, but there are good reviews available for tropical peatlands in e.g. Andriesse (1988), Couwenberg et al. (2010) and Hooijer et al. (2012), not to mention the many studies that have applied this concept in temperate climates (e.g. Leifeld et al. 2011, to name a recent example). The numerous studies done in the Everglades in the USA from 1912 onwards, as summarized in Stephens and Speir (1969) and Stephens et al. (1984), are of specific interest to this IPCC Chapter as they apply to a subtropical peatland as is the subject of this Chapter. The broad conclusions of this body of work are that i) subsidence rates are constant at 2.5 – 3 cm/yr on average excluding higher rates in the first few years, and that ii) this is caused for at least 78% by oxidation as is evident from CO2 emission studies and soil studies in the area. Similar subsidence and emission rates are also reported for the Sacramento Delta peatlands in California in a number of publications. If the authors of the IPCC guidelines chapter feel they have good arguments to reject nearly the entire international body of work on the relation between subsidence and soil carbon loss, they should present these arguments in full, and allow the wider scientific community to respond. It should then also be acknowledged by IPCC that this rejection of the subsidence method applies not only to tropical peatlands but to all peatland science, as it is surely not acceptable to accept a method for most of the world but to reject it for one region.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21115	Hooijer, Aljosja	2	General		2	In short, the authors of the inputs to subtropocal and tropical inputs have failed in the following ways:	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21116	Hooijer, Aljosja	2	General		2	Nearly all recent and most older peer-reviewed papers presenting CO2 emissions from drained tropical peatlands (plantations and degraded forest) are not referenced. The few references made are co-authored by the authors, and do not present original findings but biased reviews.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21117	Hooijer, Aljosja	2	General		2	All emission estimates derived from subsidence studies, the main tool in peatland carbon loss studies for many decades, are rejected on the basis of misrepresentation of 2 studies.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21118	Hooijer, Aljosja	2	General		2	Studies from subtropical regions (Florida), and from regions that are hot part of the year (California, Israel) from which lessons can also be learnt, are ignored altogether.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21119	Hooijer, Aljosja	2	General		2	No attempt is made to place (sub-)tropical emission numbers in an international context, leading to the impossible conclusion that emissions from tropical oil palm plantations are lower than from temperate croplands on peat.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21120	Hooijer, Aljosja	2	General		2	It is not even attempted to explain how emissions from tropical oil palm and acacia emissions relate to eachother. There is no reason at all to believe that the latter would be more than double the first, nor is this suggested by recent literature.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21121	Hooijer, Aljosja	2	General		2	Based on the above, it must unfortunately be concluded that the authors contributing to the tropical peat emission section of this IPCC Chapter have done an extremely poor job. Considering the importance of the subject, it is therefore strongly recommended that IPCC objectively assesses the current status of this Chapter, regarding CO2 emissions from subtropical and tropical peatlands, and to consider consulting additional independent authors on this subject. The authors who are now presumably responsible for this input (Louis Verchot, Fahmuddin Agus and Supiandi Sabiham) are known to be a small and isolated group (all are based and working in Bogor, Indonesia), who hardly have a track record in peatland science and who seem either unaware of most of the published science, or strongly biased in their selective use of science to show low CO2 emissions. It is especially worrying that there are allegations of close links of some involved with the oil palm and acacia industries, which are very actively lobbying to reduce the numbers used to calculate emissions from their plantations, and who are funding dubious research programmes as part of that campaign. In our view, the IPCC should not allow itself to be controlled by sectoral interests, and should be aware of the risk of being abused as a platform to bring out scientific falsifications.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21122	Hooijer, Aljosja	2	General		2	It is clear that unless the numbers and justification now proposed in this Draft for (sub-)tropical peatlands are greatly improved, very few in the international independent science community will accept them. Scientific and public controversy should be expected, the independence and transparency of the process would be questioned, and the credibility of the IPCC would be damaged.	Attachment_21106.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21123	Hopfensperger, Kristine	2	General		2	Type (quality) of org C being supplied in the soil or remained in soil after drainage - can influence rates of GHG fluxes. Also fertilizers or amount of N in soil will directly influence N2O flux rates; however, that may be addressed in the nutrient rich vs nutrient poor variables in the equation.		Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21124	Hopfensperger, Kristine	2	General		2	I like the Annexes and Appendicies - worthwhile to include			
21125	Hopfensperger, Kristine	2	General		2	In the Chapter text…I'm just curious about using "country" as a guidance in the methodologies for selecting values. I understand political boarders get you to a more specific region, but maybe temperature and/or precipitation averages would be a more effective way to catagorize or to select values?		Rejected	country specific means that a country develops methodologies suitable for the country conditions. Tier 1 already offers defaults by climate zones.
21126	Page, Susan	2	General		2	I wish to express to the IPCC review team my considerable surprise, disappointment and dismay on reading the contents of this draft chapter which by my estimation and, I am certain also by that of other scientists working in this field, DOES NOT represent the current state of the art and level of understanding, particularly with reference to GHG emissions from tropical/subtropical organic soils. THIS STATE OF AFFAIRS MUST BE RECTIFIED IN THE REVISION STAGE IF THE IPCC PROCESS IS TO REMAIN CREDIBLE AND TRANSPARENT.	Attachment_21126.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21127	Page, Susan	2	General		2	My comments are directed specifically at the emissions estimates for tropical peatlands since this is the area in which I have specific knowledge and expertise.	Attachment_21126.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21128	Page, Susan	2	General		2	What particularly surprises me about the GHG emission estimates in this 2012 draft is that they appear to have changed in only a very minor way from those presented in 2006. And yet, over the last 6 years there have been significant advances in our understanding of GHG emissions from tropical peatlands, particularly those that have undergone land use change involving deforestation and/or drainage. A number of papers and reviews have been published in this intervening period which are omitted from this draft – this either indicates sloppy procedures at the drafting stage or, worse, proactive action by certain parties to exclude this information and to present a biased, myopic view on the scale of GHG emissions occurring as a result of rapid land use change on tropical peatlands, particularly in SE Asia.	Attachment_21126.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21129	Page, Susan	2	General		2	I call for the IPCC to undergo a thorough review of the basis for the GHG emissions estimates arising from different forms of land use on tropical and sub-tropical peatlands presented in this draft.	Attachment_21126.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21130	Rieley, Jack	2	general			This document is a useful update of the 2006 IPCC Guidelines and especially the inclusion of supplementary guidance on estimating GHG emissions and removals from drained organic soils. However, opportunities have been missed to include some of the latest research findings in this area in relation to CO2 emissions from oil palm and pulp tree plantations. It would seem that there is a lack of understanding of peatland and peat-forming processes with a tendency to simplify in some areas and complicate in others.	Attachment_v2_20007.pdf	Accepted with modification	The suggested literature will be reviewed. Additional CAs are invited.
21131	Hooijer, Aljosja	2	recommended references		2	Andriesse, J. P. (1988) Nature and management of tropical peat soils, FAO Soils Bulletin, 59, 248 pp.	Attachment_21106.pdf	Accepted	reference included
21132	Hooijer, Aljosja	2	recommended references		2	Couwenberg, J., Dommain, R., and Joosten, H. (2010) Greenhouse gas fluxes from tropical peatlands in southeast Asia, Glob. Change Biol., 16, 1715–1732, 2010.	Attachment_21106.pdf	Accepted	reference included
21133	Hooijer, Aljosja	2	recommended references		2	Hergoualc'h, K. and Verchot, L. V.: Stocks and fluxes of carbon associated with land use change in Southeast Asian tropical peatlands: A review, Global Biogeochem. Cy., 25, GB2001, doi:10.1029/2009GB003718.	Attachment_21106.pdf	Accepted	reference included
21134	Hooijer, Aljosja	2	recommended references		2	Hirano, T., Jauhiainen, J., Inoue, T., and Takahashi, H. (2009) Controls on the carbon balance of tropical peatlands, Ecosystems, 12, 873–887.	Attachment_21106.pdf	Accepted	reference included
21135	Hooijer, Aljosja	2	recommended references		2	Hooijer, A., Page, S., Canadell, J. G., Silvius, M., Kwadijk, J., Wösten, H., and Jauhiainen, J. (2010) Current and future CO2 emissions from drained peatlands in Southeast Asia. Biogeosciences, 7, 1505–1514, doi:10.5194/bg-7-1505-2010.	Attachment_21106.pdf	Accepted	reference included
21136	Hooijer, Aljosja	2	recommended references		2	Hooijer, A., Page, S., Jauhiainen, J., Lee, W. A., Lu, X., Idris, A and Anshari, G. (2012) Subsidence and carbon loss in drained tropical peatlands. Biogeosciences, 9, 1053–1071.	Attachment_21106.pdf	Accepted	reference included
21137	Hooijer, Aljosja	2	recommended references		2	Jauhiainen, J., Limin, S., Silvennoinen, H., and Vasander, H. (2008) Carbon dioxide and methane fluxes in drainage affected tropical peat before and after hydrological restoration, Ecology, 89, 3503–3514.	Attachment_21106.pdf	Accepted	reference included
21138	Hooijer, Aljosja	2	recommended references		2	Jauhiainen, J., Hooijer, A., and Page, S. E. (2012) Carbon dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia, Biogeosciences, 9, 617–630, doi:10.5194/bg-9-617-2012.	Attachment_21106.pdf	Accepted	reference included
21139	Hooijer, Aljosja	2	recommended references		2	Leifeld, J. Müller, M., Fuhrer, J. (2011) Peatland subsidence and carbon loss from drained temperate fens, Soil Use and Management, 27, 170–176.	Attachment_21106.pdf	Accepted	reference included
21140	Hooijer, Aljosja	2	recommended references		2	Marelli, L., Mulligan, D., Edwards, R.. (2011) Critical issues in estimating ILUC emissions. JRC Report EUR-24816-EN to the European Commission.	Attachment_21106.pdf	Accepted	reference included
21141	Hooijer, Aljosja	2	recommended references		2	Melling, L., Hatano, R., and Goh, K. J. (2005) Soil CO2 flux from three ecosystems in tropical peatland of Sarawak, Malaysia, Tellus, Tellus B, 57, 1–11.	Attachment_21106.pdf	Accepted	reference included

