

<Review comments by governments on Second Order Draft of Chapter 5 of Wetlands Supplement>

ID	Government	Chapter/Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' action	Authors' note
G_5_0001	Germany	5	1	end		the chapter should be shifted between the chapter of organic soils and the coastal wetlands.		Reject	
G_5_0002	Canada	5	71	72		We could not find a definition of wetland mineral soils in Volume 4 of the 2006 GL. It would be useful to provide more precise information about where the definition is located in Volume 4, or to repeat the definition in this supplement.		Accept with modification	The locations in 2006GL are cited here already (Ch3 2006GL); we will refer the user to the definition of organic soil in Ch1 Supp.
G_5_0003	Canada	5	71	72		The definition of Inland Wetland Mineral Soils provided here would likely be of value given its apparent centrality to the chapter, rather than the reader having to cross-reference the 2006 IPCC Guidelines.		Accept with modification	Refer to definition of Organic soils from 2006GL: Annex 3A.5, that is given in Ch1 Supp
G_5_0004	Australia	5	74			For the text..."Wetland mineral soils (WMS) are defined in Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines)". Please provide specific reference.		Accept with modification	We already provide specific reference to the available definitions in the 2006GL (Ch 3/Annex 3A.5, Figures 3A.5.3, 3A.5.4). We will refer to Ch1 Supp for definition of organic soil. We will add a sentence at beginning of this paragraph stating that the definition is the same as in 2006GL (Vol 4 Chaps 2&3).
G_5_0005	Australia	5	74			This text needs elaboration. Need to remember that the discussion in the 2006 IPCC GLs Annex 3A.5 only refers to tier 1 default methods. Please insert 'for tier 1 default methods' after 'defined'. ie 'Wetland mineral soils (WMS) are defined for tier 1 default systems in Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006 IPCC Guidelines).'		Accept	We will insert "for tier 1 default methods", in line 74.
G_5_0006	Australia	5	74			This text has caused some confusion. Suggest amend to 'The 2006 IPCC Guidelines provide a TIER 1 default mineral soil classification'		Accept	We will amend text as suggested.
G_5_0007	Spain	5	74	75		There are other constructed wetlands that serve for other purposes than the one specified in this chapter (e.g. impoundment ponds, water supply,...). Are they included within this chapter or elsewhere? Whatever the case is, it should be explicitly mentioned in this chapter. It would be useful to add a list of what is included here, what is included somewhere else, and what is not included at all in the supplementary guidelines		Accept with modification	Refer user to Ch1 Supp for what is covered in the supp; Refer to section 5.1.1 for details on what we define as created and restored wetlands in this chapter. May need to revise our definitions of restored/rewetted and created based and other chapters
G_5_0008	Australia	5	81	84		In the absence of a direct translation and insufficient guidance as to taxonomy to define IWMS other than criterion of restricted drainage leading to periodic flooding and anaerobic conditions, the definition of IWMS is broad to the extent of being inoperable and does not recognise the practical limitations, including investment required, for inventory compilers.		Reject	For inventories, stratification of managed lands by soil type is a fundamental beginning step for using the 2006 IPCC guidelines. As we are providing a supplement to the 2006GL we must be consistent with 2006GL. Obtaining and using soil maps where soils on managed lands are defined as "aquic" or "gleysols" is a first step. We will investigate the potential to include information on the global distribution of IWMS in our chapter to aid inventory compilers.
G_5_0009	Australia	5	87			The USDA and World Reference Base provide classifications for tier 1 methods. What about for other tiers and countries? Suggest insertion in line 87 after 'Guidelines.' 'For higher tier methods, countries may use country-specific national classifications systems as long as they are transparently documented.'		Accept	We will add the suggested text.
G_5_0010	Australia	5	88			What does 'restricted drainage' mean? Should it be clarified by 'human-induced' to read 'human-induced restricted drainage'		Reject	"Restricted drainage" is not necessarily 'human-induced', it is part of the definition of IWMS as in Ch. 2 Table 2.3 in 2006GL, as stated in previous paragraph.
