

<Review comments by governments on Second Order Draft of Chapter 6 of Wetlands Supplement>

ID	Government	Chapter /Section	Start Line	End Line	Sub-section	Comment	Supplementary documents	Authors' Action	Authors' note
G_6_0001	Chile	6		75		Does it mean that constructed wetlands with less surface, even numerous, are out of this protocol?		Accepted with modifications	The number is just example and all size of CWs must be counted. This sentence was deleted to avoid confusion according to other comments.
G_6_0002	USA	6		78		Insert before "reserved" the following: "of water"		Accepted	
G_6_0003	Canada	6		80	80	It seems overly precise to say 'approximately 405,000 m2' instead of 400,000.		Accepted with modifications	This sentence was deleted to avoid confusion according to other comments.
G_6_0004	Germany	6		81	82	as all the wetlands created or modified to treat waste water their emissions and removals should be included in the waste management category include this sentence and delete the old sentence. see same chapter lines 180 to 189. on top of that: To include the emissions elsewhere for instance under wetlands would mean it would not be accounted for in the 1. und 2. commitment period as there is not such activity.		Accepted with modifications	Additional explanation "Emissions from CWs and SNTW must be reported in waste sector" was added. However, the information of removal is not enough to quantify. This chapter is not cover removals.
G_6_0005	USA	6		85	86	We suggest the sentence be re-written in the following way: "Constructed wetlands are used to improve the quality of wastewater from point and nonpoint sources, including stormwater...."		Accepted	The text has been modified.
G_6_0006	Canada	6		86	86	There needs to be guidance for emission attribution of Constructed Wetlands to treat agricultural wastewater within the IPCC categories. Should emissions from this process be attributed to category 3 (Agriculture, Forestry, and Other Land Use) or to category 4 (Waste)? See Figure 1.1 in the Volume 5 Chapter 1 guide.		Accepted with modifications	Guidance for type of wastewater treatment by wetland is in table 6.3 with text modification to be more specific and clearer understanding.

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G_6_0007	USA	6		94	100	It is nice that lines 98-100 explain which design has a higher treatment efficiency. However, more info should be included that ranks the various designs on treatment performance and associated emissions. Also would be interesting to include summary of which design is most common, or a proportion of treatment facilities using each design. (Recognizing that this last point may be very difficult to do at a global scale.)		Rejected	Basic information of each types of CWs can be found in references shown in this section. Although the rank of treatment performance is interesting, this chapter focus on CH4 and N2O emissions.
G_6_0008	Canada	6		118	120	If the VSSF CW produces a highly nitrified effluent, then this nitrate will be denitrified elsewhere and this leads to a large 'indirect' N2O emission that should be considered. Especially since the stated N2O-EF for VSSF is very small (0.00021), can we be confident that we have sufficient knowledge about total N emissions from VSSF systems?		Accepted with modifications	We do not cover the emissions from effluent of wastewater treatment systems to be consistent with the 2006 IPCC Guidelines. In case the party has precise information of indirect N2O emission from CWs, proposed approach can be applied as Tier 2 or 3. On the other hand, the amount of nitrogen associated with N2O emissions from CWs must be back calculated and subtracted from the NEFFLUENT (Equation 6.7 in Chapter 6, Volume 5 of the 2006 IPCC Guidelines). We added this explanation in the text at section 6.3.1.2. The emission factor of N2O comes from field measurement in literatures. Uncertainty and mean has been estimated (See Annex).
G_6_0009	Canada	6		156	156	Suggest that Table 6.1 should have references to support these statements.		Accepted	Table 6.1 was revised with references.
G_6_0010	Sweden	6		169		difficult to follow what is meant		Accepted	We made the table 6.2 more easily understandable, and explained details in the Annex.
G_6_0011	Canada	6		175	175	Consider modifying as "These shares (%) can be used as a base for the calculation".		Accepted	

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G_6_0012	Germany	6		181	181	add before "Chapter 6" "Volume 5,"		Accepted	
G_6_0013	USA	6		181		After "...DISCHARGE in" insert "Volume 5 of"		Accepted	
G_6_0014	USA	6		194		Insert "in" before "2006" and change "EF" to "EFs"		Accepted	
G_6_0015	Germany	6		198	198	add before "Chapter 6" "Volume 5,"		Accepted	
G_6_0016	Canada	6		203	210	The term "agro-industrial wastewater" should be defined and the decision to include agro-industrial and dairy farm wastewater within the "industrial" wastewater category should be explained and the uncertainties of doing this described.		Accepted with modifications	It means processing factories of any agricultural products. We replaced agro-industrial with processing factories of agricultural products in Table 6.3. All types of industrial wastewater must be included
G_6_0017	USA	6		203		after "in" insert "Chapter 11, Volume 4 of"		Accepted	