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21142	Hooijer, Aljosja	2	recommended references		2	Murdiyarso, D., Hergoualch, K., and Verchot, L. V. (2010) Opportunities for reducing greenhouse gas emissions in tropical peatlands, P. Natl. Acad. Sci. USA, 107(46), 19655–19660.	Attachment_21106.pdf	Accepted	reference included
21143	Hooijer, Aljosja	2	recommended references		2	Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011) Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia. White Paper No. 15, International Committee on Clean Transportation (ICCT), Washington DC, USA, 76 pp.	Attachment_21106.pdf	Accepted	reference included
21144	Hooijer, Aljosja	2	recommended references		2	RSPO-PLWG (2012) Environmental and social impacts of oil palm cultivation on tropical peat – a scientific review.	Attachment_21106.pdf	Accepted	reference included
21145	Hooijer, Aljosja	2	recommended references		2	Stephens, J. C., Allen, L. H., and Chen, E.: Organic soil subsidence, Geological Society of America, Reviews in Engineering Geology, Volume VI, 107–122, 1984.	Attachment_21106.pdf	Accepted	reference included
21146	Hooijer, Aljosja	2	recommended references		2	Stephens, J. C. and Speir, W. H.: Subsidence of organic soils in the U.S.A., IAHS-AIHS Publication, 89, 523–534, 1969.	Attachment_21106.pdf	Accepted	reference included
21147	Jauhiainen, Jyrki	2	recommended references		2	Furukawa, Y., Inubushi, K., Ali, M., Itang, A.M., and Tsuruta, H.: Effect of changing groundwater levels caused by land-use changes on greenhouse gas emissions from tropical peatlands, Nutr. Cycl. Agroecosys., 71, 81–91, 2005.		Accepted	reference included
21148	Jauhiainen, Jyrki	2	recommended references		2	Hadi, A., Inubushi, K., Purnomo, E., Razie, F., Yamakawa, K., and Tsuruta, H.: Effect of land-use change on nitrous oxide (N2O) emission from tropical peatlands, Chemosphere, 2: 347–358, 2000.		Accepted	reference included
21149	Jauhiainen, Jyrki	2	recommended references		2	Hashidoko, Y., Takakai, F., Toma, Y., Darung, U., Melling, L., Tahara, S., and Hatano, R.: Emergence and behaviors of acid-tolerant Janthinobacterium sp. that evolves N2O from deforested tropical peatland, Soil Biol. Biochem., 40, 116–125, 2008.		Accepted	reference included
21150	Jauhiainen, Jyrki	2	recommended references		2	Inubushi, K., Furukawa, Y., Hadi, A., Purnomo, E., and Tsuruta, H.: Seasonal changes of CO2, CH4 and N2O fluxes in relation to land-use change in tropical peatlands located in coastal area of South Kalimantan, Chemosphere, 52(3), 603–608, 2003.		Accepted	reference included
21151	Jauhiainen, Jyrki	2	recommended references		2	Jauhiainen, J., Silvennoinen, H., Hämäläinen, R., Kusin, K., Limin, S., Raison, R.J. and Vasander, H. (2012): Nitrous oxide fluxes from tropical peat with different disturbance history and management. Biogeosciences, 9: 1337-1350. doi:10.5194/bg-9-1337-2012, 2012.		Accepted	reference included
21152	Jauhiainen, Jyrki	2	recommended references		2	Melling, L., Hatano, R., and Goh, K. J.: Nitrous oxide emissions from three ecosystems in tropical peatland of Sarawak, Malaysia, Soil Sci. Plant Nutr., 53, 792–805, 2007.		Accepted	reference included
21153	Jauhiainen, Jyrki	2	recommended references		2	Takakai, F., Morishita, T., Hashidoko, Y., Darung, U., Kuramochi, K., Dohong, S., Limin, S. H., and Hatano, R.: Effects of agricultural land-use change and forest fire on N2O emission from tropical peatlands, Central Kalimantan, Indonesia, Soil Sci. Plant Nutr., 52, 662–674, 2006.		Accepted	reference included
21154	Jauhiainen, Jyrki	2	recommended references		2	Yanai, Y., Toyota, K., Morishita, T., Takakai, F., Hatano, R., Limin, S. H., Darung, U., and Dohong, S.: Fungal N2O production in an arable peat soil in Central Kalimantan, Indonesia, Soil Sci. Plant Nutr., 53(6), 806–811, 2007.		Accepted	reference included
21155	Page, Susan	2	recommended references		2	Couwenberg, J., Dommain, R., and Joosten, H. (2010) Greenhouse gas fluxes from tropical peatlands in southeast Asia, Glob. Change Biol., 16, 1715–1732, 2010.	Attachment_21126.pdf	Accepted	reference included
21156	Page, Susan	2	recommended references		2	Hooijer, A., Page, S., Canadell, J. G., Silvius, M., Kwadijk, J., Wösten, H., and Jauhiainen, J. (2010) Current and future CO2 emissions from drained peatlands in Southeast Asia. Biogeosciences, 7, 1505–1514, doi:10.5194/bg-7-1505-2010.	Attachment_21126.pdf	Accepted	reference included
21157	Page, Susan	2	recommended references		2	Hooijer, A., Page, S., Jauhiainen, J., Lee, W. A., Lu, X., Idris, A and Anshari, G. (2012) Subsidence and carbon loss in drained tropical peatlands. Biogeosciences, 9, 1053–1071.	Attachment_21126.pdf	Accepted	reference included
21158	Page, Susan	2	recommended references		2	Jauhiainen, J., Limin, S., Silvennoinen, H., and Vasander, H. (2008) Carbon dioxide and methane fluxes in drainage affected tropical peat before and after hydrological restoration, Ecology, 89, 3503–3514.	Attachment_21126.pdf	Accepted	reference included
21159	Page, Susan	2	recommended references		2	Jauhiainen, J., Hooijer, A., and Page, S. E. (2012) Carbon dioxide emissions from an Acacia plantation on peatland in Sumatra, Indonesia, Biogeosciences, 9, 617–630, doi:10.5194/bg-9-617-2012.	Attachment_21126.pdf	Accepted	reference included
21160	Page, Susan	2	recommended references		2	Marelli, L., Mulligan, D., Edwards, R.. (2011) Critical issues in estimating ILUC emissions. JRC Report EUR-24816-EN to the European Commission.	Attachment_21126.pdf	Accepted	reference included
21161	Page, Susan	2	recommended references		2	Melling, L., Hatano, R., and Goh, K. J. (2005) Soil CO2 flux from three ecosystems in tropical peatland of Sarawak, Malaysia, Tellus, Tellus B, 57, 1–11.	Attachment_21126.pdf	Accepted	reference included
21162	Page, Susan	2	recommended references		2	Page, S. E., Morrison, R., Malins, C., Hooijer, A., Rieley, J. O. & Jauhiainen, J. (2011) Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia. White Paper No. 15, International Committee on Clean Transportation (ICCT), Washington DC, USA, 76 pp.	Attachment_21126.pdf	Accepted	reference included
21163	Page, Susan	2	recommended references		2	RSPO-PLWG (2012) Environmental and social impacts of oil palm cultivation on tropical peat – a scientific review.	Attachment_21126.pdf	Accepted	reference included
21164	Page, Susan	2	recommended references		2	Stephens, J.C., Allen, L.H. and Chen, E., 1984. Organic soil subsidence. Geological Society of America, Reviews in Engineering Geology VI.	Attachment_21126.pdf	Accepted	reference included
21165	Couwenberg, John	2	Table 2.1	EF CO2OrgF	2	Laurila et al. 2007 and Lohila et al. 2007 describe total ecosystem fluxes that are not restricted to the soil component. Lindroth et al. 2007 describe fluxes from podzolic soils, not organic (peat) soil. The study by Minkkinen & Laine (1998) does not provide robust estimates of soil carbon loss following drainage. Von Arnold et al. 2005b provide data on total soil respiration only, not on heterotrophic carbon losses alone. Carbon fluxes in forested peatlands are complex and spread across several pools in IPCC reporting. The authors should take care to select only those studies that refer to the soil component only (excl. above- and below-ground biomass and litter and excl. autotrophic rhizosphere respiration). Recent suitable publications include Minkkinen et al. 2007 Bor. Env. Res., Mäkiranta et al. 2008 Soil Biol. Bioch., Ojanen et al. 2010 For. Ecol. Manag. See also Ojanen et al. 2012 For. Ecol. Manag. Couwenberg 2011 Mires & Peat arrives at 1.75 t CO2-C/ha*y;		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21166	Couwenberg, John	2	Table 2.1	EF CO2OrgF	2	At present, the EFs provided suggest a net sink of atmospheric carbon to the drained peat soil, which is thoroughly misleading. In recent years there have been attempts in several Nordic countries to present the draining and use of peatlands and peat as less detrimental to the climate than it actually is, to the point of claiming a net-cooling effect, using admittedly creative, but biased ways of accounting. IPCC should be aware of this movement to undercut EU environmental and tax policies. The presentation of peatland forestry as a 'climate-cooling' activity is certainly part of this movement and driven by strong industry interests. The net-effect may indeed be 'cooling' if biomass growth in included in the balance, but on the long-term, when harvesting and re-planting cycles are included, this effect is lost and the continued loss of soil carbon will become the dominant factor. The Chapter authors should provide thorough argumentation on how the EFs are derived to avoid any possible impression that they fell prey to industry lobby.		Accepted with modification	Clarify what pools are included in the Efs (soil + litter) and make sure that only these pools are included in the numbers used to derive Efs
21167	Couwenberg, John	2	Table 2.1	EF CO2OrgF	2	Considering the value of 1.75 t CO2-C/ha*y derived by Couwenberg 2011 Mires & Peat for Forest on drained organic (peat) soils in the boreal region, the value for corresponding temperate lands must be considered too low.		Accepted with modification	Additional literature will be screened for updating Efs.
21168	Couwenberg, John	2	Table 2.1	EF CO2OrgForestTrop EF CO2OrgForest-PlantTrop	2	As Tier-1 default values are associated with 'deeply drained' land (see l. 123), the EF for forestry in tropical regions must be deemed much too low. Also the value for plantation forestry is too low in light of recent literature on the subject (e.g. Couwenberg et al. 2010 Glob. Ch. Biol., Hooijer et al. 2010 & 2012 Biogeosc., Page et al. 2011 ICCT, Jauhiainen et al. 2012 Biogeosc.).		Accepted with modification	Additional literature will be screened for updating Efs.
21169	Couwenberg, John	2	Table 2.1	Cropland	2	the heading is placed one line too low		Accepted with modification	
21170	Couwenberg, John	2	Table 2.1	EF CO2Crop	2	the authors should consider more recent literature on the subject, including e.g. Maljanen et al. 2010 Biogeosc. and references therein.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21171	Couwenberg, John	2	Table 2.1	EF CO2Crop	2	apparently, the authors rely completely on the review of Oleszuk et al. (2008) to derive this EF. The studies cited by Oleszuk et al. all focus on subsidence of the peat surface which is combined with a default factor for the oxidative component of the subsidence to arrive at CO2 flux values (see also Höper 2002, 2007 Telma). The use of subsidence data is very well suited to derive EFs, if site specific factors are used for the oxidative component; see e.g. vd Akker 2008 IPC Proceedings or Leifeld et al. 2011 Soil Use & Manag. or Hooijer et al. 2012 Biogeosc. The authors should include recent data from the BMBF project that ended 2010 and was led by the coordinating author of this chapter.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21172	Couwenberg, John	2	Table 2.1	EF CO2Crop	2	as commented above, the EFs for tropical systems are deemed much too low and do not appropriately consider recent literature.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21173	Couwenberg, John	2	Table 2.1	EF CO2Grass	2	the authors should check whether all references are to 'deeply drained' grassland on peat; Shurpali et al. 2009, for example, provide data on Reed Canary Grass on shallow drained peat soils.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21174	Couwenberg, John	2	Table 2.1	EF CO2Grass	2	same comment as for EF CO2CropTemp; besides references cited in Oleszuk et al. 2008, reference to the much disputed study of Hargreaves et al. 2003 is included; the modelling approach followed in the Hargreaves paper does not allow for detailed emission estimates. Moreover, the paper does not cover grassland on drained peat soil. Couwenberg 2009 Mires and Peat and Couwenberg et al. 2011 Hydrobiologia provide recent literature reviews of published data and arrive at distinctly higher EFs. Again, the data of the above-mentioned BMBF project should be included to derive robust EFs		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21175	Couwenberg, John	2	Table 2.1	EF CO2PeatT	2	This EF must be deemed too low; it should at least be as high as the EF for boreal sites. The cited references are inappropriate; Hargreaves et al. because of methodological problems, Sottocornola & Kieley because this study does not concern a cutover peatland. The authors should strive to include EFs for bogs as well as for fens as fen peat extraction is an important activity, particularly in the temperate zone. Couwenberg 2011 Mires & Peat provides some references for (abandoned and revegetated) peat extraction sites.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21176	Couwenberg, John	2	Table 2.1	EF CO2PeatT	2	Again assuming we are dealing with 'deeply drained' areas, this EF must be deemed too low. There is little reason to expect so much lower emissions than from e.g. deeply drained agricultural areas. Moreover, the authors should expand on what kind of areas this EF is supposed to refer to. Peat extraction is a common activity, e.g. in Central Africa. Have the authord considered the peculiarities of the peatland sites at which this activity may be carried out? It would be worthwhile to provide some background and to point out to the reader where to expect such activity and in what type of peatland.		accepted	the comment is valid, but there is no new data available to our knowledge
21177	Couwenberg, John	2	Table 2.1	Settlements	2	No rationale is given for this EF. I doubt that emissions from the peat soils on which Amsterdam and St Peterburg are built are comparable to cropland as these areas are completely sealed and oxygen does not penetrate the peat. On the other hand, drainage related to road infrastructure, for example also in relation to oil exploitation in Alaska and W-Siberia or windpark infrastructure in Scotland or N-Spain, may cause emissions from the adjoining peatland. Some comments on the possible situations of peatland drainage related to settlements and gaps in current knowledge on emissions would be welcome.		accepted	the comment is valid, but there is no new data available to our knowledge. We cannot give conservative guidance, but should give guidance on how to derive or choose suitable factors and explain gaps.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21178	Hooijer, Aljosja	2	Table 2.1		2	This table proposes the following CO2 emission numbers for tropical / subtropical: peatlands: Forest: 2.31 t C ha/yr or 8.45 t CO2 ha/yr; Rice: 8.56 t C ha/yr or 31.33 t CO2 ha/yr; Cropland: 9.11 t C ha/yr or 33.34 t CO2 ha/yr; Forest plantation (acacia): 11.67 t C ha/yr or 42.71 t CO2 ha/yr; Oil palm plantation: 5.24 t C ha/yr or 19.18 t CO2 ha/yr	Attachment_21106.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21179	Hooijer, Aljosja	2	Table 2.1		2	Unlike the numbers for other climate zones, these numbers appear to be unchanged from the IPCC 2006 guidelines. No updated references to published research are given in this Draft, despite the fact that the science base has greatly improved over the last 6 years. However in the Appendix to this Chapter, some further details on the apparent thinking of the authors of this Chapter (those that were involved in drafting the content on subtropical and tropical peatlands) are presented. This includes the statement (p. 2.33): "DATA AVAILABILITY IN THE SCIENTIFIC LITERATURE. There are three principal approaches in the scientific literature that are useful to our efforts to estimate the effects of land use change and management on the atmosphere: … There have been a few attempts at estimating emissions from changes to peat elevations (Kool et al., 2006; Couwenberg et al. 2010), but these methods still have high degrees of uncertainty regarding what part of this subsidence represents emissions."	Attachment_21106.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21181	Hooijer, Aljosja	2	Table 2.1		2	It needs to be clear to all involved that the numbers now proposed for CO2 emissions from drained (sub-) tropical peatlands, as well as the misleading statement on data availability in the appendix, are wholly unacceptable in a review that is expected to present the state of the art in an unbiased manner.	Attachment_21106.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21182	KIM, Raehyun	2	Table 2.1	TABLE 2.1		EFCO2 => EFCO2		accepted	
21183	KIM, Raehyun	2	Table 2.1	TABLE 2.1		Nykanen => Nykänen, Grønlund => Grønlund ('Wetlands'>'Boreal' zone) Tuittila et al. 1995, 2004 => Tuittila & Kommlainen 1995, Tuittila et al. 2004, omit the references of Sottocornola & Kiely 2005		accepted	
21184	MacDonald, James Douglas	2	Table 2.1		2	1.)Please define nutrient rich and nutrient poor. Refer to a specific classification system. However, would it not make more sense to use pH as a factor differentiating peat soils, which is a much simpler and well defined measurement than "nutrient rich" and "nutrient poor", which could mean anything. This strikes me as lacking in precision. 2.) Report uncertainty in a consistent manner. You introduce confusion by entering as different factors. Choose a way to report it and report all numbers with the same unit.		accepted	Reference is given to 2006 GL
21185	Rieley, Jack	2	Table 2.1			Since this section (2.2) deals with land remaining in a land use it is unclear why Table 2.1 contains information relating to both LRLUC and LCNLUC (2.3). These should be separated and placed near their respective texts. There should be several emissions factors for Forest Land on peat in the tropics to reflect the different types of impact this ecosystem is subject to (see above). For example, natural peat swamp forest in its most undisturbed condition (no logging or drainage) should be expected to be still peat forming and therefore its net CO2 emission should be zero (in fact it will be slightly negative to reflect carbon sequestration and peat formation but the IPCC Guidelines ignores this). Emissions from forest land on tropical peat that has been selectively or illegally logged will exhibit positive CO2 emissions and there are data in the literature to support this except there is a problem to separate autotrophic and heterotrophic respiration. The emissions factors presented in Table 2.1 for plantation crops of Acacia and oil palm (both are trees by the way and both are harvested) must be a joke since they are far less than any of the peer reviewed credible published data; the former is clear felled every 6 years or so while the latter's fruits are removed throughout each year until it becomes uneconomic and the entire plantation is clear felled It is strange that no references are listed for any of the tropical peatland land uses and it is shocking that in Appendix 2a.1 where new information is supposed to be presented that Table 2A.4 of emissions factors and uncertainty estimates contains exactly the same values as Table 2.1. None of the new recent information on CO2 emissions from degraded and managed tropical peatlands has been included. Values for cropland and shrubland are also too low and simply repeat old default values when new data are available. If shrubland refers to deforested, drained and degraded tropical peatland that is not being used for anything productive so it is subject to continued illegal logging and fire then the value quoted is incorrect by more than a factor of 20 (see for example Rieley & Page, 2008; 2012). Concerning land converted to a new land use category, in theory the determination of carbon losses (CO2 emissions) should be more straightforward because the original forest has been removed and the only carbon losses are from the peat which is now subjected to drainage, fire and various management (e.g. cropping, harvesting) practices. The new land use vegetation can be discounted since it is removed periodically according to the cropping/harvesting cycle and makes no inputs to or outputs from the peatland over the lifetime of the crop. By this I mean that at the start of the new land use activity the peatland has been deforested, cleared probably using fire and drained (site preparation) and the CO2 emissions losses as a result of these procedures should be accounted for (LUC). From this point on we can assume: 1. Arable crops are removed once or more times a year and so their above ground material doesn't add to the peat carbon store; roots are in the aerobic zone above the lowered water table and will decompose more or less completely. 2. Paper pulp trees will be harvested every 6 years or so, the peatland surface will be cleared and prepared for replanting and the procedure will continue for the life of the plantation; leaf litter falling onto the peat surface will be decomposed eventually and will not add to the peat carbon store while roots are within the aerobic drained zone and will be decomposed without adding to the peat below. 3. Oil palm fruits are harvested regularly after an initial growth period of about 5 years until a maximum of about 25 years after planting. During this time the palms accumulate biomass in trunks, leaves and branches but none of these provide permanent long term additions to the carbon stocks above or below ground. Carbon in all parts of the oil palm tree is released and for the purpose of the IPCC Guidelines can be ignored. In all cases the focus should be on what is happening to the original peat following land use change and the methods used should be simple, reliable and verifiable. Ideally, direct CO2 emissions measurement data should be used but those in the literature are mostly confusing and unreliable, providing a large range of values whose accuracy and provenance are uncertain. Some of the problems involved are mentioned in the second paragraph in this statement. A major problem has been the difficulty of separating autotrophic and heterotrophic respiration rates and few researchers have managed this successfully. Whilst it is nigh impossible in natural peat swamp forest owing to tree and root densities it is possible in plantations where tree spacing is regular and distance apart is greater. The most detailed and accurate study of heterotrophic respiration at over 2000 locations in an Acacia plantation in which measures were taken to remove any influence of autotrophic vegetation and making correction for lower night time temperature is that of Jauhiainen et al, 2012 who obtained a net CO2 emissions loss of 80 t ha-1a-1. This value incorporates a correction (reduction) for the lower temperature and hence lower rate of peat oxidation at night. This compares favourably with the parallel study of carbon losses using the subsidence method at the same locations in the same plantation by Hooijer et al (2012) that obtained a CO2e emissions loss of 100 t ha-1a-1. The larger value from the latter can be explained by the inclusion of POC and DOC losses in water draining from the site that would not be captured in the GHG emissions method.	Attachment_v2_20007.pdf	Accepted with modification	see various similar comments
21186	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	Overall: I think there should be more clarity on separation between peat-CO2-emissoins and CO2 emissions from plants: heterotrophic and autotrophic respiration.	Attachment_20050.pdf	Accepted with modification	There is a conceptual misunderstanding because undrained organic soils are not included in anthropogenic emission estimates. The comment deals with changes in the biomass pool, which are not considered in this section.
21187	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	Overall, for the tropical regions a clear relationship between drainage depth (for whatever crop) and CO2 emissions has been published by Hooijer et al., 2010, 2012; Couwenberg et al., 2010: each 10 cm of drainage depth causes ~ 9 t CO2 ha-1 yr-1 emission. E.g. for oil palm a drainage depth of 0.6 – 0.8 m is been practiced: this results in a CO2 emission of 54 – 72 t CO2 ha-1 yr-1. Why is this not introduced in this new IPCC doc? It is confusing to use 'old' numbers.	Attachment_20050.pdf	Accepted	The relationship with drainage depth is implicit in the differentiation by sub-categories in the Efs.