G_5_0011	Australia	5	88			IWMS include...this is too open ended' Change 'include' to 'comprise'.		Accept	

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G_5_0012	Australia	5	88	94		This text is critical as it cannot be unclear about what is covered and what is not covered by this chapter. Without clarity here, the whole chapter is difficult to follow. Suggest the following..... 'For the purposes of this Supplement, IWMS comprise those that have formed under human induced restricted drainage, and may or may not be artificially drained due to management activities. Guidance provided in this chapter applies to (i) artificial drainage defined here as the removal of free water from soils having aquatic conditions to the extent that water table levels are changed significantly in connection with specific types of land use (adapted from USDA, 1999) and (ii) to IWMS that have been artificially drained and subsequently allowed to re-wet for the purposes of "wetland restoration" and (iii) the artificial inundation of mineral soils for the purposes of "wetland creation". It is good practice to estimate emissions from these sources. There is no guidance provided for other IWMS such as saline IWMS (line 171), floodplains (line 266) or reservoirs. Guidance for rice cultivation is given in 2006 IPCC GLs. '		Accept with modification	We will edit this text using the suggested text, with the exception that "human induced" be deleted before" restricted drainage", as IWMS soils may also be formed under naturally restricted drainage conditions (Ch2 2006GL).We will also not include the text "floodplains", as the guidance for CH4 may apply to floodplains. We will modify to "rice cultivation on IWMS". We appreciate this comment.
G_5_0013	Canada	5	92	95		Please explain why emissions of N2O are not covered in the chapter.		Accept	We will add one or two sentences after line 110 stating that we do not cover N2O due to lack of information (similar to lines 804 in Future Guidance).
G_5_0014	USA	5	92	95		May be helpful to explain why N2O is not addressed		Accept	We will add one or two sentences after line 110 stating that we do not cover N2O due to lack of information (similar to lines 804 in Future Guidance).
G_5_0015	Japan	5	108	111		It should be explained more clearly; How "Flooded land" and "Inland Wetlands Mineral Soils" are defined or separated.		Accept with modification	Accept with modification
G_5_0016	Canada	5	126	126		Suggest including mosses in the list of vegetation communities.		Accept	Accept
G_5_0017	Spain	5	149	150		It seems that this paragraph is excluding wetland restoration of IWMS that were naturally dried, for example, due to several years of drought. We think this IWMS that were naturally dried and then restored should be considered, therefore, we suggest the deletion of the words "artificially drained" in the line 150.		Accept	Remove "artificially drained" from the text
G_5_0018	Australia	5	171			A specific type of land containing IWMS, Saline IWMS, is not covered in this chapter. This is a helpful clarification.		Reject	
G_5_0019	Australia	5	179	180		The two sentences lines 179-180 seem to contradict each other. 'At present the lack of data on saline IWMS prevents the determination of default C stock changes or GHG emission factors. If country specific data is available, it is good practice to use that data to estimate C pools in, and fluxes from, managed saline IWMS.' the text cannot say 'it is good practice to' - rather must say 'countries are encouraged to' - if there is not enough data to provide tier 1 defaults, then the text cannot insist that a country must introduce a tier 3 method, if data are available.		Accept	We will change sentence on line 179 to read "Countries are encouraged to seek country specific data to estimate C pools in, and fluxes from, managed saline IWMS".
G_5_0020	USA	5	204			Authors should double-check whether above-ground and aboveground are hyphenated or not; same for belowground.		Accept	Hyphenation used throughout the text
G_5_0021	Australia	5	209	211		This assumption does not hold true for semi-arid/tropical regions of some countries which are susceptible to inundation and extended periods of flooding due to the monsoon. Suggest removal of this qualifying statement or it be reconsidered to take into account country's national circumstances and capabilities. Suggested redrafting: "For lower Tier methods it may be assumed that wetland vegetation does not have substantially different biomass carbon densities than upland vegetation (e.g. Bridgham et al., 2006). However, if country specific data is available, it is good practice to use that data to estimate biomass carbon densities."		Accept	We will add the suggested text.
G_5_0022	USA	5	225			You refer to levels of disaggregation, but it may be helpful to specify the potential disaggregation strata e.g., spatial		Accept with modification	We will change "disaggregation" to "stratification", to avoid confusion. As stated in this sentence, it is up to the country to define the strata that is most appropriate.
G_5_0023	Japan	5	230	244		More precise explanation how activity data area should be obtained is needed. For instance, it is not so clear that project boundary area for wetland restration or wetland creation is needed or area which affect underground water like Ramsar Convention requires is needed. It is not so easy to imagine which statistical item in national statistics can be regarded as wetland restration or creation for all inventory compilers.		Accept with modification	See lines 415-422 in Ch 1 Supp (section 1.8) for relevant text to add in part. For the SOC stock change, we are only providing guidance to wetland rewetting on cropland, so may be able to suggest land-owners as source of information (ex. for US, farmers file a land use plan with NRCS).

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G_5_0024	Japan	5	230	244		Tier 1 EF is established for wetland restoration and wetland creation only. Thus, "obtaining data for whole IWMS" and "activity data used for calculation" does not mean same. It should be explained more clearly that what area data or activity data should be obtained for calculation and that area does not have EF must be identified or not. As, IWMS is a sub category in each of the six land use, to obtain whole IWMS may not be needed from the point of view of effectiveness of inventory preparation.		Accept with modification	The guidance in our chapter applies to IWMS in all land use categories for SOC stocks, and for long-term cultivation and wetland re-wetting on Cropland, and wetland re-wetting and creation in any land use category. Therefore it is required to identify all managed IWMS in all land use categories. We will add text to clarify these points and what activity data is needed for each EF.
G_5_0025	Finland	5	231	232	5.2.1.1	This stratification level seems to be too much demanded from Tier 1 methodology activity data. According to 2006 GL Tier 1 methods are designed to be the simplest to use, for which equations and default parameter values (e.g., emission and stock change factors) are provided. Country-specific activity data are needed, but for Tier 1 there are often globally available sources of activity data estimates, although these data are usually spatially coarse.		Reject	The Tier 1 procedure in 2006GL requires that countries divide their own managed lands based on land use categories, soil type, and management type (see Chap 1, sec 1.2, Supplement for use of this supplement, and 2006GL Vol4/Ch1).
G_5_0026	Canada	5	256	260		Suggest including paludification from forestry, and thawing of permafrost, especially discontinuous permafrost (references could include). Lavoie, M., Pare, D., and Bergeron, Y. 2005. Impact of global change and forest management on carbon sequestration in northern forested peatlands. <i>Env. Rev.</i> 13(4): 199–240. Fenton, N., Bergeron, Y., and Paré, D. 2010. Decomposition rates of bryophytes in managed boreal forests: influence of bryophyte species and forest harvesting. <i>Plant Soil</i> , 336(1): 499–508. Schuur, E. A. G. and B. Abbott (2011). "Climate change: High risk of permafrost thaw." <i>Nature</i> 480(7375): 32-33.		Reject	"Paludification" does not apply to mineral soils, and we are not considering permafrost thaw. The references provided do not apply to wetland mineral soils.
G_5_0027	Australia	5	265	266		The text states 'Therefore it is not possible to develop robust emission factors related to impacts of hydrologic alteration on soil C stocks of IWMS in floodplains at this time.' This is a helpful clarification.		Noted	
G_5_0028	Australia	5	280			This text goes too far. What is necessary is to identify IWMS soil C stocks on land where there has been changes in relevant management practice. Please insert 'affected by changes in relevant management practice' before 'at the beginning'. so that: 'To account for changes in IWMS soil C stocks associated with changes in relevant management practice on land remaining in a land-use category, countries need at a minimum, estimates of the area of managed land with IWMS in a land remaining in land-use category affected by changes in relevant management practice at the beginning and end of the inventory time period.'		Accept	We will edit this text as suggested.