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21188	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	An emissions of 5.24 t C ha-1 yr-1 has been reported for palm oil plantation in this chapter. This is far too low when looking at recent literature for agricultural use. Values between 40 and 80 tons of CO2 per hectare have been reported in the most recent literature. Needs revision. Also values of 33 t CO2 for cropland and 47 t CO2 for acacia are on the conservative side.	Attachment_20050.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21189	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	Overall: why not introducing 'water bodies' as a category under land use? It's part of the landscape in 'drainged organic soils'. CO2 emissions from water bodies such as drainage ditches are commonly lower that from the surrounding fields, however, they should be considered since they can not be assumed 0.	Attachment_20050.pdf	Accepted with modification	There is no CO2 data from ditches, but it has to be made clear in the activity data that the total drained area of organic soils including ditches is the area for calculating CO2 and N2O emissions, while for CH4, land between ditches and ditches are separated. Maybe add references to underline this assumption (Uijl-Schrier et al. 2001, Sirin...). Water bodies other than ditches are out of our chapter scope.
21190	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	Emissions and removals of CO2 in drained organic soils due to drainage and management include: 1. Losses because of drainage,2. Losses because of reduced photosynthesis and increased respiration in e.g. the case that forest in converted (should be capture in the section 2.3: Land converted to other LU), 3. Direct losses because of biomass removals, and thus C removal in the case that forest is converted (should be capture in the section 2.3: Land converted to other LU), 4. (In the tropics) Losses because of fires (increased fire frequency + slash and burn), 5. For e.g. oil palm plantations: trees have a 25 years life cycle, after that the forest is been cut and replanted with new plantings. Old palms are burned mostly. Include? 6. Forest land EF CO2OrgForestTrop: A. Hirano et al (2007): NEE 16 t CO2-eq ha-1 yr-1 (drained sec. forest), B. Jauhiainen et al (2008): range 24-74 t CO2 for drained forest sites, respiration only., 7. Cropland: A. acacia plantations in the Sumatra, Indonesia produce 21.8 t C ha-1 yr-1 (heterotrophic respiration only) (Jauhiainen et al., 2012; Biogeosciences 9, 617-630), B. Hooijer et al (2012) estimates 73 t CO2, 19,9 t C ha-1 yr-1 for oil palm plantations under current drainage regimes in the 'steady state' (> 5 years after drainage)., 8. Grassland: A. Grassland EFCO2GrassTemp: add Veenendaal et al (2007) and Jacobs et al (2007) (all measurements done by eddy covariance): Variability of annual CO2 exchange from Dutch grasslands, biogeosciences 4, 803-816, 2007. Average of 2,2 (± 0.9) t C ha-1 yr-1 for 4 grassland sites on peat., 9. Wetlands: A. Peatlands drainged for extraction EFCO2PeatTrop: the value 2 t C ha-1 yr-1 is based on the relative difference between temperate and tropical?! Why not using the most recent data on the relation between drainage depth and CO2 emissions? Each 10 cm of drainage of the peat causes about 9 t CO2 emission Ha-1 yr-1. Bases on current drainage depth needed for peat extraction one could calculate the emission which will in the case of 40 cm drainage be 9.8 t C ha-1 yr-1. Peatlands used for extraction of the peat are usually cleared/bare soils? That would make this a very conservative estimate since also soil temperature will be increased.	Attachment_20050.pdf	Comment has already been addressed previously	
21191	Schreir & Silvius, Arina & Marc	2	Table 2.1		2	Why are CO2 fluxes from water bodies in peatlands not mentioned? See e.g. Schier-Uijl et al., 2011 for CO2 fluxes from lakes and drainage ditches in temperate peatlands. Maybe add in table the category 'water bodies' consisting of 1) drainage ditches and 2) lakes and ponds 3) rivers (?).	Attachment_20050.pdf	Accepted with modification	see comment 21189.
21192	Thompson, Victoria	2	Table 2.1	Table 2.1	2	Center third column header. Last row under Forest Land should be under Cropland. Should rows for Settlemens and Other Land be under Wetlands or under their own category (see also other tables)		Accepted	Cropland EFCO2CropBoreal should be moved to "Cropland" and "Settlements" and "Otherland" need to be capitalized.
21193	TODD, Kimberly	2	Table 2.1			Table 2.1 gives coefficients of the CO2 balance of the soil. This balance is controlled by the C input in form of dead material like litter and dead roots and the C output in form of heterotrophic respiration. The heterotrophic soil respiration in afforested organic soil croplands is between 2.07 and 5.39 t CO2-C ha-1 yr-1 (Mäkiranta et al. 2007), and in forestry drained peatlands between 2.48 and 5.15 t CO2-C ha-1 yr-1 (Minkkinen et al. 2007) or between 1.45 and 6.70 t CO2-C ha-1 yr-1 (Ojanen et al., 2010). The above and below ground input of organic litter in forestry drained peatlands is only between 1.9 and 2.0 t CO2-C ha-1 yr-1, from what after two years remained 1.1-1.3 t CO2-C ha-1 yr-1 (Straková et al. 2012). From that data it becomes clear that the organic soil of forestry drained peatlands is a CO2 source, but not a sink as suggested by the authors of chapter 2. I wonder why the authors did not cite the most relevant references on the subject. Instead they refer to eddy covariance measurements of the net ecosystem CO2 exchange, including the CO2 uptake by living biomass (Lohila et al. 2007 & Laurila et al. 2007). The third cited reference on eddy covariance measurements, Lindroth et al. 2007, also estimates the CO2 loss of the soil in a spruce forest (0.96-1.25 t CO2-C ha-1 yr-1) but the studied soil was not organic but podzolic. The soil CO2 balances of forestry drained peatlands estimated using bulk and Carbon density measurements and subsidence (Minkkinen & Laine 1998 and Minkkinen et al. 1999) are not a good basis as this method – when applied in forested systems – is much more imprecise and prone to errors compared to direct measurements of heterotrophic respiration and litter production. The last cited reference (Von Arnold et al. 2005d) reports total soil CO2 release between 2.4 and 5.2 t CO2-C ha-1 yr-1 but the authors did not estimate the heterotrophic respiration separately. In conclusion, the references cited by the authors of chapter 2 are not optimal for the issue and they arrived at wrong estimates of CO2-C emissions at forestry drained peatlands. Based on better references (cited above: Mäkiranta et al. 2007, Minkkinen et al. 2007, Ojanen et al., 2010, Straková et al. 2012) the estimated emissions (EFCO2OrgForestBoreal, all organic soils) for forestry drained boreal peatlands should be 2.87 (ranging from -0.44 to 4.70) t CO2-C ha-1 yr-1, i.e. a net source and not a net sink.		Accepted with modification	see comments 21165 and 21166
21194	TODD, Kimberly	2	Table 2.1			The CO2 emissions given in Table 2.1 for the soil of temperate drained forest peatlands are probably too low. Litter production may be higher in temperate as compared to boreal forests, but that is surely more than outweighed by much higher decomposition due to longer warm and shorter cold seasons. I expect the CO2 emissions from the organic soils of drained temperate forest peatlands to be of similar magnitude or higher as compared to that from the organic soil of drained boreal forest peatlands, but published studies on are rare.		Accepted	Efs have been reexamined and revised accordingly
21195	TODD, Kimberly	2	Table 2.1			The CO2 emissions given in Table 2.1 for the soil of tropical drained forest peatlands seem much too low, and references for these estimates should be cited. There have been published several reviews and direct investigations on this issue and all arrive at much higher CO2 emissions (Couwenberg et al. 2010, Hooijer et al. 2010 & 2012, Page et al. 2011, Jauhiainen et al. 2012. The authors of chapter 2 argue that much of the CO2 emission data is based on subsidence studies and that they do not trust in that method. That stance is impossible to understand as this method widely accepted for monitoring of CO2 loss when the relation between subsidence rates and CO2 emission rates have been established (Stephens & Speir 1969, Verhagen et al., 2009). This method works especially well in the tropics and subtropics where the subsidence rates and CO2 loss from the soil are much larger compared to the cooler climate zones (Couwenberg et al. 2010, Hooijer et al. 2012).		Accepted	see comment 21190
21196	TODD, Kimberly	2	Table 2.1			The CO2 emissions from other land use categories at subtropical and tropical organic soils are also heavily underestimated and relevant references are not used to arrive at best estimates. The studies of heterotrophic respiration conducted by Melling et al. 2007 at oil palm plantations and Jauhianen et al. 2012 at acacia plantations show that the CO2 emissions of both land use categories are at least two times higher as compared to the values given by the authors of chapter 2. According to Jauhianen et al. 2012 the heterotrophic soil respiration at oil palm plantations is of similar intensity as that of acacia plantations which is 22 t CO2-C ha-1 yr-1. Carbon input with litter is negligible in these plantations, it was found for oil palm plantations to be only 0.3 t CO2-C ha-1 yr-1 (Melling et al. 2007).		Accepted	see comment 21190

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21197	TODD, Kimberly	2	Table 2.1			The CO2 emission values for boreal cropland and grassland are acceptable, but those for temperate cropland and grassland are much too low. Because of the strong relation between heterotrophic respiration and temperature the CO2 emissions from drained temperate peatlands with crops or perennial grasses are in any case higher than of their boreal counterparts. Regarding the CO2 emission values for temperate cropland the authors of chapter 2 obviously rely completely on the values given by Oleszczuk et al. (2008): all cited references for temperate cropland and temperate grassland are listed in this publication. Unfortunately, the authors of chapter 2 failed to include references to more recent publications involving more sophisticated measuring systems. Most of the values used by the authors of chapter 2 are based on subsidence studies, which interestingly enough were deemed unsuitable in the section on tropical and subtropical peatlands (but see comment above). The only reference not cited given in Oleszczuk et al. (2008) but cited by the authors of chapter 2 for temperate grassland is Hargreaves et al. 2003. This study, however, deals with afforested peatlands in Scotland, not with grasslands. I assume that for chapter 2 the CO2 emissions of the drained and ploughed ombrotrophic bog with sparse grass, heather and small planted spruce (Hargreaves et al. 2003) was used. Beside the fact that this is not real grassland, the cited study has been often criticized as the eddy covariance measurements had been conducted at every site type only for one or two months what makes the modelled annual CO2 exchange rates quite doubtful. I strongly recommend the authors not to restrict themselves to literature from 2003 and older, but also to analyse younger publications. I strongly recommend the authors of chapter 2 to correct the values for temperate cropland and grassland taking into account for example the recent review of Couwenberg et al. (2011) who arrive, based on published chamber studies, for cultivated temperate peatlands at net CO2 emissions of 4.2-6.6 t CO2-C ha-1 yr-1. There are already much more data on CO2 emissions from temperate grasslands and croplands on peat and I wonder why this has not been taken into account by the authors of chapter 2, because they obviously know the data, as they have used the relevant report (BMBF Report 2006-10) to estimate the CH4 emission of peatlands drained for extraction in Table 2.3.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21198	TODD, Kimberly	2	Table 2.1			The CO2 emission values given in Table 2.1 for peatlands drained for extraction are in my opinion completely wrong. Regarding boreal peat extraction sites the authors of chapter 2 should consider the review of Maljanen et al. 2010 who report, based on an intensive literature study, at CO2 emissions of 1.9 t CO2-C ha-1 yr-1. CO2 emissions of temperate peat extraction sites will be, because of longer warmer and shorter cold seasons, even higher. The values given inTable 2.1 are more than one order too low, and this, again, because of inappropriate references. Again the study of Hargreaves et al. 2003 is cited, despite its methodical weaknesses. While this reference, however, investigated the net CO2 emissions of two sites which are indeed comparable to peat extraction sites and arrived for ploughed and only sparse vegetated sites at CO2 emissions of 2-4 t CO2-C ha-1 yr-1, the second reference (Sottocornola & Kiely 2005) is not at all appropriate as it reports the net CO2 exchange of a pristine Atlantic blanket bog, not of a drained peatland prepared for peat extraction. To our knowledge there is only the publication of Flessa et al. 1997 on net CO2 emissions from a temperate experimental peat extraction site. They report from a simulated temperate peat extraction site CO2 emissions of 2.7 t CO2-C ha-1 yr-1.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21199	Page, Susan	2	Table 2.1 (pg. 2.6)		2	This table presents CO2 emission numbers for tropical/sub-tropical peatlands. These numbers appear to be UNCHANGED from the IPCC 2006 guidelines – i.e. they fail to take into account ANY of the recent published scientific literature. The Appendix to this chapter includes a statement that there is apparently limited data and a high degree of uncertainty surrounding data on GHG emissions from subtropical/tropical peatlands. This statement is the justification for the data presented in Table 2.1 – in particular, the emission values of 42.71 t CO2 ha/yr for forest plantations (acacia) on tropical peatland and 19.18 t CO2 ha/yr for oil palm plantations on tropical peatland. These values are well below the current values represented as being the state of the art knowledge of CO2 emissions from drained tropical peatlands. I refer the authors of the review to recent publications by Couwenberg et al. (2010), Hooijer et al. (2010), Page et al. (2011), and more recent papers by Hooijer et al. (2011, 2012) and Jauhiainen et al. (2011, 2012) which are based on extensive field data collection. I would also like to bring to the reviewers attention several reviews of emissions from oil palm plantations for the EU (Marelli et al., 2011), for the International Council on Clean Transportation (Page et al., 2011), and for the Round Table for Sustainable Palm Oil (RSPO-PLWG, 2012). All of these papers and reviews which have appeared over the last three years are apparently either ignored by the IPCC. Moreover, less recent but supportive literature on carbon losses from drained subtropical peatlands is also omitted (e.g. Stephens et al., 1984, who studied peatlands in the Florida Everglades). These critical oversights are extremely difficult to understand, especially since the emissions values presented in this draft are anywhere between 2 and 3 times LOWER than values presented in the literature referred to above.	Attachment_21126.pdf	accepted	see comment 21190
21200	Page, Susan	2	Table 2.1 (pg. 2.6)		2	Having looked at the literature that IS cited in this draft there seems to be a biased and under-representative range of material presented all of which is based on limited and flawed evidence. The majority of studies of tropical peatland CO2 emissions have used closed chamber methods (e.g. the oft-cited study by Melling et al. 2005). But none of these studies have been based on sufficient numbers of replicates over sufficient length of time to provide statistically robust flux values or uncertainty ranges. Furthermore, most have not addressed the quantification of CO2 emissions arising solely from peat decomposition (i.e. excluding emissions arising from root respiration), although some of the data have been used subsequently for this purpose. More recent studies (e.g. Jauhiainen et al. 2012) have sought to overcome these problems by employing large numbers of point measurements across a long time series and across a range of field conditions; notably, this study was also able to separate autotrophic and heterotrophic emissions. This study arrived at much higher CO2 emission values than those presented in the IPCC draft. One other method of deriving carbon loss values from peatlands, subsidence measurement, is capable of providing a time-integrated measure of the complete carbon balance of a drained peatland. Subsidence is a slow process, thus a key limitation of this approach and of several previous published studies is that subsidence data need to be collected over a long period (preferably a number of years, although larger numbers of measurements can compensate for shorter periods) and must be accompanied by accurate measurements of peat bulk density and carbon concentration. Hooijer et al. (2012) were able to accomplish this and showed conclusively that their estimates of carbon loss using this method were (a) in line with all previous studies of peatland subsidence from other regions of the world, taking into account higher tropical temperatures (and hence higher peatland decomposition rates) and (b) in line with an independent study using the closed chamber method carried out in the same peatland landscape (Jauhiainen et al., 2012).	Attachment_21126.pdf	accepted	see comment 21190 and methodology discussion in revised appendix
21201	Page, Susan	2	Table 2.1 (pg. 2.6)		2	A further important comment I wish to make on Table 2.1 is that the emission values presented for oil palm are much lower than those for acacia plantation. NO JUSTIFICATION for this difference is provided! Yet, deforestation and drainage impacts in these two types of plantation are very similar and therefore will likely yield similar greenhouse gas emissions with, if anything, higher emissions from oil palm plantations owing to the greater use of fertilisers to maintain crop productivity under this form of land use. None of these issues are touched upon in the draft, which is very surprising and a clear omission.	Attachment_21126.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21202	Schreir & Silvius, Arina & Marce	2	Table 2.2		2	The default values for EFDOC_drained (t C ha-1 yr-1) for the tropics is now reported at 0.78 (0.44-1.46). Oechel et al (2011 (AGU conference proceedings), 2012 in prep) have done a very extensive study in the Kapuas river in Sumatra, Indonesia (very large area) and they found the CO2 emissions to be 12.4 t C ha-1 yr-1 (or 1240 g C m-2 yr-1). Should be taken into account.	Attachment_20050.pdf	Accepted	Chris will contact Walt Oechel
21203	Thompson, Victoria	2	Table 2.2	Table 2.2	2	Vertically center column 1		Accepted	Right-adjustment of the first column is in line with the 2006 Guidelines style.
21204	Cai, Zucong	2	Table 2.3		2	I really could not trust some very high emission factors. The literatures have to be checked carefully in their methods and field conditions used for CH4 emission measurement.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21205	Couwenberg, John	2	Table 2.3		2	I assume the unit 't C' is wrong and should be 'kg C'		Accepted	Units have been standardized
21206	Couwenberg, John	2	Table 2.3	EF CH4OrgF	2	refer to Ojanen et al. 2010 For. Ecol. Manag.; are there no references for N. American or Russian sites?		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.

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21207	Couwenberg, John	2	Table 2.3	EF CH4Crop	2	judging from the references, I think this should be net-uptake		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21208	Couwenberg, John	2	Table 2.3	EF CH4Crop	2	This EF should be compared to the default method presented in Ch 5.5 Vol. 4 of the existing 2006 GLs -- shouldn't you provide guidance to fit rice cultivation on organic soils into this existing guidance? For rice paddi on peat Couwenberg et al. 2010 Glob. Ch. Biol. cite a range of 36.2 and 495.2 kgCH4/ha*y, which is much larger than the value given here. Obviously, there has been a mistake as the references cited are the same as used by Couwenberg et al. 2010. As methane emissions will largely be determined by the availability of fresh organic material, the EF for organic soils should be expected not to deviate much from mineral soils. Moreover, technically, rice paddi may be considered a managed, but not per se drained soil; maybe it suffices to refer to the existing guidance.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21209	Couwenberg, John	2	Table 2.3	EF CH4Grass	2	refer to Kroon et al. 2010 Eur. J. Soil. Sc. and Schrier-Uijl et al 2009 Plant Soil; see also Couwenberg et al. 2011 Hydrobiologia and Couwenberg & Fritz 2012 Mires & Peat for a review with many references.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21210	Couwenberg, John	2	Table 2.3	EF CH4PeatE	2	does the EF include emissions from stockpiles?		Accepted	CH4 from stockpiles is not included because of two little scientific basis. A comment will be included for development of higher Tiers.
21211	Couwenberg, John	2	Table 2.3	EF CH4PeatT	2	??? How was this value derived? Clymo & Reddaway do not report on peat extraction sites, nor does the BMBF report. Flessa et al. 2007 do not find any significant methane emissions from their temperate peat extraction site.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21212	FENTON, Nicole J	2	Table 2.3			table 2.3: shouldn't some mention be made of the very large variability around temperate grasslands? It ranges from a signficant sink to a major source!		Accepted	variability will be visible in the confidence interval.
21213	KIM, Raehyun	2	TABLE 2.3	TABLE 2.3		EFCH4 -> EFCH4		Accepted	
21214	KIM, Raehyun	2	TABLE 2.3	TABLE 2.3		omit the references of Jauhiainen et al., 2008; Hirano et al. 2009; Hadi et al. 2001; Melling et al. 2005; Watanabe et al. 2009; Inubushi et al., 1998; BMBF Report 2006-10 Nykanen et al. 1998 => Nykänen et al. 1998, Gronlund => Grønlund, Hyvonen et al. 2009 =>Hyvönen et al. 2009		Accepted	we understand that these references have been omitted.
21215	PENMAN, Jim	2	Table 2.3			where is table 2.4?		Accepted	It is on page 2.18
21216	Rieley, Jack	2	Table 2.3			NB: On a different matter in Chapter 2 concerning Table 2.3 Tier 1 CH4 emission/removal for drained organic soils in all land use categories it shows an emissions factor of 382 t C ha-1yr-1 for peatlands drained for extraction in the temperate zone. I cannot believe this high value and believe it is incorrect. Peat extraction sites are drained and emit some CO2 but CH4 is zero or negligible. According to this value methane emission is nearly 200 times greater than carbon dioxide!	Attachment_v2_20007.pdf	Rejected	the unit in the table was wrong, it is kg instead of tonnes.
21217	Schreir & Silvius, Arina & Marc	2	Table 2.3		2	Overall, below is listed the research that has been performed in SE Asia on CH4 in different LU types with Couwenberg et al., 2012 giving a summary of the available research. REFER TO TABLE IN WORD DOC PG. 3	Attachment_20050.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21218	Thompson, Victoria	2	Table 2.3	Table 2.3	2	Center column 2. Last two rows of Forest Land category should use em-dash, not hyphen		Accepted	
21219	TIEMEYER, Barbel	2	Table 2.3			units in this table seem to wrong; values higher than in Table 2.3		Accepted	the unit in the table was wrong, it is kg instead of tonnes.
21220	TIEMEYER, Barbel	2	Table 2.3			Is there no literature data for CH4-fluxes from temperature grassland (BMBF-Report)?		Accepted	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21221	TIEMEYER, Barbel	2	Table 2.3			Emission factor "Peatlands drained for extraction": wrong unit or decimal point missing/wrong?		Accepted	Units have been standardized
21222	TIEMEYER, Barbel	2	Table 2.3			Add references (as e.g. in Tab. 2.3)		Accepted	