G_5_0029	USA	5	295	299		The method for estimating change in soil organic C stocks, as written, is somewhat confusing and appears to be confounded. The issue is not with the first statement (subtracting C stocks from the last year from that at the beginning divided by the inventory period), but rather it is with the next statement. It reads as though stocks at both the beginning and end of the inventory period are calculated either by exactly the same numbers (reference stocks and default change factors) or perhaps by repeated annual application of the stock change factors over time. What is unclear, we think, is the use of "default stock change factors" which implies that these are always the same. Are there different stock change factors being used to calculate stocks at the beginning and the end? This would seem to be the case based on the steps shown later on p. 12-13, but then this is supposed to be for land remaining in the same land use category. So it is confusing.		Accept with modification	We will bring more of the description from the 2006 guidelines into this chapter to help with clarification. Chapter 2, section 2.3.3.1
G_5_0030	Canada	5	311	311		Suggest that the model list could also be expanded to include McGill Wetland Model (St-Hilaire et al. 2008. <i>Biogeoscience Discuss.</i> 5, 1689-1725).		Reject	The McGill Wetland Model appears to be specific to peatlands which is not relevant to IWMS.
G_5_0031	Canada	5	326	326		Table 5.2: n=6 for Boreal seems very low. In Canada there are several publications and data sources for soil C estimates in wetlands as defined here. Restricting the estimation depth to 30 cm may not be appropriate for forested areas where rooting depths, and pedological processes relevant to soil C occur much deeper than 30 cm. Soil C stocks can double if C at depth is included. References could include; Tarnocai, C. (2000). Carbon pools in soils of the Arctic, Subarctic, and Boreal regions of Canada. <i>Global climate change and cold regions ecosystems</i> . R. Lai, J. M. Kimble and B. A. Stewart. Boca Raton, CRC Press LLC, 2000 N.W. Corporate Blvd., Boca Raton, Florida 33431: 91-103. Tarnocai, C. (1997). The amount of organic carbon in various soil orders and ecological provinces in Canada. <i>Soil processes and the carbon cycle</i> . R. Lal, J. M. Kimble, R. F. Follett and B. A. Stewart. Boca Raton, Florida, CRC Press: 81-92. Shaw, C., E. Banfield, et al. (2008). "Stratifying soils into pedogenically similar categories for modeling forest soil carbon." <i>Can.J. Soil Sci</i> 88: 501-516.		Reject	We would like to add more data to Table 5.2 but it needs to be in the correct format to be merged with the current data set and the assumptions set forth in the 2006 guidelines. For example, the Tarnocai reference does not indicate if soils are "wet" (i.e. IWMS) and the Shaw et al. paper doesn't have soil depths that match 0-30 cm. We agree that deeper soil pools can be used at higher tiers if data is available. These are only default values when no other data is available.
G_5_0032	Kenya	5	326	327		In Table 5.2, the error indicated in column 3 is indeed large. With such a large magnitude, how reliable are the default values?		Noted	We agree that the errors are large but the data is taken directly from the reference. Independent of the amount of error, we think countries should use the default means if no better data is available.

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G_5_0033	Australia	5	334	338		At a tier one level, Parties should not be required to identify changes in carbon stock by management type. Where multiple factors contribute to changes in carbon stock (for example grazing, tillage, changes in water table levels, changes in salinity) may all occur within a defined area, and impact upon carbon stocks. Attributing changes in carbon stocks to any one of these activities will be difficult for the inventory. Suggest equation sums annual change in carbon pools, without requiring differentiation by management activity.		Reject	Stock change factors, including management, are required to calculate changes in C stocks. This is the default methodology from IPCC. Management (not type) is relative to the intensity of management, not specific management actions like those that the reviewer lists.
G_5_0034	Spain	5	346	347		This could also depend on the sedimentation rates, which varies with the vegetation cover in the catchment. We would better recommend that it is expressed more clearly that the limit of 30 cm is the default depth, but it could be not assumed equally for all types of catchments (forested, agriculture dominated catchments, etc...), especially if the Country has specific information on this parameter.		Accept	We agree that deeper soil pools can be used if data is available. We will insert this text from the 2006 guidelines to clarify this issue. "For Tier 1 and 2 methods, soil organic C stocks for mineral soils are computed to a default depth of 30 cm. Greater depth can be selected and used at Tier 2 if data are available, but Tier 1 factors are based on 30 cm depth.
G_5_0035	Finland	5	357	358		The new stock change factors for wetland restoration could be better explained - would there be no difference in the factors if the cropland was still under active production, if the cropland is no longer in active production would the restoration involve a land use change?		Accept with modification	According to our data sources, there are no differences in factors when land is in crop production or not. We agree that when crop production ceases to exist there is a land use change to wetland. We will add text stating this.
G_5_0036	USA	5	372	373		If the croplands has undergone restoration back to wetlands, wouldn't this be cropland converted to wetlands?		Accept	We agree that when crop production ceases to exist there is a land use change to wetland. We will add text stating this.
G_5_0037	Canada	5	397	398		It would be helpful to inventory compilers to provide guidance on how to identify lands with IWMS, or if that guidance is provided in the 2006 GL, to provide a reference to that section.		accept	We will try to develop a table or map that indicates the presence and amount of IWMS and provide sources for this information.
G_5_0038	Spain	5	398	398		Even though for most climates inland water bodies are freshwaters, in arid and semiarid regions inland saline lakes and wetlands can represent a big portion of the inland wetlands. Thus, salinity must also be considered as an important factor, as the carbon balance of saline wetlands may differ very much from that of freshwater wetlands. This could be considered one of the factors to subdivide the wetlands, if a Country decides to do so. (see general comments to chapters 2, 3, 4, and 5.		Accept with modification	We agree that salinity plays an important role in carbon storage, however, we found few supporting references to substantiate this. If countries have good data for saline wetlands, they should use that to calculate soil C stocks (see line 179-180).
G_5_0039	USA	5	435			Step 2 is somewhat confusing, can you expand and clarify some?		Reject	This text is directly from 2006GL Vol4/Ch5, section 5.2.3.4. To be consistent with 2006GL we do not feel it is necessary to edit or expand, as this may result in confusion. The comment does not specifically say where the confusion lies, so we cannot address.
G_5_0040	USA	5	439			delete "according to the respective" and replace with "in accordance with its".		Accept	Text replaced
G_5_0041	Spain	5	440	440		step 4 should allow the use of SOCREf that could be included in the EFDB of the IPCC after the adoption of this supplement.		Accept	Once the Supplement is adopted the SOCREf in Table 5.2 will be available in the EFDB.
G_5_0042	USA	5	445	449		These steps are unclear in that if land use is not changing how will there be different stock change factors for the initial and final inventory time periods?		Reject	This is not true. Within cropland different levels of land use different stock change factors.
G_5_0043	USA	5	452			after "factors" insert "(D)"		Accept	Text inserted
G_5_0044	USA	5	455			This step seems confusing after reading the last sentence in Step 8 above. Why would you have multiple inventory time periods--wouldn't "D" just be adjusted of the period is longer than 20 years?		Reject	When changes are happening you have to look at changes for each inventory time period. This is consistent with 2006GL.
G_5_0045	USA	5	465	472		Excellent points!		Noted	
G_5_0046	Finland	5	473	491		The good practice guidance is unclear. Propose to change the text in lines 478 to 479 to it is good practice to apply country-specific uncertainty estimates for country-specific area estimates. (How can country specific uncertainty values be derived for AD taken from an international source - this would require country-specific data.) The second good practice requirement is not understandable - please clarify or delete.		Accept with modification	We agree to change the text in lines 478-479 as suggested. We will delete the words "it is good practice" from lines 490.
G_5_0047	USA	5	497			delete "soils" the "S" in IMWS already stands for soils.		Accept	Deleted soils
G_5_0048	Spain	5	520	520		predict CH4 emissions doesn't seem to be the right wording to use in guidelines for the estimation of emissions. Replace "predict" by "estimate"		Accept	Text replaced
G_5_0049	USA	5	549	550		We find the use of "emission factor" for CH4 here confusing, because these factors are actually "fluxes". The use of "factor" is more appropriate for the relative stock change factors reported in Table 5.3, which represent the fractional change in stocks over a time period. We recommend changing the CH4 emission "factors" to "fluxes" or simply "emissions".		Noted	We agree to change "default emission factors for CH4" to "default emission factors for CH4 emissions". This is consistent with other supplement chapters.