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21223	TODD, Kimberly	2	Table 2.3			I assume that the indicated units are wrong. Did the authors mean kg CH4-C ha-1 yr-1 instead of t CH4-C ha-1 yr-1? Otherwise this table would need to be reworked. Nutrient poor boreal forest lands, for example, cannot emit 12.4 t CH4-C ha-1 yr-1. Maljanen et al. 2010 report in their review CH4 emissions from ombrotrophic peatlands drained for forestry of only 0.009 t CH4-C ha-1 yr-1. I also wonder about the message of Table 2.3 that boreal croplands are sinks and temperate croplands are strong sources for methane, while boreal grasslands are sources and temperate grasslands do not emit methane. The references cited for methane emissions from temperate cropland report small methane uptake (Flessa et al. 1998: 0.2 kg CH4-C ha-1 yr-1, Glenn et al. 1993: no significant flux, Kasimir-Klemedtsson et al. 2009: 0.1 kg CH4-C ha-1 yr-11998. So I wonder how the authors of chapter 2 arrived at methane emissions at temperate cropland of 2.68 kg CH4-C ha-1 yr-1. If the units are in fact kg CH4-C ha-1 yr-1, those differences may not play an important role for the total GHG-emissions of the land use categories – nevertheless they should be correct. Still two numbers in Table 2.3 are totally wrong: The CH4 emissions for boreal peatlands drained for extraction are based on measurements on active and abandoned peat extraction sites and the values are acceptable. Methane emissions from temperate peat extraction sites should be similar because not only production but also consumption of methane can be expected to be somewhat higher due to higher temperatures. There is no reason to assume the methane emissions from temperate peat extraction sites to be more than 100 times higher as compared to their boreal counterpart! The wrong numbers for temperate peatlands drained for extraction are again the result of inappropriate references. Clymo & Reddaway 1971 do not report on methane emissions from temperate peat extraction sites. Also the second reference (BMBF Report 2006-10) does not report on methane emissions from temperate peat extraction sites. The only reference for this is Flessa et al. 1997, but they did not find any significant methane emissions from the temperate experimental peat extraction site. Methane emissions from rice paddies given in Table 2.3 are about 1000 times too low, which is supported by the three cited references. Is this again due to a unit mistake, i.e. should it be 0.108 t CH4-C ha-1 yr-1 instead of 0.108 kg CH4-C ha-1 yr-1?		Accepted	Units have been standardized
21224	TIEMEYER, Barbel	2	Table 2.4			There are more land use classes for "ditches" than for "land" - is this really necessary, supported by data, and applicable?		Accepted with modification	We will try to reduce the number of categories and make them compatible with the categories used for other emissions.
21225	TIEMEYER, Barbel	2	Table 2.4			If it were easily possible to distinguish between low and high intensity grassland, this should be done for CO2 and CH4, too (but not under Tier 1).		Accepted with modification	Give additional guidance on activity data how to differentiate low and high intensity grasslands (no info = mean of both).
21226	TIEMEYER, Barbel	2	Table 2.4			What is "low intensity cropland"?		Accepted	Clarify that this is paludiculture
21227	TIEMEYER, Barbel	2	Table 2.4			Drained tropical peatland: The unit is either in Table 2.A or in Table 2A.1 wrong		Accepted	Units have been standardized
21228	Couwenberg, John	2	Table 2.5	EF N2O-Org	2	refer to Ojanen et al. 2010 For. Ecol. Manag.; are there no references for N. American or Russian sites? Couwenberg 2011 Mires & Peat arrives at very different values.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21229	Couwenberg, John	2	Table 2.5	EF N2O-Org	2	Struwe & Kjoller 1994 concerns a laboratory study not on peat soil; Couwenberg 2011 Mires & Peat provides additional references.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21230	Couwenberg, John	2	Table 2.5	EF N2O-Org	2	Couwenberg et al. 2010 have two times higher values.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21231	Couwenberg, John	2	Table 2.5	EF N2OCrop	2	again: include the data of the BMBF project led by the coordinating author		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21232	Couwenberg, John	2	Table 2.5	EF N2OCrop	2	include the studies by Takakai et al. 2006 Soil Sc. Plant Nutr. (this ref. IS included for forest land!) and Toma et al. 2011 Soil Sc. Plant Nutr.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21233	Couwenberg, John	2	Table 2.5	EF N2OGras	2	include the studies by Takakai et al. 2006 Soil Sc. Plant Nutr. (this ref. IS included for forest land!) and Toma et al. 2011 Soil Sc. Plant Nutr.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21234	Couwenberg, John	2	Table 2.5	EF N2OGras	2	Include reference to Velthof et al. 1996 Plant Soil, Hendriks et al. 2007 Biogeosc., Augustin et al. 1998 Agrobiol. Res. and other publications by J. Augustin.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.

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21235	Couwenberg, John	2	Table 2.5	Shrubland	2	The EFs presented here drive home the message that the EFs for boreal vs. temperate cropland and grassland are mirrored: boreal cropland EF is about as high as temperate grassland and vice versa. This seems very odd. I would not expect the EF for tropical shrubland to be so low. Are there any N2O studies from the Ex Mega Rice Project Area (which may qualify as shrubland to some extent).		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21236	Couwenberg, John	2	Table 2.5	Settlements	2	considering settlements contain many sealed areas, the approach to use the cropland EF seems rather silly.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21237	Couwenberg, John	2	Table 2.5		2	In general it should be made clear whether the EFs presented are corrected for the direct emissions related to the application of fertilizer, for which an IPCC default approach/value exists (Ch. 11 Vol. 4 2006 GLs). The existing 2006 chapter isn't clear on this issue either, so clarification would be welcome: how to deal with fertilizer application to organic soils?		Accepted	Comment on possible double-counting or relevance of emissions versus mineralization will be added.
21238	COUWENBERG, John_2	2	Table 2.5	EFN2O-OrgForestTrop		this should include logged forests, possibly make a note of that; additional references include Jauhiainen et al. 2012 Biogeosc. Melling et al. 2007 Soil Sc. Pl. Nutr. (secondary forest with deep water table), also check Hadi et al. 2000 Chemosph., Inubushi et al. 2003 Chemosph. if 'undrained' logged forest is to be included.		Accepted	Terms will be changed, undrained = no anthropogenic emissions, secondary = managed
21239	COUWENBERG, John_2	2	Table 2.5	EFN2OOrgCropTrop		include reference to Takakai et al. 2006 Soil Sc. Pl. Nutr., Toma et al. 2011 Soil Sc. Pl. Nutr., Jauhiainen et al. 2012, Biogeosc.;		Accepted	see comment 21233
21240	KIM, Raehyun	2	TABLE 2.5	TABLE 2.5		change the all 'et al.' => 'et al.', EFN2O => EFN2O confrim 'Von Arnold et al. 2005d et al. 2005d ('Boreal Nutrientrich' row) omit the references of Hadi et al. 2005, BMBF Report 2006-10		Accepted	
21241	TODD, Kimberly	2	Table 2.5			According to the review of Couwenberg 2011 the N2O emissions are two times higher as compared to Table 2.5, i.e. 3.4 kg N2O-N ha-1 yr-1 instead of 1.9 kg N2O-N ha-1 yr-1.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21242	TODD, Kimberly	2	Table 2.5			It is difficult to understand that in the boreal climate zone the N2O emissions from grassland are higher compared to cropland, while in the temperate climate zone it is the other way around, the N2O emissions from grassland should be lower compared to cropland.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21243	TODD, Kimberly	2	Table 2.5			The values seem to be more than one order too low. Why did the authors of chapter 2 not include the results of Takakai et al. 2006 who measured N2O emissions from tropical croplands between 21 and 259 kg N2O-N ha-1 yr-1? The authors know this reference as they include the results of Takakai et al. 2006 to calculate the N2O emissions from tropical/subtropical forest land.		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21244	TODD, Kimberly	2	Table 2.5			Also the values for tropical/subtropical grassland are much too low. Why did the authors of chapter 2 again not include the results of Takakai et al. 2006 who measured N2O emissions from tropical grasslands between 7.1 and 23 kg N2O-N ha-1 yr-1?		Accept	see comment 21233
21245	TODD, Kimberly	2	Table 2.5			If shrublands evolve after agricultural used peatlands have been abandoned, it is indeed possible that N2O emissions remain high. According to Maljanen et al. 2010 the N2O emissions of afforested croplands have been studied intensively in Finland and mean annual N2O emissions have been found to be 4 kg N2O-N ha-1 yr-1. I assume that shrublands on former agricultural used peatlands will have similar N2O emissions, i.e. about two times lower compared to the value given in table 2.5. Consequently the N2O emissions given for temperate shrublands are acceptable, but those for tropical/subtropical shrublands are much too low (see above).		Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU.
21246	Schreir & Silvius, Arina & Marc	2	Table 2.5 (all categories):		2	Use CG or GC, but consistently	Attachment_20050.pdf	Accepted	
21247	Schreir & Silvius, Arina & Marc	2	Table 2.5 (all categories):		2	References missing. See below for more references for the tropical regions (note that all research is very short term. There is a very high need for long term data, preferably a combination of eddy covarianc (to capture temporal variability) and chamber measurements). REFER TO TABLE ENTITLED "References and N2O emissions values for tropical organic soils under different LU." pg. 4	Attachment_20050.pdf	Accepted	
21248	Schreir & Silvius, Arina & Marc	2	Table 2.5 (Grasslands):		2	Perhaps split temperature grasslands on organic soils in 'nutrient rich' and 'nutrient poor'. Enough literature on that.	Attachment_20050.pdf	Accepted with modification	Check when updating the EF tables according to the criteria and methodological discussions in the Appendix. A list of all considered studies with reasons for rejections has to be prepared as a separate list that will be archived at TSU. If included, extra guidance on nutrient-rich and nutrient poor or low versus high intensive has to be given.
21249	Schreir & Silvius, Arina & Marc	2	Table 2.5 (Wetlands):		2	To the reader it is not clear what this includes. Only peatlands drained for extraction, why? But what about e.g. undrained peatlands, abandoned peatland, wetlands with vegetation other than forest?	Attachment_20050.pdf	Accepted	clarify definitions of wetlands here.
21250	Couwenberg, John	2	Table 2A.1		2	intensive grassland vs. extensive grassland; 'extensive' is a germanism. Consider using the common terms 'high' and 'low intensity grassland'		Accepted	Text has been revised
21251	COUWENBERG, John_2	2	Table 2A.1			should be 2A.4 … also tables followin		Accepted	
21252	COUWENBERG, John_2	2	Table 2A.1	Soil C inputs		The majority of the studies cited were not carried out on peat		Accepted with modification	Check when updating the table
21253	COUWENBERG, John_2	2	Table 2A.1	Litter fall		I doubt there is enough knowledge to establish the rate at which litter contributes to peat formation; I think not at all. For dead (belowground!) wood nothing much is known either. This whole exercise looks nice, but shows that the authors have little grasp of peatlands and peat formation.		Accepted with modification	This will be clarified that litter is treated as root input

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21254	COUWENBERG, John_2	2	Table 2A.1	Intact forest		why include if not managed? Or are countries allowed to claim sequestration in natural areas just by appointing them as 'managed land'?		Accepted	Change term to "slightly drained, managed forest"
21255	COUWENBERG, John_2	2	Table 2A.1	proportion of total soil respiration		These are VERY sensitive parameters; I find the assessment disputable. Firstly, the ratio of hetero- to autotrophic respiration is based on too few studies not taking into account the strong variability in root density and respiration in tropical peat soils (cf. Jauhiainen et al. 2012). Secondly, the assessments of total soil respiration are shaky at best, using dark chambers with unknown, but likely substantial errors (cf. Pumpanen et al. 2004)		Accepted with modification	There are uncertainties, but they are quantified and this is the only way to make use of the existing respiration flux studies. Maybe add a reference proving the robustness of chambers?
21256	COUWENBERG, John_2	2	Table 2A.1	reference #4		Note that this study describes a fresh water swamp not necessarily comparable to the large domes of Sundaland		Rejected	This supplement covers all drained organic soils, not only those of Indonesia
21257	COUWENBERG, John_2	2	Table 2A.1	reference #7		This is the site with Taro cultivation; how representative is that crop? Note that it is grown under very wet conditions and that below-ground corms are used, meaning soil disturbance upon harvest.		Accepted with modification	Integrated into shallow drainage cropping systems
21258	COUWENBERG, John_2	2	Table 2A.1	reference #8		Only one study from Thailand: is this system comparable to the peat swamp forest of Sundaland? I thought it displayed regular flooding.		Rejected	This supplement covers all drained organic soils, not only those of Indonesia
21259	COUWENBERG, John_2	2	Table 2A.1	reference #9		This is not from peat swamp. Peat swamp standing biomass, root systems and dynamics are very different from forest on mineral soil.		Rejected	Not all of the papers listed here are sources of data. Some papers inform the interpretation of data.
21260	COUWENBERG, John_2	2	Table 2A.1	reference #10		Is this the ultisol paper? That's not peat, can you just extrapolate to peatlands? If so, why?		Rejected	This paper is not a source of data, it refers to generic processes of N oxide productin that is common to all soils
21261	COUWENBERG, John_2	2	Table 2A.1	reference #11		Does not include studies on peat AFAIK		Rejected	Study includes peat
21262	COUWENBERG, John_2	2	Table 2A.1	reference #13		Not peat AFAIK		Rejected	Study includes peat
21263	COUWENBERG, John_2	2	Table 2A.1	reference #14		This study includes Ivory Coast and Indonesian plantations. It is unclear whether the Sumatra plantations are on peat. – I believe they are not. Rooting systems are very different between different sites and soils.		Rejected	Study includes peat
21264	COUWENBERG, John_2	2	Table 2A.1	reference #15		This study looks at 'maintenance respiration' of root systems. This is done using a simulation model using parameters for root turnover that are not based on oil palm growing on peat and it is unclear whether the values are applicable in a generalized fashion as done here. The resulting heterotrophic soil respiration rate is much lower than reported elsewhere. This discrepancy needs to be discussed.		Rejected	Study includes peat
21265	COUWENBERG, John_2	2	Table 2A.1	references #16-21		None of these refer to studies on peat		Rejected	Study includes peat
21266	COUWENBERG, John_2	2	Table 2A.1	reference #29		lacking		Rejected	reference is complete
21267	COUWENBERG, John_2	2	Table 2A.1			I think the paper from which this is taken is rightfully heavily criticised and disputed in the scientific community.		Rejected	This table was not taken from another paper, it is a new calculation
21268	FAGGI, Ana	2	Table 2A.1			et al. in italics		Accepted	correced
21269	KIM, Raehyun	2	TABLE 2A.1	TABLE 2A.1		change the all 'et al.' => 'et al.' omit the references of Schrier-Uijl et al. 2009, 2011; Vermaat et al. 2011; Best & Jacobs 1997; McNamara et al. 2012; Sirin et al. 2012; Chistotin et al. 2006; The et al. 2011; Hendricks et al. 2007, 2010; Roulet & Moore 1995; Glagolev et al. 2008; Minkinnen & Laine 2006; Cooper et al. 2012; Jauhiainen et al. 2012; confirm Van den Pol-Van Dasselaar et al. '1999' to '1999a' or '1999b', Von Arnold et al. '2005' to '2005b' or '200c' or '2005c		Accepted	"omit" is interpreted as "omitted"
21270	KIM, Raehyun	2	TABLE 2A.1	TABLE 2A.1		omit the references of all of souces except the 'Furukawa et al. 2005 & Inubushi et al. 2003'		Accepted	"omit" is interpreted as "omitted"
21271	Thompson, Victoria	2	Table 2A.1	Table 2A.1	2	Left-hand margin is too close to cell line		Accepted	
21272	TIEMEYER, Barbel	2	Table 2A.1			"ditch fluxes scaled to total area" is not necessary; a "fraction of open water" per land use class (with the option for country-specific values) would be better and could be also used in Chapter 3 for re-wetted peatland		Accepted	Text has been revised
21273	TIEMEYER, Barbel	2	Table 2A.1			Are 26 studies (not counting the re-wetted ones) sufficient to parameterize 9 EF-classes (Table 2.4)?		Accepted	There will be fewer classes
21274	TIEMEYER, Barbel	2	Table 2A.1			Drained tropical peatland: The unit is either in Table 2.A or in Table 2A.1 wrong		Accepted	Units have been standardized
21275	KIM, Raehyun	2	TABLE 2A.2	TABLE 2A.2		change the all 'et al.' => 'et al.' omit the references of Koprivnjak & Moore 1992; Jager et al. 2009; Moore 2003; Strack et al. 2008; Agren et al. 2007; Kortelainen et al. 2006; Rantakari et al. 2010; Nilsson et al. 2008; Urban et al. 1989; Kolka et al. 1999; Roulet et al. 2007; Clair et al. 2002; Dawson et al. 2011; Billett et al. 2010; Koehler et al. 2009, 2011; Di Folco & Kirkpartick 2011; Baum et al. 2008; Alkhatib et al. 2007; Yule et al. 2009, Zulkifli 2002; Moore et al. 2011 confirm Van den Pol-Van Dasselaar et al. '1999' to '1999a' or '1999b', Von Arnold et al. '2005' to '2005b' or '200c' or '2005d'		Accepted	
21276	KIM, Raehyun	2	TABLE 2A.2	TABLE 2A.2		HA-1 Y-1 => ha-1 yr-1		Accepted	
21277	KIM, Raehyun	2	TABLE 2A.2	TABLE 2A.2		HA-1 Y-1 => ha-1 yr-1		Accepted	
21278	Thompson, Victoria	2	Table 2A.2	Table 2A.2	2	Left-hand margin is too close to cell line		Accepted	
21279	TIEMEYER, Barbel	2	Table 2A.2			Check Strack et al. (2008) for correctness of numbers		Accepted	Strack et al. (2008) was not used as published but by updated data from Strack. Additional reference to be added
21280	TIEMEYER, Barbel	2	Table 2A.2			Consider weighing studies by lenght of study period		Accepted with modification	Check with Chapter 3 and statistician; decide after this consultation
21281	TIEMEYER, Barbel	2	Table 2A.2			Suggested further studies (examples): Fraser et al. (2011), McKnight (1985), Köhler et al. (2009)		Accepted	Studies have been considered and integrated appropriately
21282	MacDonald, James Douglas	2	Table 2A.2 and 2A.3		2	Many references missing, if not all		Accepted	Check when updating the table
21283	COUWENBERG, John_2	2	Table 2A.3	oil palm		How do you explain such low values if subsidence is the same as in Acacia plantations? (see Hooijer et al. 2012 Biogeosc.)		Accepted	Check when updating the table
21284	KIM, Raehyun	2	TABLE 2A.3	TABLE 2A.3		change the all 'et al.' => 'et al.' omit the references of Strack et al. 2008; Kane et al. 2010; Heikkinen 1990; Moore et al. 2007; Urbanova et al. 2011; Wallage et al 2006; Inubushi et al 1998; Moore et al. 2012 y-1 => yr-1 (in Drained column)		Accepted	
21285	Thompson, Victoria	2	Table 2A.3	Table 2A.3	2	to should not be capitalized in table title		Accepted	
21286	KIM, Raehyun	2	TABLE 2A.4	TABLE 2A.4		y-1 => yr-1		Accepted	
21287	Thompson, Victoria	2	Table 2A.4	Table 2A.4	2	Left-hand margin is too close to cell line		Accepted	
21288	Couwenberg, John	2			2	I can only urge you again to rethink your 'tropical team' and to include more independent, scientific voices that are less coloured by industry or 'scientific profiling' needs.		Accepted with modification	Additional CAs will be involved.
21290	Kolka, Randy	2			2	I suggest combining chapters 2 and 3, there is considerable overlap in text and even the tables (e.g. 3.3). Both Chapters are very well done.		Rejected	The outline of the scoping meeting cannot be changed. The coordination between the chapters needs to be good by cross-referencing.

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21291	Radunsky, Klaus	2			2	table 2.3: it is noted that sometimes for a few values, covering a very broad range and being sometimes emissions and sometimes removals, an emission factors has been suggested. This seems not to be a very robust approach and needs further explanation. (e.g. wetlands/peatlands drained for extraction/EF CH4 Peat Temp		Accepted with modification	Check when updating the table
21292	Schreir & Silvius, Arina & Marc	2			2	Grasslands: GrasslandsEFCH4GrassTemp: References: Kroon et al., 2010; Annual balances of CH4 and N2O from a managed fen meadow using eddy covariance flux measurements. Eur. J. Soil Sc., 61. This is a three years EC study (the first very reliable, long term EC study for CH4!): 0.124 (± 17%) t C ha-1 yr-1 in a Dutch temperate grassland.	Attachment_20050.pdf	Accepted	Section has been revised and this has been corrected
21293	Schreir & Silvius, Arina & Marc	2			2	Schrier-Uijl et al 2009: Methane emissions in two drained peat agro-ecosystems with high and low agricultural intensity. Plant Soil, doi:10.1007/s11104-009-0180-1. Long term (3 years chamber based) study in grasslands on peat: 0.128 ((± 50%) in intensively manged grass, 0.125 t C ha-1 yr-1 (((± 50%) for extensively managed grass.	Attachment_20050.pdf	Accepted	Section has been revised and this paper has been considered
21294	Schreir & Silvius, Arina & Marc	2			2	CH4 - Suggestion: Merge tables 2.3 and 2.4 and broaden 'drainage ditches' of table 2.4 to 'water bodies' (which includes also (shallow) lakes, ponds and other water bodies). Water bodies are part of the 'wetlands-peatlands-landscape, so why separating it from the lands use categories in table 2.3?	Attachment_20050.pdf	Rejected	these are two different sources that need to be kept separate for clarity
21295	Schreir & Silvius, Arina & Marc	2			2	Suggestions for categorizing 'water bodies' + literature: Lake or pond, Boreal (Juutinen et al., 2009; Huttunen et al, 2002; Bastviken et al., 2004; Repo et al., 2007), Temperate (Schrier-Uijl et al., 2011; Stadmark and Leonardson, 2005), Tropics (Guerin et al., 2007; Jauhiainen et al., in prep), Drainage ditch, Boreal (..), Temperate (Schrier-Uijl et al., 2011; Vermaat et al., 2011), Tropics (Jauhianen et al., in prep; guerin and abril, 2007); REFER TO TABLE ON PG. 4	Attachment_20050.pdf	Rejected	water bodies are beyond the scope of this chapter
21296	Schreir & Silvius, Arina & Marc	2			2	N2O - Equation 2.6: Categories in eq. 2.6: Temperate grass/cropland, Tropical grass/cropland, Temperate forest (nutrient poor and rich), Tropical forest. With 'N2O emissions from organic soils' being the title, this is not complete. Perhaps, either change the title, or make categories complete.	Attachment_20050.pdf	Accepted	Equation needs to be adjusted to the level of detail in table 2.5
21297	Schreir & Silvius, Arina & Marc	2			2	Include the study of Kroon et al., 2010: Eddy covariance measurements (three years!, first study with half hourly temporal coverage, reliable data): 15 kg N ha-1 yr-1 for heavily managed grasslands (which is a very common practice, at least in Europe). Kroon et al split background emissions (natural) from N input related emissions (human induced).	Attachment_20050.pdf	Accepted	Section has been revised and this paper has been considered
21298	Schreir & Silvius, Arina & Marc	2			2	Also studies in Denmark, Germany have been performed on N2O from heavily managed grasslands that have much higher N2O emissions than the numbers mentioned in the table. The values of Langevelc and van Beek were on grasslands with less fertiliser and manure inputs.	Attachment_20050.pdf	Accepted	Section has been revised and this paper has been considered
21299	Sookun, Anand	2			2	CHECK TYPO ERRORS		Accepted	
21300	Sperow, Mark	2			2	Table 2.1: Under "Climate Zone" are the first three rows correct? "Nutrient Poor" refers to soil, not climate, true? If the first row refers to "All organic soils" under Boreal, why are the next two rows there?		Accepted	
21301	Sperow, Mark	2			2	Table 2.3: It may be useful under the third column title to include the variable that this addresses (EFCH4-Land).		Addressed	EF in first column will be deleted.
21302	Sperow, Mark	2			2	Table 2.5: There is no text to introduce this table or to explain what it contains. Please add additional text to introduce the table.		Accepted	add additional text to introduce the table.
21303	Sperow, Mark	2			2	Table 2A.2: None of the citations listed in this table are included in the references section. Please correct.		Accepted	
21304	Sperow, Mark	2			2	Table 2A.3: None of the citations included in this table are in the references section. Please correct.		Accepted	
21305	Stenhouse, Michel	2			2	Table 2.4. EFCH4_ditch_landscape values. Unless I'm mistaken, using Equation 2.5 I get '0.052' for the two entries' 0.041'; '0.023' for the entry '0.019'; and '2.95' for the last entry '1.605'?		Accepted with modification	equation will be checked
21306	Pipatti, Riitta	2	general			The revised/extended methodology may be too complicated taking into consideration the activity data available. Also, looking at the number of measured data available, and the fact that most of these data come from studies with limited geographic coverage, are not representative even for the countries they cover, further thought should be given whether the methodology is mature for use in national greenhouse gas inventories.		Accepted with modification	SOD will have some simplifications for Tier 1 compared to FOD.
21307	Pipatti, Riitta	2	78	78		The term "indirect CO2 emissions" has a special meaning for inventory compilers (CO2 from conversion of NMVOCs and CH4 in the atmosphere), therefore it is suggested that the "for indirect CO2 emissions associated with" is deleted.		Accepted.	text added
21308	Pipatti, Riitta	2	95	97		Please delete the sentence "The main difference between nineral soils and organic soils ….". This is not in line with current guidance and science relating to emissions/removals from mineral soils. Please consider deleting also the alst sentence " In organic soils ... until drainage is reversed". If the drainage has taken place a long time ago the soil properties may be closer to mineral than drained organic soils presently.		Accepted.	section has been revised
21309	Pipatti, Riitta	2	102	102		Check correctness of equation - the second "on-site" should be "off-site"		Accepted.	
21310	Pipatti, Riitta	2	150	150		Please expland the sentence "It is good practise to derive country-specific emission factors if experimental data are available" to contain some qualitave criteria like "representative ". Measured data from one or two sites at specific climate conditions may be completely unsuitable to represent an average national emission factor over time		Accepted.	section has been revised
21311	Pipatti, Riitta	2	158	160		Guidance on tier 3 is poor, expand with factors to consider when developing models or measurement-based approaches for drained organic soils. If this cannot be done, then refer only to guidance on general tier 3 methodologies in the 2006 IPCC GLs as well as to section 2.5.2 on model-based tier 3 inventories in Vol 4 of the 2006 IPCC GLs.		Accepted	Improve Tier 3 guidance
21312	Pipatti, Riitta	2	169	169		The emission factors should be given with one or max two meaningful numbers due the large uncertainties involved - now the emissons factor indicate false accuracy.		Accepted	we will use two decimal places
21313	Pipatti, Riitta	2	169	169		Boreal soil drained organic soils seem to be sinks for CO2 - in the 2006 IPCC GLs these soil where sources of CO2. What is the reason for the change - that emissions are now reported as "including litter and course woody debris" and/or because "off-site emissions from waterborne C losses" are reported separately? Are the revised emission factors really improving the accuracy of the estimates of making reporting more complicated? Comparability is lost when emission factors are provided using different criteria for different climate regions.		Accepted with modification	We use same approach through all climate zones, but so far, only aggregated figures are listed. It will be explained which pools are included in which number and how to deal with different included pools.
21314	Pipatti, Riitta	2	169	169		For cropland, grassland, shrubland and peat extraction lands emission factors are higher for boreal regions than for temperate regions - as decay or organic matter is a function of temperature, it would be good if this was explained (the small number of measurements may mean that the emission factors are not comparable and not representative for regions in question?).		Accepted with modification	Check when updating the table
21315	Pipatti, Riitta	2	195	208		Does the guidance apply only to land remaing in a specific land-use category - e.g. if a wetland is drained for agriculture, what guidance should be used? Disaggregation by drainage dept - to which tier is this guidance linked? Please define drainage depth.		noted	Guidance for land use change is provided later in the chapter
21316	Pipatti, Riitta	2	212	213		The statement "practices that are known to increase C input into mineral soils (fertilisation, liming, etc) do not have this effect in organic soils" - seems strange, e.g. if manure (fertiliser) is applied on organic soils there is an input of C to the soil, if the soil is limed, it has an impact on growth, and hence C balance, ... Suggest to delete the sentence.		Accepted.	Text has been revised
21317	Pipatti, Riitta	2	219	219		"will publish"? General on guidance for AD -- do soil maps provide all data needed for calculating the emissions, how about time series data?		Accepted with modification	Add guidance on AD and links to 2006 GL
21318	Pipatti, Riitta	2	226	229		Standard drainage depth - please expand?		Accepted	text was removed.
21319	Pipatti, Riitta	2	234	235		Please be more specific in the reference to 2006 IPCC GLs in relation to Tier 3 methods for drained organic soils		Accepted	Improve Tier 3 guidance
21320	Pipatti, Riitta	2	238	240		The EFs in table 2.1 are given separately for nutrient rich and nutrient poor soils only for boreal regions - please modify the last sentence to read: For boreal regions, forest land areas may be further stratified to nutrient rich and nutrient poor organic soils.		Accepted	Text has been revised
21321	Pipatti, Riitta	2	271	402		Are the single EF value given in table 2.2 representative - how is representatives determined? Also, the range for deltaDOCdrainage is large and the use of the single value will cause much unceratinty in the estimates for specific cases. Is the guidance mature for annual reporting in national greenhouse gas inventories?		Accepted with modification	the method is mature within the stated uncertainties.