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G_5_0050	Canada	5	564	565		Suggest that this list contain reference to microbial community composition.		Accept	we will add "microbial community composition" to the sentence.
G_5_0051	Spain	5	577	577		Is nice to note this, but distinguishing between continuous and intermittent inundation could be crucial as the <u>ecological functioning and biogeochemical cycles strongly differ among the different regimes of inundation.</u>		Noted	We agree.
G_5_0052	Finland	5	581			The emissions factors for CH4 given for Inland Wet Mineral Soils are significantly higher than those given for rewetted organic soils for temperate and tropical regions, and at the same level as those of rewetted organic soils in boreal regions (see Chapter 3, p. 3.17 Table 3). This does not seem logic and does not build confidence that the EFs for CH4 are reliable enough to be included in guidance for national greenhouse gas inventories. Could the reason be different ways of determining the default EFs. We propose that Chapters 3 and 5 work together and determine the EFs using the same approach as far as possible and that the approached are clearly described in both Chapters.		Accept with modification	The units of the EF for CH4 emission are presented in kg CH4-C ha-1 yr-1 in Ch.3, and in kg CH4 ha-1 yr-1 in Ch5, so they must be in the same units to compare. This results in a reduction by about 30% for EF in Ch5. We will harmonise among chapters the units. The determination of EFs cannot be the same between chapters as the available data are very different.
G_5_0053	Finland	5	581			Please also clarify why different description of the water table is used - chapter 5 gives EFS for lands with water table position at or above land surface, chapter 3 assumes near surface water table throughout the year. Could these be harmonised - it seems strange that for different types of land different classifications are needed.		Accept with modification	We will delete the text "assume a water table position at or above the land surface, but" from this sentence. This allows countries the flexibility to determine the definition of water table level and activity data available, as agreed by the authors of this supplement.
G_5_0054	Finland	5	581			Correct also the title caption - which is incomplete "Default emission factors for CH4 from managed lands with IWMS where the water table has been"		Accept	Title completed
G_5_0055	Canada	5	595	596		Suggest including more details on this point about remote sensing (e.g., types of sensors).		accept	We will add more detail about the use of remote sensing including sensors that can be used to define wetlands.
G_5_0056	Finland	5	603	704		to our understanding this does not add anything new to the guidance given - we propose to delete this section and made section 5.2 to apply for both lands remaining and lands converted to..		Reject	We feel that it is best to have separate sections as there is some new guidance for SOC pool. We will highlight this new guidance at the beginning of the section.
G_5_0057	Australia	5	649	651		At a tier one level, Parties should not be required to identify changes in carbon stock by management type. Where multiple factors contribute to changes in carbon stock (for example grazing, tillage, changes in water table levels, changes in salinity) may all occur within a defined area, and impact upon carbon stocks. Attributing changes in carbon stocks to any one of these activities will be difficult for the inventory). Suggest equation sums annual change in carbon pools, without requiring differentiation by management activity.		Reject	Stock change factors, including management, are required to calculate changes in C stocks. This is the default methodology from IPCC. Management (not type) is relative to the intensity of management, not specific management actions like those that the reviewer lists.
G_5_0058	USA	5	665	676		Seems like this text is just referring to the values in Table 5.3. If so it might be better to just reference Table 5.3 rather than repeat all the values here.		Reject	Repeating here helps to be very clear on the application of the guidance
G_5_0059	USA	5	681			Don't you also need the time since conversion e.g., 0-20 or 20-40 years		Accept with modification	Time since conversion is not typically activity data. We need time since restoration, which may or may not be activity data. Nalin will figure out. Stratify land according to time since rewetting, which will determine which FLU (add...stratify according to time since rewetting to lines 683-684).
G_5_0060	USA	5	690			After "IWMS" insert "where the water table has been raised to or above the land surface"		Accept	Text added
G_5_0061	USA	5	714	717		The N2O emissions from runoff/leaching are not necessarily reported by land use. See Chapter 11 2006 GLs		Accept	change to "accounted for properly according to 2006GL Chap 11".
G_5_0062	USA	5	722			insert "is' after "Guidance"		Reject	"Is" appears latter in the sentence, after GHGs
G_5_0063	Finland	5	740	745		IWMS may be insignificant sources in many countries - the QA/QC good practice requirement (verify applicability of default data, search (?) for available imagery ) are resource consuming and should be required only for significant sources. Remove the text on it "is good practice" or make the text more realistic by expanding/clarifying in which cases these kind of QA measures would be needed.		Accept	Delete 5.4.2 and 5.4.3 from our chapter, cite Chap 7.
G_5_0064	USA	5	766			Again, as indicated earlier we appreciate the time and energy that goes into the section labelled 5.5 Future Methodological Development.		Noted	Obrigado
G_5_0065	USA	5	766	810		Since this is not guidance for the inventory compiler, it would be better if this was in a guidance, or at least a text box.		Accept	We will move this section to an appendix

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G_5_0066	Canada	5	771	772		The explanation on the absence of consideration of N2O comes quite late in the chapter. Suggest reviewing.		Accept	We will mention in the Introduction; also we may add some updated C:N ratio for IWMS for use with Ch11/2006 GL N2O methods.
G_5_0067	Canada	5	798	801		Internal soil N mineralization can also produce the nitrate needed for N2O production (Creed et al. 1996 Water Resources Research 31(11):3337; Creed and Band 1998 Water Resources Research 34(11): 3105; Creed and Beall 2009 Water Resources Research 45(W10407).		Accept with modification	We agree that this process should be mentioned; we will cite Ch11/2006GL. The papers mentioned do not apply specifically to IWMS.
G_5_0068	Canada	5	848	849		The temperate climatic region does not apply to the reported emission factors that comes from the Prairie region (rows 2 and 3 of Table 5A.2.1) according to the National Wetlands Working Group in Canada ( <a href="https://www.ec.gc.ca/inre-nwri/default.asp?lang=En&amp;n=0CD66675-1&amp;offset=18&amp;toc=show">https://www.ec.gc.ca/inre-nwri/default.asp?lang=En&amp;n=0CD66675-1&amp;offset=18&amp;toc=show</a> ). It is classified as a humid continental climate. The EF associated to Pennock et al 2010, seems different from the values reported in the publication (548 and 324 kg CH4 ha-1 y-1).		Accept with modification	Need to check the climate region reference. We are using IPCC climate region definition, so we will still use "temperate" (humid continental may be a subcategory of temperate). We will verify that the values are correct for this study (Pennock et al).
G_5_0069	Finland	5	852	853		List the values for CH4 emissions as in table 5A.2.1 to enhance transparency and/or be more specific how the values have been derived from the studies in question.		Accept with modification	We will add some text describing how values in 5A.2.1 were determined from the studies that are listed.
G_5_0070	Chile	5	852	853		Table 5A.2.2 shows the 4 <sup>o</sup> column with 95% Confidence Interval, but only gives one minimum value per line. There is missing a maximum value to be an interval.		Accept	We will add either +/- or 95% CI range (lower and upper values).
G_5_0071	Chile	5	859			There is not consistence in this paper: the citation style, in comparison with the previous ones, is striking difference.		Noted	Consistency will be checked with other chapters
G_5_0072	Spain	5	general	general		it seems that the activity data sections suggest that the areas have to be divided into climatic zones, soil types,... when it is prerogative of the country to subdivide a land use category. It should be said that the areas could be stratified.		Accept with modification	To use the guidance in this supplement it is good practice for countries to stratify their managed lands into land use category, soil type, climate region, and management practice. We will change "divide" to "stratify", and "should" to "could" where appropriate.