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21322	Pipatti, Riitta	2	408	431		Drainage reduces CH4 emissions but this is not considered in the guidance - is the guidance balanced and giving the correct incentives for reducing emissions to mitigate climate change?		Rejected	the managed land proxy is used.
21323	Pipatti, Riitta	2	463	473		The guidance for CH4 emisisons from drainage ditches considers only the with of the ditch and avarege space between the ditches - how about the length of the ditches?		Accepted	changed to fractional ditch area
21324	Pipatti, Riitta	2	519	520		Why do ditches at nutrient poor boreal site have larger emissions than ditches in nutrient rich sites? Why are the emissions higher in boreal than in temperate forest and grassland sites but the oppiste for croplands and peatlands drained for extraction? Are the emission factors "representative"?		Accepted with modification	Table is not referring to ditches. Nevertheless, will will make clearer title for table 2.3. Explanation about water table may be added
21325	Pipatti, Riitta	2	519	520		Use only one or max to meaningful digits for the EFs to avoid giving a false indication of the accuracy of the EFs.		Accepted	we will use two decimal places
21326	Pipatti, Riitta	2	560	560		Table 2.4 - please provide the references to default values given in the table - published studies is not enough.		Accepted	references have been updated
21327	Pipatti, Riitta	2	621	621		Table 2.5: Use only one or max to meaningful digits for the EFs to avoid giving a false indication of the accuracy of the EFs.		Accepted	we will use two decimal places
21328	Pipatti, Riitta	2	621	621		N2O emissions from cropland are higher in temperate regions than in boreal, whereas vice versa applies for most other land-use categories - what is the reason for this? The number of sites for which measurements have been done are very few for some land-use categories and not given in all cases - are the new EFs really improvements to those in the 2006 IPCC GLs? Why have some reference used in the 2006 IPCC GLs not been considered here?		Accepted with modification	EF will be updated
21329	Pipatti, Riitta	2	621	621		The emission factor for all organic soils in boreal regions is determined based o 46 measurements from nutrient rich and 6 measurements in nutrient poor sites - is the emission factor derived correctly??		Rejected	EF is correct based on existing data
21330	Pipatti, Riitta	2	681	739		The guidance is the same for land drained more than a hundred years ago and those drained recently - no difference in the emissions?		Accepted	the interpretation is correct.
21331	Eggleston, Simon	2	3	6		I do not like "Cross-Cutting" in the title as it is not clear - cross cutting - across chapter, land type, activites - or what? "Greenhouse gas emissions and removals" is not needed as this is the subject of the whole volume. "Organic soils in all landuse categories" is WRONG as it does not cover coastal wetlands. Why not "Inland Organic Soils'		Accepted.	Drained inland organic soils in all land-use categories
21332	GARNEAU, Michelle	2	28			annual CO2 emissions		Accepted.	
21333	GARNEAU, Michelle	2	44			to derive ..		Accepted.	
21334	GARNEAU, Michelle	2	45	49		Table 2a.1, 2a.2, 2a.3 and 2a.4 in the list of Tables are 2A.1, 2A.2, 2A.3 and 2A.4 in the text.		Rejected.	The table numbers are correct. This is due to the Guidelines Style
21335	Joosten, Hans	2	52			1. this chapter is partly very weak. Not only are large parts of the text apparently the result of "cut and pase" by which all kind of aspects have entered into the text that have no relevance for organic soils (e.g. livestock). But also parts are repetitive and partly contradicting (e.g. on DOC). Apparently too little coordination has taken place in this chapter. 2. Furthermore the tropical parts give the impression that the authors have insufficent knowledge of organic soils and the literature about that by introducing methods that are 1) not tested, 2) conceptually wrong, 3) not supported by the expert community, 4) neglecting the vast body of evidence in literature and recent studies.. 3. It is incredible and unacceptable that the tropical part is solely based on the (contested) approach of one of the lead authors and compeltely neglects the vast work (of much higher quality) that has been done by others over the last decade... It seems that you have selected the wrong coordinating lead authors and lead authors in this respect...		Accepted with modification	1. Sections are being re-edited in SOD. 2. Efs are being updated. 3. additional CAs have been invited.
21336	Eggleston, Simon	2	58	58		not all as it is inland soils only		Accepted.	
21337	Joosten, Hans	2	61	61		e.g. add "cultivating" for cereals, add "or" rice , add "for" aquaculture		Accepted.	
21338	Joosten, Hans	2	63	69		line 63-69 contain much overlap. Optimize text!		Accepted.	Text has been improved.
21339	GARNEAU, Michelle	2	73			(referring to 2006_ IPCC)		Accepted.	
21340	Joosten, Hans	2	75	75		remove this bullet point		Accepted.	
21341	Eggleston, Simon	2	75	75		I do not think we need to split these by "gaps in 2006 GLS. Why not just a list of what the chapter contains?		Rejected.	It is important to highlight was is updated and what is new.
21342	Joosten, Hans	2	88	88		on CO2 - add space		Accepted.	
21343	GARNEAU, Michelle	2	88			management on _ CO2 emissions		Accepted.	
21344	Troxler, Tiffany	2	95			Are there any omissions for drained peatlands covered in Chapter 2 with only the focus on soils? For instance, with the greater coverage of wetland types, is there need to include new emission factors for biomass or DOM, as in the case of boreal peatlands? Are there management activities assocaited with drainage that would result in chnages in DOM or BG pools that arent covered in 2006 GLs? For instance, drained boreal peatlands would enhance decomposition of DOM and litter stocks. While inputs may be similar, outputs would increase. The Tier 1 assumption for forest remaining forest is that there is no change in DOM/litter stocks - this would not be appropriate if a forested peatland were drained.		Accepted	DOM guidance has been rovided
21345	Joosten, Hans	2	97	97		skip complete stop		Accepted.	
21346	GARNEAU, Michelle	2	97			negligible. In organic soils		Accepted.	
21347	Joosten, Hans	2	98	98		or until all organic material is oxidized (i.e. the soil stops being an organic soil)		Accepted.	Text has been clarified.
21348	Eggleston, Simon	2	98	98		"drainange is reversed" replace with "rewetted" as partial reversal can stop emissions if the sil is saturated		Accepted.	Text has been generalized.
21349	Troxler, Tiffany	2	99			land remaining in the same land category - is this the result of a drained peatland? This is clearly warranted when this guidance is used for land use categories other than peatlands (forest land, cropland, etc) but what about for peatlands?		Rejected.	This is a misunderstanding since peatlands are not land-use categories in the Guidelines. In contrast, peatlands are considered as organic soils in any land-use category.
21350	Troxler, Tiffany	2	102			I would like to see exactly how this equation feeds into generic equations of Chapter 2 2006 GLs		Accepted.	On-site is 2006 GL update and off-site is new.
21351	Joosten, Hans	2	104	104		change to "off-site"		Accepted.	
21352	Joosten, Hans	2	108	108		what with losses of particulate organic carbon that are not waterborne but air-borne (dust storms from arable land and dust losses from milled peat extraction)?		Accepted.	There is not enough scientific material to include dust losses.
21353	Troxler, Tiffany	2	111			the wetlands land-use category in the 2006GLs needs to be resolved - the text here implies that the coverage of Ch2 in terns of wetlands will be very limited (limited to peat extraction lands)		Rejected.	This is a misunderstanding. The text has been clarified.
21354	Eggleston, Simon	2	111	116		This seems to duplicate the chapter introduciton		Accepted.	This has been moved to the introduction.
21355	GARNEAU, Michelle	2	126	128		Within each land-use category… geological seetings is a parameter to consider as well		Accepted.	There is not enough scientific material to include geological seeting. Bog versus fen is considered where appropriate.
21356	Joosten, Hans	2	129	129		why only when they are wetter? Why not when they are drier?		Accepted.	keep it flexible - say different from the drainage range given in table 2.1
21357	Joosten, Hans	2	134	134		skip full stop		Accepted.	
21358	GARNEAU, Michelle	2	134			2006 IPCC Guidelines :		Accepted.	
21359	Joosten, Hans	2	144	144		skip "also"		Accepted.	
21360	Joosten, Hans	2	148	149		skip highlighted part, because it give unnecessary focus to Forest Land "in forest land or other land-use categories.		Accepted.	Text has been altered.
21361	GARNEAU, Michelle	2	150			country-specific emissions factors (is) if experimental data are available		Accepted.	
21362	Eggleston, Simon	2	169	169		for use by inventory compilers consistent uncertainties are needed - 95%iles		Accepted.	Cis have been used
21363	Joosten, Hans	2	172	173		drainage classes are not only "provided" by climatic factors but also by depth, intensity and type of installed drainage structures (ditches, tubes, pumps). Within the same climate various drainage depths will exist.		Accepted	Drainage ranges for which Tier 1 is representative will be given. Higher Tiers can differentiate more.
21364	Joosten, Hans	2	183	183		and airborne?		Accepted.	There is not enough scientific material to include dust losses.

<Review comments on First Order Draft of Chapter 2 of Wetlands Supplement>

ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21365	Joosten, Hans	2	205	205		in forestry production systems. - why limit this statement to forestry. This equally applies to oithe rland use categories...		Accepted.	Text has been altered.
21366	Joosten, Hans	2	206	206		disaggregation is not useful in improving the accuracy of the inventory - this statement is not valid for other land use categories (where there is a clear differentiation in drainage depth depending on different types of cultures. It also does not apply to forestry where different drainage depths are applied. E.g. Alder forestry can happen under very wet, even net peat accumulating conditions		Accepted.	Text has been altered.
21367	Joosten, Hans	2	211	211		For Tier 1 - Replace "For" by "The" & skip comma after approach		Accepted.	Text has been altered.
21368	Joosten, Hans	2	212	212		skip comma after C stock		Accepted.	Text has been altered.
21369	GARNEAU, Michelle	2	220			remove period after resolution		Accepted.	Text has been altered.
21370	Joosten, Hans	2	223	223		skip "s" of follows		Accepted.	Text has been altered.
21371	Joosten, Hans	2	226	228		skip the sentence: see remark under tier 1 ("in many instances…")		Accepted.	Text has been altered.
21372	Joosten, Hans	2	232	234		as the reporting and accounting is on an annual basis, seasonal variations in emisisons are/sjhould be included in the annual emission factors. Also the annual average water level as a robust proxy includes seasonal water level differences.		Accepted.	Text has been altered.
21373	Joosten, Hans	2	239	240		why only in forest land, why not in grassland (cf. blanket bog grazing)?...		Rejected.	Tier 1 only differentiates between nutrient-rich and poor for Forest Land.
21374	Troxler, Tiffany	2	239	240		why only forest land?		Rejected.	Tier 1 only differentiates between nutrient-rich and poor for Forest Land. However, Clarification was included.
21375	Joosten, Hans	2	241	242		do you mean "climate zone"? Then say that: use your terms consistently!		Accepted.	
21376	Joosten, Hans	2	251	251		(i.e., …) -> move to after "to be reduced"		Accepted.	
21377	GARNEAU, Michelle	2	253			For Tier 1, (A) a..		Accepted.	
21378	Eggleston, Simon	2	253	253		for use by inventory compilers consistent uncertainties are needed - 95%iles		Rejected.	This is the uncertainty level and not the confidence interval. Text has been clarified.
21379	Joosten, Hans	2	254	254		add "a" before "default"		Accepted.	
21380	Joosten, Hans	2	254	254		skip "s" of soil-climate type's'		Accepted.	
21381	Joosten, Hans	2	270	270		soil types. -> specify further: this chapter is only dealing with organic soils.		Accepted.	
21382	GARNEAU, Michelle	2	276			Billet et al, 2004. Not in the references list		Accepted	
21383	GARNEAU, Michelle	2	277			Rowson et al, 2010. Not in the reference list		Accepted	
21384	Joosten, Hans	2	278			It is relevant to discuss here to what extent DOC is derived from the long-term SOC pool. Much DOC is very young and not derived from the peat pool. Furthermore non-organic soils often have similar DOC outputs as organic soils, indicating that DOC is to a large extent derived from young carbon, i.e. should be considered an output of the litter pool, not of the SOC pool.		Accepted with modification	Point is correct, but does not affect Efs based on a full input-output flux approach. Also, clear that DOC does come from deeper peat in drained systems, and
21385	WINDHAM-MYERS, Lisamarie	2	285			Discussion of drainage channel impacts focus on CO2, but should focus instead on CH4 and N2O which might be 1000x greater from drainages.		Addressed	CH4 from drainage channels (on-site emission) is included in later section. Dissolved (off-site) CH4 and N2O fluxes are negligible
21386	GARNEAU, Michelle	2	286			Dinsmore et al, 2011. Not in the reference list		Accepted	
21387	Troxler, Tiffany	2	286	287		is this relevant if eddy flux methods are not covered here?		Rejected	Eddy flux measurements included in EF calculations
21388	GARNEAU, Michelle	2	288	289		Urban et al, 1989; Dawson et al, 2004; Jonsson et al, 2007; Dinsmore et al, 2011. Not in the reference list		Accepted	
21389	GARNEAU, Michelle	2	291			Appendix A.X		Accepted	
21390	GARNEAU, Michelle	2	305			Fieldler et al, 2008. Not in the reference list		Accepted	
21391	Troxler, Tiffany	2	308			why is this "indirect"?		Accepted	Replace with off-site?
21392	Troxler, Tiffany	2	308	320		it's confusing to draw upon Eq 2.26 because that equation was not intended for DOC losses and in fact the Eq 2.3A that is presented indicates as such (i.e. EF_{DOC}) - my suggestion would be to delete this and focus on the presentation and guidance assocaited with EQ 2.3B. Furthermore, default factors are only provided for Eq 2.3B		Accepted	Addressed in earlier comment - will note equation consistent with but not the same as
21393	Troxler, Tiffany	2	323	326		are data available that would permit disaggregation by nutrient status?		Accepted	Some disaggregation by bogs vs fens to be undertaken
21394	Joosten, Hans	2	338	339		also airborne!		Accepted	Added to Appendix
21395	Troxler, Tiffany	2	340	341		these studies should be cited here		Accepted	Refer to Annex 2A.1
21396	Troxler, Tiffany	2	342	343		if you add natural DOC flux to drained condition flux for the drained land that enters into reporting, does that not overestimate DOC losses since they are not consider in the "unmanaged" condition? Is this consistent treatment for other components of the C pool/CO2 flux?		Rejected	All fluxes included according to MLP
21397	GARNEAU, Michelle	2	366			Use of alternative		Accepted	
21398	GARNEAU, Michelle	2	397			Table 2.4 not in the text		Accepted	Tables to be re-numbered
21399	Joosten, Hans	2	408			the language in this chapter is insufficiently adapted to the current focus of the chapter. Apparently much is derived from texts on CO2 and on peat extraction without sufficient modification to address methane emissions from all kind of land use.		Accepted	Will be rewritten in SOD
21400	Joosten, Hans	2	410	410		peatlands involve… -> add "generally"		Accepted	Text added
21401	Joosten, Hans	2	416	416		clarify: does it decrease the amount of easily decomposable mattter because this matter is more rapdily decomposed (which would be an pleonasm) or does the input of easily decomposable matter decrase. If so; how?		Accepted	Text needs clarification, replace "easily decomposable" by "labile'
21402	GARNEAU, Michelle	2	417			Blodau, 2002; Treat et al, 2007; Murdiyarso et al, 2010. Not in the reference list		Accepted	
21403	Joosten, Hans	2	418	418		replace the value loaden "mitigates" by "decreases". Furthermore methane oxidation is not coupled to root respiration (which produces CO2), but to oxidizing conditions in the rhizosphere. Increased root respiration would (as it is coupled to plant productivity) even increase methane emissions (by larger root exudate release) if not the methane was oxidized by methanotropic microbes in the aerated soil zone.		Accepted	text to be changed
21404	Troxler, Tiffany	2	419	421		this implies that changes in vegetation influence flux from the soil - the CO2 guidance does not take this into account - argues for providing guidance on other pools (biomass)		Accepted	clarify how to address the other C pools in the introduction of CH 2
21405	Joosten, Hans	2	425	425		further source - > why further, you have not talked yet about the first source…		Accepted	Tedt has been revised
21406	GARNEAU, Michelle	2	427			Roulet and Moore 1995: Not in the reference list. Van der Pol- Van Dasselaar et al 1999 a or b from the reference list		Accepted	References have been updated
21407	GARNEAU, Michelle	2	428			Teh et al, 2011; Vermaat et al, 2011. Not in the reference list		Accepted	References have been updated
21408	Joosten, Hans	2	429	429		CH4 flux from undrained peatlands -> per m2 or per km2 drained area or what?		Accepted	clarify that it means equivalent land area
21409	GARNEAU, Michelle	2	429			Schrier-Uijl et al, 2011. 2010 in the reference list		Accepted	
21410	GARNEAU, Michelle	2	431			(See Annex 2A.1)		Accepted	Annex 2a.1
21411	Joosten, Hans	2	438	438		why "almost"? What are other forms of information?		Accepted	text has been revised
21412	GARNEAU, Michelle	2	439			Hirano et al, 2007; Not in the reference list		Accepted	References have been updated
21413	Joosten, Hans	2	443	443		of the drainage ditches. add: "and of the drainage ditch network."		Accepted	clarify text.

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21414	Troxler, Tiffany	2	446	466		how are these equations integrated into overall reporting? Please provide an overall equation that illustrates how these parameters are integrated - consider consistency with chapters 3, 4 and 5		Accepted	equation 2.4 will be re-edited and 2.5 deleted.
21415	Joosten, Hans	2	488	488		drainage depth the management -> replace "the" by ","		Accepted	
21416	Troxler, Tiffany	2	495	520		this section would really benefit from a step-by-step example - please consider providing in a text box		Accepted	Add step-by-step section for Tier 1 for whole revised equation 2.4.
21417	Joosten, Hans	2	501	501		tropical peat -> replace "peats" by "peatlands"		Accepted	
21418	Joosten, Hans	2	506	506		under the natural peat vegetation and managed systems. -> incomprehensible. What does this statements wants to say?		Accepted	clarify text.
21419	Joosten, Hans	2	508	508		relevant factor -> add "s" -> factors		Accepted	
21420	Joosten, Hans	2	509	509		perhaps because of the low CH 4 emission of managed peatlands. -> skip this unnecessary speculation...		Accepted	clarify text.
21421	Joosten, Hans	2	510	510		and extraction practices -> skip to keep the statement more general, as it also applies to drained peatland under agriculture and forestry.		Accepted	clarify text.
21422	Joosten, Hans	2	512	512		replace "for example" by "as"		Rejected	Misunderstanding, the meaning of the sentence would be changed.
21423	GARNEAU, Michelle	2	513			same comment for Schrier-Uijl et al, 2011. 2010 in the reference list		Accepted	
21424	Joosten, Hans	2	518	519		table 2.3: Emission factors (t C / ha*yr) -> what kind of unit is this to express CH4? and what an enormous fluxes are apparently involved... -->check, correct and improve		Accepted	Units have been standardized
21425	GARNEAU, Michelle	2	518			Table 2.3 : 3rd column: Emission factor		Accepted	
21426	GARNEAU, Michelle	2	518	519		Makiranta et al. 2007: Verify the name (Makıranta), not the same in the references (Mäkiranta).		Accepted	
21427	GARNEAU, Michelle	2	518	519		Nykanen et al. 1998: Verify the name (Nykanen), not the same in the references (NyKänen).		Accepted	
21428	GARNEAU, Michelle	2	518	519		Von Arnold et al. 2005d: Verify the name (Von Arnold), not the same in the references (von Arnold).		Accepted	
21429	GARNEAU, Michelle	2	518	519		Sikstrom et al. 2009: Verify the name (Sikstrom), not the same in the references (Sikström).		Accepted	
21430	GARNEAU, Michelle	2	518	519		Jauhiainen et al. 2008: not in the references		Accepted	
21431	GARNEAU, Michelle	2	518	519		Hirano et al. 2009: not in the references		Accepted	
21432	GARNEAU, Michelle	2	518	519		Regina et al. 2007: not in the references		Accepted	
21433	GARNEAU, Michelle	2	518	519		Hadi et al. 2001: Verify the year (2001), not the same in the references (2000).		Accepted	
21434	GARNEAU, Michelle	2	518	519		Melling et al. 2005: not in the references		Accepted	
21435	GARNEAU, Michelle	2	518	519		Watanabe et al. 2009: not in the references		Accepted	
21436	GARNEAU, Michelle	2	518	519		Inubushi et al., 1998: not in the references		Accepted	
21437	GARNEAU, Michelle	2	518	519		BMBF Report 2006-10: not in the references		Accepted	
21438	Troxler, Tiffany	2	518	519		again, with Table 2.3 - emission factors for wetlands seem to be missing - this approach needs clarificaiton and needs to be consistent across chapters		Accepted	delete line for tropical peat extraction areas
21439	Troxler, Tiffany	2	518	519		temperate peatlands drained for extraction - that's a really high number		Accepted	Efs will be checked and updated
21440	Joosten, Hans	2	525	525		temperate region -> why there and not elsewhere?		Accepted	clarify text that temperate and boreal are stratified by nutrient-rich and -poor but not the tropics.
21441	Joosten, Hans	2	538	538		paddy systems are rice, i.e. sector agriculture; "plantations" -> generalize to "forms of agriculture and forestry"		Accepted	clarify text.
21442	Joosten, Hans	2	539	539		replace "production" by "extraction" to avoid confusion with peat accumulation		Accepted	text revised
21443	WINDHAM-MYERS, Lisamarie	2	558			Again, I am anot sure we really know enough about this management approach to quantify it at this level (e.g. ditch emission factors could be reduced by wider spacing).		Accepted	Method will use fractional ditch area. It is not a mitigation option but a methodology.
21444	GARNEAU, Michelle	2	566			Aulakh et al. 1984: not in the references		Accepted	
21445	Troxler, Tiffany	2	576			careful attention to double-counting is warranted here		Accepted	Double-counting is avoided by clear guidance about pools.
21446	GARNEAU, Michelle	2	580			inadequate ou adequate?		Accepted	clarify text.
21447	Joosten, Hans	2	589	591		Equation 2.6: why such complex equation that includes all possibilities. Why not follow the approach of the other paragraphs/chapters?		Accepted	Equation is from 2006 GL
21448	GARNEAU, Michelle	2	614			The 2006		Accepted	
21449	Joosten, Hans	2	618	619		In all cases the residual bottom peat layers consist of minerogenous but recalcitrant fen peat. -> This is not true. Where peat extraction focuses on providing horticultural substrates and not fuel (e.g. in Canada) peat extractio sites are abandoned when the slightly humified peatmoss peat is exhausted, not when fen peat has been reached so that the residual peat is often a bog peat. What is meant with "recalcitrant"? That no nitrogen mineralisation is taking place? I don't think this is true...		Accepted	Delete the sentence.
21450	GARNEAU, Michelle	2	618			Why specify poor bogs and rich fens. Just keep bogs and fens. Minerotrophic peatlands are not always rich fens. They can be moderate or poor fens as well.		Accepted	text has been revised
21451	GARNEAU, Michelle	2	619			consist of minerogenous but recalcitrant fen peat - Use: consist of recalcitrant minerogenous peat		Accepted	Delete the sentence.
21452	Joosten, Hans	2	620	621		table 2.5: the tropical data are generally too low when compared to the literature (see e.g. Couwenberg et al. 2010 GCB)		Accepted with modification	Efs will be checked and updated
21453	GARNEAU, Michelle	2	620	621		Von Arnold et al 2005d et al. 2005d: Verify for repeated words		Accepted	
21454	GARNEAU, Michelle	2	620	621		Jaakola 1985: Verify the name (Jaakola), not the same in the references (Jaakkola).		Accepted	
21455	GARNEAU, Michelle	2	620	621		Van Beek et al. 2010: Verify the name (Van Beek), not the same in the references (van Beek).		Accepted	
21456	Troxler, Tiffany	2	620			it looks as if there are maybe 5 or so new refs added since 2006GLs based on the dates? Are there not more new data available?		Accepted with modification	Efs will be checked and updated
21457	GARNEAU, Michelle	2	627			Verchot et al., 2005: Verify the year (2005), not the same in the references (2006).		Accepted	
21458	GARNEAU, Michelle	2	627			Ishizuka et al., 2005: Verify the name (Ishizuka), not the same in the references (Ishizuk).		Accepted	
21459	Joosten, Hans	2	629	629		measurements on of -> skip "on"		Accepted	
21460	Joosten, Hans	2	636	636		C:Nratio -> insert space		Accepted	
21461	GARNEAU, Michelle	2	636	637		C:N ratios		Accepted	
21462	Joosten, Hans	2	637	637		C:Nratio -> insert space		Accepted	
21463	Troxler, Tiffany	2	683			is this coverage complete? - can we assume that the change from a peatland to a drained peatland is the same as a drained peatland to a drained peatland? What about drainage depth? Are there activities (beyond ditching) that result in a particular drainage depth and thus emission that would on average be different from another activity? More fundamentally, do emissions change over time? Are the uncertainities the same as well?		Accepted	Section has been revised. Deeper drainage in the same land use could be a higher Tier in land remaining land… Include it there.
21464	Joosten, Hans	2	686	686		ofCO2 -> insert space		Accepted	
21465	GARNEAU, Michelle	2	686			management on _ CO2 emissions		Accepted	
21466	Joosten, Hans	2	688	688		(peat decomposition)"," -> insert comma		Accepted	
21467	Joosten, Hans	2	690	690		this generally concerns changes in ltter and deadwood pools, not in the soil pool. Keep the pools separated and don't include the (short term) litter pool into the (longer term) SOC pool. See also 2006 Guidelines section 2.3.3 that proposes addressing emisisons from organic soils only via emissions, not via stock changes		Accepted	Section has been revised and guidance by pool be given.
21468	Joosten, Hans	2	697	697		we assume that -> skip this text, because it is not an assumption, but a clear fact, as is shown by long-term subsidence measurements.		Accepted	

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21469	Troxler, Tiffany	2	713			off-site is confusing - why not just delete this and call it "CO2 emissions from waterborne carbon"?		Rejected	on-site and off-site is clearer because waterborne carbon is not a defined IPCC pool.
21470	GARNEAU, Michelle	2	741			remove: listed in Table 2A.1		Accepted	
21471	Joosten, Hans	2	745	745		change "extensive" to "low-intensity". Also in table 2A.1		Accepted	
21472	Joosten, Hans	2	752	753		table 2A.1: change "Minkinnen" to "Minkkinen"		Accepted	
21473	GARNEAU, Michelle	2	752	753		Schrier-Uijl et al. (2009,2011): Verify the years (2009, 2011), not the same in the references (2010).		Accepted	
21474	GARNEAU, Michelle	2	752	753		Vermaat et al (2011): not in the references		Accepted	
21475	GARNEAU, Michelle	2	752	753		Best & Jacobs (1997): not in the references		Accepted	
21476	GARNEAU, Michelle	2	752	753		McNamara et al (2012): not in the references		Accepted	
21477	GARNEAU, Michelle	2	752	753		Sirin et al (2012): not in the references		Accepted	
21478	GARNEAU, Michelle	2	752	753		Chistotin et al (2006): not in the references		Accepted	
21479	GARNEAU, Michelle	2	752	753		Teh et al (2011): not in the references		Accepted	
21480	GARNEAU, Michelle	2	752	753		Hendricks et al (2007,2010): not in the references		Accepted	
21481	GARNEAU, Michelle	2	752	753		Roulet & Moore (1995): not in the references		Accepted	
21482	GARNEAU, Michelle	2	752	753		Glagolev et al (2008): not in the references		Accepted	
21483	GARNEAU, Michelle	2	752	753		Cooper et al (2012): not in the references		Accepted	
21484	GARNEAU, Michelle	2	752	753		Jauhiainen et al (2012): not in the references		Accepted	
21485	GARNEAU, Michelle	2	758			Gorham, 1991: not in the references		Accepted	
21486	Joosten, Hans	2	759	759		be sufficient to -> skip this text(= better language)		Accepted	text has been revised
21487	GARNEAU, Michelle	2	759			Turunen et al., 2004: not in the references		Accepted	
21488	Joosten, Hans	2	760	760		skip "new". Is irrelevant and confusing		Accepted	
21489	GARNEAU, Michelle	2	760			Billett et al., 2004: not in the references		Accepted	
21490	GARNEAU, Michelle	2	760			Rowson et al., 2010: not in the references		Accepted	
21491	GARNEAU, Michelle	2	783	784		Koprivnjak & Moore (1992): not in the references		Accepted	
21492	GARNEAU, Michelle	2	783	784		Juutinen et al (in prep): not in the references		Accepted	
21493	GARNEAU, Michelle	2	783	784		Jager et al (2009) : not in the references		Accepted	
21494	GARNEAU, Michelle	2	783	784		Moore (2003): not in the references		Accepted	
21495	GARNEAU, Michelle	2	783	784		Strack et al (2008): not in the references		Accepted	
21496	GARNEAU, Michelle	2	783	784		Agren et al (2007): not in the references		Accepted	
21497	GARNEAU, Michelle	2	783	784		Kortelainen et al (2006): not in the references		Accepted	
21498	GARNEAU, Michelle	2	783	784		Rantakari et al (2010): not in the references		Accepted	
21499	GARNEAU, Michelle	2	783	784		Moore et al (2003) : not in the references		Accepted	
21500	GARNEAU, Michelle	2	783	784		Nilsson et al (2008) : not in the references		Accepted	
21501	GARNEAU, Michelle	2	783	784		Urban et al (1989) : not in the references		Accepted	
21502	GARNEAU, Michelle	2	783	784		Kolka et al (1999) : not in the references		Accepted	
21503	GARNEAU, Michelle	2	783	784		Roulet et al (2007): not in the references		Accepted	
21504	GARNEAU, Michelle	2	783	784		Clair et al (2002): not in the references		Accepted	
21505	GARNEAU, Michelle	2	783	784		Dawson et al (2004): not in the references		Accepted	
21506	GARNEAU, Michelle	2	783	784		Dinsmore et al (2011) : not in the references		Accepted	
21507	GARNEAU, Michelle	2	783	784		Billett et al (2010) : not in the references		Accepted	
21508	GARNEAU, Michelle	2	783	784		Koehler et al (2009, 2011): not in the references		Accepted	
21509	GARNEAU, Michelle	2	783	784		Di Folko & Kirkpatrick (2011) : not in the references		Accepted	
21510	GARNEAU, Michelle	2	783	784		Baum et al (2008) : not in the references		Accepted	
21511	GARNEAU, Michelle	2	783	784		Alkhatib et al (2007): not in the references		Accepted	
21512	GARNEAU, Michelle	2	783	784		Yule et al (2009): not in the references		Accepted	
21513	GARNEAU, Michelle	2	783	784		Zulkifli (2002) : not in the references		Accepted	
21514	GARNEAU, Michelle	2	783	784		Moore et al (2011) : not in the references		Accepted	
21515	Joosten, Hans	2	792	792		replace "dryer" with "drier"		Accepted	
21516	GARNEAU, Michelle	2	800	801		Moore et al (2007): not in the references		Accepted	
21517	GARNEAU, Michelle	2	800	801		Urbanova et al (2011) : not in the references		Accepted	
21518	GARNEAU, Michelle	2	800	801		Wallage et al (2006): not in the references		Accepted	
21519	GARNEAU, Michelle	2	800	801		Inubushi et al (1998): not in the references		Accepted	
21520	GARNEAU, Michelle	2	800	801		Moore et al (2012): not in the references		Accepted	
21521	GARNEAU, Michelle	2	809			Cole et al., 2007: not in the references		Accepted	
21522	GARNEAU, Michelle	2	809			Wickland et al., 2007: not in the references		Accepted	
21523	GARNEAU, Michelle	2	809			Battin et al., 2009: not in the references		Accepted	
21524	GARNEAU, Michelle	2	811			Opsahl and Benner, 1998: not in the references		Accepted	
21525	GARNEAU, Michelle	2	811			Dawson et al. (2001): not in the references		Accepted	
21526	GARNEAU, Michelle	2	812			Jonsson et al (2007): not in the references		Accepted	
21527	GARNEAU, Michelle	2	816			Worrall et al. (2012): not in the references		Accepted	
21528	GARNEAU, Michelle	2	819			Bianchi, 2011: not in the references		Accepted	
21529	GARNEAU, Michelle	2	819	820		Opsahl and Benner, 1997: not in the references		Accepted	
21530	GARNEAU, Michelle	2	827			Yallop et al., 2010: not in the references		Accepted	
21531	GARNEAU, Michelle	2	827			Di Falco et al., 2011: not in the references		Accepted	
21532	GARNEAU, Michelle	2	827	828		Ward et al., 2007: not in the references		Accepted	
21533	GARNEAU, Michelle	2	828			Worrall et al., 2007b: not in the references		Accepted	
21534	Troxler, Tiffany	2	833			appendix 2a.1 is entitled to cover POC but lines 869 address a different subject altogether - what's missing?		Accepted	Second appendix heading was missing.

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21535	Joosten, Hans	2	839	839		conversion to arable and peat extraction -> add: "and by other activities that cause bare peat surfaces, such as arable agriculture and overgrazing" (in most mountain peatlands overgrazing is the main cause of peat erosion)		Accepted	add to text.
21536	GARNEAU, Michelle	2	841			Pawson et al., 2008 : not in the references		Accepted	
21537	GARNEAU, Michelle	2	841			Worrall et al., 2011: not in the references		Accepted	
21538	GARNEAU, Michelle	2	848			Evans et al., 2012: not in the references		Accepted	
21539	GARNEAU, Michelle	2	867			for amount of POC		Accepted	correct text.
21540	Joosten, Hans	2	869			what is the status of this part? Is this an extra Annex or appendix? Why does it feature under Appendix 2a.1 that according zo its title should deal with POC???		Accepted	Second appendix heading was missing.
21541	Joosten, Hans	2	873	873		replace "wetland" by "organic"		Accepted	
21542	Joosten, Hans	2	874			why do you describe a method for mineral soils in a chapter on organic soils??? The Guidelines explicitly say that organic soils have to be addressed via fluxes, not via stock changes…		Accepted	text has been revised
21543	Joosten, Hans	2	883	937		I doubt whether it is useful to include this technical information. It has no relevance for the Supplement.		Accepted	text has been revised
21544	Joosten, Hans	2	883	883		??? the normal soil flux measurements /e.g. chamber and eddy measurments with correction for biomass, dead wood and litter changes and DOC export is such gain-loss method... Very good examples are the complete balances made of GHg fluxes. Keep in mind: the aim is the assessment of the fluxes, stock changes are only proxies for flluxes		Accepted	text has been revised
21545	Joosten, Hans	2	885	885		this is a stupid remark, because in peatlands the 30 cm does not remain the same but moves down in case of peat oxidation... Furthermore: why would you limit a stock change approach to 30 cm. relevant is that you asssess soil stock changes related to a stable constant reference		Accepted	text has been revised
21546	GARNEAU, Michelle	2	885			Hergoualc'h and Verchot, 2011: not in the references		Accepted	
21547	Joosten, Hans	2	888	888		replace "formation" by "deposit" to make clear that you are not referring here to the process (the formation) but to the result (that what has been formed = the deposit). Furthermore it are not the non-systematic differences in thickness (and C-content!!) of the peat deposit (because that could be solved by adequate sampling), but the fact that the stockxs are so large that the stock changes fall within the uncertainty of the stock values....		Accepted	
21548	GARNEAU, Michelle	2	888			Verwer and van der Meer, 2010: not in the references		Accepted	
21549	GARNEAU, Michelle	2	888			Kool et al., 2006: not in the references		Accepted	
21550	Joosten, Hans	2	889	889		replace "formation" by "deposit" to make clear that you are not referring here to the process (the formation) but to the result (that what has been formed = the deposit). Furthermore it are not the non-systematic differences in thickness (and C-content!!) of the peat deposit (because that could be solved by adequate sampling), but the fact that the stockxs are so large that the stock changes fall within the uncertainty of the stock values....		Accepted	
21551	Joosten, Hans	2	890	890		during sampling -> this is a matter of chosing adequate sampling techniques and methodologies…		Accepted	
21552	GARNEAU, Michelle	2	891			Murdiyarso et al., 2010: not in the references		Accepted	
21553	Joosten, Hans	2	893	893		all peats are heterogenous when observed on a fine scale and homogeneous when observed on a sufficiently coarse scale. This is again an issue of chosing the right methodologies.		Accepted	
21554	Joosten, Hans	2	894	895		Why should they? The issue is about fluxes. Stock changes are only a proxy for fluxes. Thinking that the issue is about stock changes is a mistake brought about by the severe forest bias in LULUCF thinking. Eventually you want to lknow the fluxes and you have to identify proxies that provide you with hat information as easily and cheaply as possible. In some cases methods that look like stock change methods may provide such good proxies, e.g. subsidnece measurements, provicded that you have adequate methodologies to separate between the oxidation and compaction components (which is well possible).		Accepted	text has been revised
21555	Joosten, Hans	2	896	899		highlighted -> instead of coming with such unspecified and partly wrong accusations, it would be better to come with guidance which aspects have to be taken into account to arrive at the best possible estimates.		Accepted	text has been revised
21556	Joosten, Hans	2	896	896		soil organic matter pool -> the focus is not on the pools, that is putting the world upside down: the focus should be on the fluxes.		Accepted	text has been revised
21557	GARNEAU, Michelle	2	898			Hooijer et al., 2010: not in the references		Accepted	
21558	GARNEAU, Michelle	2	898	899		Hadi et al., 2005: not in the references		Accepted	
21559	Joosten, Hans	2	899	899		incomplete measurements -> there is not such a thing as a complete measurement in this business, the aim is to measure as good as practically possible. And therefore it has to be specified in which way you can reach that and what the pitfalls are from doing it otherwise.		Accepted	text has been revised
21560	Joosten, Hans	2	901	901		Gain-Loss method -> a good subsidence proxy is also a gain-loss method as it assesses the carbon losses of the soil compartment above the level where a constance in bulk densities indicates that no compaczion and oxidation have taken place		Accepted	text has been revised
21561	Joosten, Hans	2	906			what is the status of this part? Is this an extra Annex or appendix? Why does it feature under Apopendix 2a.1 that accoring zo its title should deal with POC???		Accepted with modification	Second appendix heading was missing.
21562	Joosten, Hans	2	907	908		our efforts to estimate the effects of land use change and management on -> replace the highlighted text by "assess GHG fluxes to and from"		Accepted	text has been revised
21563	Joosten, Hans	2	909	909		individual flux measurements -> what is meant with that? Specify which method(s) you are referring to.		Accepted	text has been revised
21564	Joosten, Hans	2	910	910		apparently the authors have missed the substantial work done by Hooijer and Jauihainen....		Accepted with modification	Both will be CAs.
21565	GARNEAU, Michelle	2	910			Couwenberg et al. 2010: not in the references		Accepted	
21566	Joosten, Hans	2	911	912		also EC and chambers have each there own methodological problems that are not smaller than the subsidence method. Furthermore the authors co,mpeltely miss the point that complex and expensive methods (suchs as EC and cahmbers) may be useful for research and for calibrating proxies, but are completely unsuitable fo standard monitoring, reporting and accounting of national data... (which is more practical and much cheaper and		Accepted with modification	text has been revised
21567	Joosten, Hans	2	913	929		I doubt whether it is useful to include this technical information. It has no relevance for the Supplement.		Addressed.	text has been revised
21568	GARNEAU, Michelle	2	914	915		Baldocchi 2003: not in the references		Accepted	
21569	GARNEAU, Michelle	2	920	921		eddy covariance methods require additional measurements of different important components of the ecosystem carbon budget … Specify the components		Accepted	
21570	GARNEAU, Michelle	2	926			Lasslop et al., 2010: not in the references		Accepted	
21571	GARNEAU, Michelle	2	928	929		Hanson et al 2000: not in the references		Accepted	
21572	Joosten, Hans	2	936	937		highlighted		Accepted	
21573	GARNEAU, Michelle	2	936	937		Welker et al., 2004: not in the references		Accepted	
21574	Joosten, Hans	2	939	940		Litterfall and deadwood... -> there is no indication that this would provide a good proxy for changes in the soil carbon pool. Peat analysis from all over the world show that inthe temperate, subtropic and tropical zones above ground material (biomass, litter) does not contribute to peat formation, i.e. not to an increase in the SOC pool. If this is not so under peat accummulating conditions, it will certainly not be so under peat oxidizing conditions. Ergo: this is a purely theoretical approach which has no link with reality....		Accepted	text has been revised
21575	GARNEAU, Michelle	2	941	942		Tuomi et al., 2009: not in the references		Accepted	
21576	Joosten, Hans	2	942	942		... are also useful -> interesting, nut we are not waling here with the litter pool but with the SOC i.e. the peat pool. Keep the pools separated becaus either age and temporal dynamics are compiletely different.		Accepted	text has been revised
21577	Joosten, Hans	2	953	953		or livestock -> we are talking soil here....		Accepted	
21578	Joosten, Hans	2	954	954		livestock...idem...		Accepted	
21579	Joosten, Hans	2	956	956		livestock...idem...		Accepted	
21580	GARNEAU, Michelle	2	967			0.1 to 0.2 MgC ha y in boreal and subarctic systems (Robinson and Moore, 1999; van Bellen et al, 2011 and Lamarre et al, in press). Note that Robinson and Moore worked in high boreal of Canada not arctic		Accepted	rephrased to "boreal"
21581	GARNEAU, Michelle	2	967			Robinson et Moore, 1999: not in the references		Accepted	
21582	GARNEAU, Michelle	2	968			Dommain et al., 2011: not in the references		Accepted	
21583	GARNEAU, Michelle	2	968			Page et al., 2004: not in the references		Accepted	