G_5_0073	USA	5	general			This was in general a well-written and easy to understand chapter. All topics appeared to be presented in an organized manner with most of hte topics supported by practical knowledge.		Noted	
G_5_0074	USA	5	general			Overall, the methodology is sound. I did not identify any areas for improving or clarifying the text.		Noted	
G_5_0075	USA	5	general			A common practice used in this supplement is to refer to details from the 2006 Guidelines. While this is useful in some respects, it is somewhat frustrating as the reader/reviewer who is not completely familiar with the 2006 report. For instance, this chapter does not provide a complete definition of IWMS, but simply refers to Vol. 4 of the 2006 Guidelines. Also, mineral soils are only defined as "all soils not classified as organic soils in Chapter 3 Annex 3A.5 of the 2006 IPCC Guidelines". For the purpose of clarity, it seems important to provide a complete definition in full text here, even if it is somewhat redundant with earlier reports.		Accept with modification	We feel that it is not necessary to repeat or duplicate information in the 2006 GL for the user of this supplement, however we will ensure all relevant sections are referenced. We also do not want to modify definitions of the 2006GL (in the case of wetland mineral soil), so we simply refer the user to definitions in 2006GL. We will also ensure to reference Ch1 Supp where appropriate.
G_5_0076	Finland	5	General			This chapter updates soil organic C stock values for inland wet mineral soils and also relative C stock change factor for land use for long term cultivation with IWMS. This guidance is welcome but the text should be significantly shortened and clarified (now it includes cut and paste sections from the 2006 IPCC GLs, which make the text confusing and unclear and at the same time provide no practical guidance to the inventory compiler). It would be sufficient to refer to the 2006 IPCC GLs and explain which defaults are updated and why (justification why the new EFs are better than the previous ones using Annex 3A.1 as an example).		Accept with modification	Move general literature to a Box after shortening. We will shorten the text as much as possible while still preserving essential information.
G_5_0077	India	5	243	244	5.2.1.1	Do we need to estimate inventory or stock change for annual plants? Is it not that only perennials biomass needs to be estimated?		Accept	We will delete the text "(annual vs. perennial species)" to avoid confusion.
G_5_0078	India	5	168		5.1.1	Here IWMS is generally only for fresh water and thus the term Saline may not be relevant here		Reject	We think is important to specify that saline IWMS are not covered and another reviewer agrees (G18)
G_5_0079	USA	5	Table 5.1			For grasslands and settlements it seems there should be a line dividing the second column between them.		Accept	Table changed

<Review comments by governments on Second Order Draft of Chapter 5 of Wetlands Supplement>

ID	Government	Chapter/Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' action	Authors' note
G_5_0080	USA	5	Table 5.2			We're curious about the decision to provide reference stocks for only the top 0-30 cm. Obviously, information on deeper C stocks is limited for many geographic settings. Does this have to do with the depth increments primarily contributing to GHG exchange with the atmosphere? If so, would it be useful to cite papers that put constraints on heterotrophic respiration from different soil depths (i.e. what percentage of total C flux is derived from 0-30 cm)? Also, how does the IPCC plan to account for mobilization of deep C stocks, e.g. thawing of permafrost at high latitudes?		Accept with modification	We agree that deeper soil pools can be used if data is available. We will insert this text from the 2006 guidelines to clarify this issue. "For Tier 1 and 2 methods, soil organic C stocks for mineral soils are computed to a default depth of 30 cm. Greater depth can be selected and used at Tier 2 if data are available, but Tier 1 factors are based on 30 cm depth." There is no reference in the 2006 guidelines on why 30 cm was used as the default depth. We believe it is the result of the Bernoux et al. (2002) reference that includes soil C to 30 cm in their data base. We don't know how IPCC will address soil C changes resulting from melting permafrost.
G_5_0081	USA	5	Table 5.3			In the "Level" column would it be better to say "Wetland restoration (0-20 years following restoration)" and "Wetland restoration (20-40 years since start of the restoration activity)"		Accept with modification	We will change the column heading to Land Use and Time Since Rewetting