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ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21584	GARNEAU, Michelle	2	969	971		I disagree with the assumtion of not accounting for sinks. The lost of sink with deforestation or agriculture does not correspond to peatlands sinks as the latter do not represent only surface vegetation and soils but include tons of carbon accumulated through time (millenia). This historical inheritage cannot be discounted. It should be estimated by how much has been lost in terms of sinks	Attachment_21584.pdf	Rejected	this is the managed land proxy.
21585	Joosten, Hans	2	972	972		change "are" to "to be"		Accepted	
21586	Joosten, Hans	2	973	974		this means… -> firstly this is not the same, because the approach as it is decribed would neglect the outputs. Secondly it is for this reason wrong! You can not have a steady state when you only consider the input.		Accepted	text has been revised
21587	WINDHAM-MYERS, Lisamarie	2	979			Is there a typo within this sentence?		Accepted	text has been revised
21588	Joosten, Hans	2	980	981		between land converted to a new land use and land converted to a new land use -> rephrase because apparently wrong.		Accepted	text has been revised
21589	Joosten, Hans	2	983	983		wetlands -> we are talking soils here....		Accepted	text has been revised
21590	Joosten, Hans	2	985	986		Carbon inputs to the soil were derived from litterfall and root mortality data in the literature -> this is methodically wrong for reasons explained above. Litterfall hardly adds to a change in soil carbon pool in tropical organic soils: you hardly can find material derived from above ground sources in tropical peats (that are similar to many peats from temperate and subtropical zones "replacement" peats).		Accepted with modification	This is misunderstanding. text has been clarified.
21591	Joosten, Hans	2	990	990		this is already covered in another part of this chapter. Double counting?		Accepted	text has been revised
21592	Joosten, Hans	2	991	991		1.0 ± 0.5 Mg - why does this figure differ from the one presented in Tabel 2.2??		Accepted	text has been clarified and numbers from table be used.
21593	GARNEAU, Michelle	2	992			Holden, 2005: not in the references		Accepted	
21594	Joosten, Hans	2	994	994		0.88 - why does this figure differ from the one presented in Tabel 2A2 where the same reference is quoted?		Accepted	text has been clarified and numbers from table be used.
21595	Joosten, Hans	2	994	994		total soil respiration rates -> total soil respiration data are of low value as there is too little information on the input side into the soil compartment. This can also not be corrected by the (wrongly proposed) litter and biomass influxes as most is derived from root respiration from living plants.		Accepted	the root respiration was excluded by trenching.
21596	Joosten, Hans	2	996	997		C inputs from litterfall and root mortality -> there are no data that can support reliable estimates of these inputs. Balance studies in boreal moss mires show that only a small part of the above ground biomass ends up in the SOC pool. In "replacement" peat systems this is even less and practically absent, which is illustrated by the fact that it is hardly pssible to find above ground material form AMS dating in the peat		Accepted with modification	This is misunderstanding. text has been clarified that input is used to calculate fluxes by difference.
21597	Joosten, Hans	2	998	998		and how would you determine heterotrophic soil respiration (i.e. how do you remove the influence of autotrophic soil respiration reliably for a vegetated area?		Accepted	the root respiration was excluded by trenching.
21598	Joosten, Hans	2	1000	1001		Table 2A.1: various references are missing from the table caption and from the reference list…		Accepted	
21599	Joosten, Hans	2	1000	1001		Table 2A.1: "Litterfall" -> the relation between literfall and soil C inputs has not been established. This approach illustrates the absence of knowledge on peat formation in general and that in tropical peatlands specifically.		Accepted with modification	This is misunderstanding. text has been clarified that input is used to calculate fluxes by difference.
21600	Joosten, Hans	2	1000	1001		Table 2A.1: "Proportion of total soil respiration (b) " -> this is a unacceptable simplification. There are several methods that are more reliable (although also not ideal) including EC (e.g. the work of Hirano), chambers with trenching and gradients of autotrphic respiration (Jauihainen) or well conceived subsidence measurements (Hooijer)		Accepted with modification	Additional papers and additional CAs have been included. The authors are well aware of the pros and cons of the different methods
21601	GARNEAU, Michelle	2	1000	1001		Sources:1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,28: not in the references		Accepted	
21602	Troxler, Tiffany	2	1000			I like this approach but it should be verified with flux data and further evaluated for application all wetland types before inclusion in general guidance - there is also the concern of doublecounting across pools - please elaborate on this		Accepted	
21603	GARNEAU, Michelle	2	1005			Hertel et al., 2009: not in the references		Accepted	
21604	GARNEAU, Michelle	2	1006			Table 2 = Table 2A.2		Accepted	
21605	GARNEAU, Michelle	2	1020			Jauainen et al., 2011: not in the references		Accepted	
21606	GARNEAU, Michelle	2	1020			Melling, 2007: verify to put "et al."		Accepted	
21607	GARNEAU, Michelle	2	1021			Table 2A.3		Rejected	It is Table 2a.3; it appears that way due to the style of the 2006 GLs.
21608	GARNEAU, Michelle	2	1024			systems (Mahli and Garce, 2000)		Accepted	
21609	GARNEAU, Michelle	2	1024			Mahli and Grace, 2000: not in the references		Accepted	
21610	GARNEAU, Michelle	2	1024			Chambers et al. 2004: not in the references		Accepted	
21611	GARNEAU, Michelle	2	1025			Persch et al, in prep : not in the references		Accepted	
21612	Joosten, Hans	2	1027	1037		make consistent with DOC part of the chapter		Accepted	consistency checked
21613	GARNEAU, Michelle	2	1030			Yoshioka et al 2002: not in the references		Accepted	
21614	GARNEAU, Michelle	2	1031	1033		uniformise mg C l-1 or L-1		Accepted	
21615	GARNEAU, Michelle	2	1031			Yule and Gomez, 2009: not in the references		Accepted	
21616	GARNEAU, Michelle	2	1032	1032		that were about = that were up to…		Accepted	
21617	GARNEAU, Michelle	2	1033	1034		Baum et al., 2007: not in the references		Accepted	
21618	GARNEAU, Michelle	2	1041			in Table 2A.3 (Mg ha-1 y-1)		Accepted	it should be tonnes ha-1 yr-1. The table will be gone.
21619	Joosten, Hans	2	1044	1044		SOC pool - of which definitely the input component is wrong…		Accepted with modification	The double counting of root litter input was carefully checked.
21620	Joosten, Hans	2	1047	1052		I would not include this here... This is general information (possibly to be included in chapter 7) without specific relevance for tropical organic soils...		Accepted	text has been revised
21621	GARNEAU, Michelle	2	1049			Lo, 2005: not in the references		Accepted	
21622	GARNEAU, Michelle	2	1050			Malhi et al., 2009: not in the references		Accepted	
21623	GARNEAU, Michelle	2	1053			2006 IPCC Guideline		Accepted	It should be "2006 IPCC Guidelines"
21624	GARNEAU, Michelle	2	1054			in Table 2A.4		Rejected	It is Table 2a.4; it appears that way due to the style of the 2006 GLs.
21625	GARNEAU, Michelle	2	1065	1066		The reference is not in the text		Accepted	
21626	GARNEAU, Michelle	2	1098	1099		The reference is not in the text		Accepted	
21627	GARNEAU, Michelle	2	1111	1113		The reference is not in the text		Accepted	
21628	GARNEAU, Michelle	2	1151			reference is incomplete		Accepted	
21629	GARNEAU, Michelle	2	1166	1167		The reference is not in the text		Accepted	
21630	GARNEAU, Michelle	2	1217	1219		The reference is not in the text		Accepted	
21631	GARNEAU, Michelle	2	1240	1242		The reference is not in the text		Accepted	
21632	GARNEAU, Michelle	2	1276	1277		The reference is not in the text		Accepted	
21633	WINDHAM-MYERS, Lisamarie	2	Equation 2.1			typo, last term should be “off-site”		Accepted	

<Review comments on First Order Draft of Chapter 2 of Wetlands Supplement>

ID	Expert (Last Name, First Name)	Chapter/ Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
21634	WINDHAM-MYERS, Lisamarie	2	Equation 2.2			The term "nutrient status" needs definition. Is this C:N:P? It is important that the term incorporate some metric of "organic content, as I am not seeing where this important and commonly measured metric is incorporated. Peat oxidation and release of CO2 decreases over time as surface soil becomes more mineral. Perhaps another index in this equation could be age (time since drained), as this relationship is well documented.		Accepted	reference to 2006 GL
21635	WINDHAM-MYERS, Lisamarie	2	Equations 2.4 & 2.5			The term "peatland type" needs qualification. Also the "ditch landscape" equation Implies that narrower, farther spread out ditches will have less emission - not sure if this is density driven ("more ditches really leads to more emission") or if the presence of 1 large or many small ditches has the same impact		Accepted	text and equation have been clarified
21636	Hunt, Patrick G	2	general			This chapter is a good update of previous methodologies. The procedures are reasonably easily understood. Although some of the factors are not well supported with either recent or multiple studies, this is generally identified in the uncertainty. The section of ditches is useful. It might be useful to consider the similarities and difference of the ditches to the surface flow constructed wetlands.		Accepted with modification	last sentence could go to chapter 1.
21637	Troxler, Tiffany	2	general			chapter 2 uses a new gain-loss method for soils and flux data and Chapter 3 uses flux method for soil EFs - what are the implications? Can authors consider presenting both for inclusion in guidance for both drainage and rewetting and other wetland types? At an ecosystem level, they yield similar results, but do they? By providing both, does this enable more countries to apply country-specific data given that some countries may have more ready access to one type of data or another (pools vs. fluxes)? At a minimum, data on pools must be provided to follow GPG methods. COnsider publications by Chapin et al 2006, Randerson et al 2002, others to ground this in published approaches.		Accepted	Ch 2 and 3 use consistent methodologies. This will be clarified in a box written by Ch 2 and 3, maybe this box will be in Ch 1.
21638	GARNEAU, Michelle	2	recommended references			Van Bellen, S., Dallaire, P.-L. and Garneau, M. (2011) Quantifying spatial and temporal carbon accumulation in ombrotrophic peatlands of the Eastmain region, Quebec, Canada. Global Biogeochemical Cycles, 25, GB2016, doi:10.1029/2010GB003877		Accepted	reference has been considered
21639	GARNEAU, Michelle	2	recommended references			Lamarre, A., Garneau, M., Asnong, H. (in press) Holocene paleohydrological reconstruction of a permafrost peatland using testate amoebae and macrofossil analyses, Kuujjuarapik, subarctic Quebec, Canada		Accepted	reference has been considered
21640	Joosten, Hans	2	Table 2.1	title		replace in all alnd-use categories with per land-use category		Accepted	replace with "by land use category"
21641	Joosten, Hans	2	Table 2.1	EFCO2OrgForestBoreal		several of these publications include the litter pool in the soil carbon pool, which is inconsistent with the treatment of the soil carbon pool under other land use categories (and in other climate zones)		Accepted	Clarification about what pools are included in what Efs and guidance about how to treat LUC.
21642	Joosten, Hans	2	Table 2.1	EFCO2OrgForestBorealI		several of these publications include the litter pool in the soil carbon pool, which is inconsistent with the treatment of the soil carbon pool under other land use categories (and in other climate zones)		Accepted	Clarification about what pools are included in what Efs and guidance about how to treat LUC.
21643	Joosten, Hans	2	Table 2.1	EFCO2OrgForestBorealI		several of these publications include the litter pool in the soil carbon pool, which is inconsistent with the treatment of the soil carbon pool under other land use categories (and in other climate zones)		Accepted	Clarification about what pools are included in what Efs and guidance about how to treat LUC.
21644	Joosten, Hans	2	Table 2.1	EFCO2CropBoreal		wrong place in table…		Accepted	
21645	Joosten, Hans	2	Table 2.1	EFCO2OrgCrop-Oilpalm		5.24 --> this value is according to recent knowledge much too low		Accepted	EF will be updated
21646	WINDHAM-MYERS, Lisamarie	2	Table 2.1			Tier 1. The reported 95% confidence interval is surprisingly narrow for some categories and I am not sure they are defendable. The method used to estimate these values greatly influences the results. Also, variability between soil types is not included in this confidence interval.		Accepted	Efs and uncertainties will be updated
21647	Troxler, Tiffany	2	Table 2.1			why are there no references for tropical/subtropical forest or crop lands? It is not clear wehre these numbers come from until you get to the end of the document - this should be clarified much earlier - move lines 182-184 - text should figure more prominently and be further elaborated - especially since some values in the table 2.1 are derived and others are fluxes from literature - please clarify and elaborate.		Accepted	add references
21648	Troxler, Tiffany	2	Table 2.1			the way the table is organized suggests that wetlands are indeed strictly categorized as has been laid out in the 2006GLs - was this the intent? Further, what are the implications - here, peatland forests are classified as forests - could this be misinterpreted as no coverage of peatland forests since they are missing from the "wetlands" land category? It does give the impression taht these sysetms have been omitted from coverage in the supplement - is this consistent with other chapters in the supplement? Also please consider the implcations of classifying wetland forest and forest - it does not seem appropriate to apply the assumptions for forest land to wetland forest - please consider		Accepted	This is partly a misunderstanding as the land-use classification here strictly follows the 2006 GL, in which forests on organic soils were forests.
21649	Troxler, Tiffany	2	Table 2.1			Why would only forest land be disaggregated by nutrient status? There must be numerous reports on these other land use categories. This may be a data gap that should be addressed.		Accepted with modification	more disaggregation for grassland may come in case data are available.
21650	WINDHAM-MYERS, Lisamarie	2	Table 2.A.2			Reference to DOC flux and inlet flows from Fleck et al. 2007 should be included. (Fleck, J.A., M.S. Fram and R. Fujii. 2007. Organic Carbon and Disinfection Byproduct Precursor Loads from a Constructed, Non-Tidal Wetland in California's Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science 5(2): 1-24 (escholarship.org/uc/item/4pb185j7.pdf))		Accepted	reference has been considered