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G_6_0018	Japan	6		205	207	<p>The line 205 indicates that CH₄ emissions from solid waste landfill leachate have already been considered in solid waste disposal on land in Chapter 3, Volume 5 in 2006 IPCC GL. According to this explanation, CH₄ emission from solid waste landfill leachate is included in CH₄ emission from solid waste disposal on land regardless of leachate treatment methods. However, CH₄ generation from leachate treatment is different depend on leachate treatment methods (e.g. anaerobic treatment produces more CH₄ than aerobic treatment). So, explanation in the line 205 is not enough scientific and should be revised. Furthermore, explanation in the cell for "Methane" and "leachate from landfill" in the table 6.3 neglects DOC lost with leachate because DOC lost with leachate is less than 1 percent. However, this explanation is not in line with explanation in the 205.</p> <p>For referential information, Landfills in Japan have to equip leachate collection and treatment facilities according to waste management ordinance. Therefore, Japan reports CH₄ and N₂O emissions from leachate treatment facilities in annual GHG inventory in section 6.B.1.</p>		Rejected	<p>According to Chapter 3, Volume 5 in the 2006 IPCC Guidelines, all amount of carbon in solid waste is subjected to estimation of CH₄ in landfill site, and carbon loss with leachate is not considered because of its low percentage. That means CH₄ emission from leachate treatment is already covered. If CH₄ emission from CWs treating leachate is accounted, the amount of carbon in leachate must be subtracted from that in solid waste to avoid double counting. Normally carbon in leachate is indicated in terms of COD, conversion rate from COD in leachate to TOC in solid waste must be needed. This estimation can be applied in tier 2 or 3 estimation. We added this explanation in the text.</p>
G_6_0019	USA	6		205		Delete "As for solid waste landfill leachate,"		Accepted	
G_6_0020	Canada	6		210	210	To be consistent with other IPCC documents on methane production, MCF should refer to Methane Conversion Factor (not Correction Factor).		Rejected	In the 2006 IPCC guidelines, MCF in wastewater handling is Methane Correction Factor. This chapter, which is supplement for Chapter 6, Volume 5 WASTEWATER TREATMENT AND DISCHARGE in the 2006 IPCC Guidelines, follow this manner.

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G_6_0021	Spain	6		213	213	given that this chapter is only about constructed wetlands for wastewater treatment, it should be clearly specified, mainly adding this fact to the titles and subtitles in the chapter. Here, in 6.2., it should read "methane emissions from constructed wetlands for wastewater management" to avoid that people using the guidelines think that this could be applied to all constructed wetlands		Accepted with modifications	The title of chapter 6 was revised as CONSTRUCTED WETLANDS FOR WASTEWATER TREATMENT to give clear and accurate explanation.
G_6_0022	Canada	6		235	246	It should be stated that the units chosen for TOW and EF must be the same (BOD or COD).		Rejected	It has been already mentioned in section 6.2.4 in this chapter.
G_6_0023	Canada	6		243	243	It is crucial to clearly define the term "amount of organics in wastewater treated". This could mean the amount of organics loaded into the system (not all of which may be removed) or the amount of organics removed (which is less than the amount loaded).		Accepted	We replaced "treated" with "entering".
G_6_0024	Canada	6		296	310	It should be stated why BOD and COD was selected instead of VS.		Rejected	BOD or COD was used in Chapter 6, Volume 5 WASTEWATER TREATMENT AND DISCHARGE in the 2006 IPCC Guidelines. This chapter is supplement for that, and follows the same manner.
G_6_0025	Canada	6		298	306	To be consistent with other IPCC documents on methane production, MCF should refer to Methane Conversion Factor (not Correction Factor).		Rejected	In the 2006 IPCC guidelines, MCF in wastewater handling is Methane Correction Factor. This chapter, which is supplement for Chapter 6, Volume 5 WASTEWATER TREATMENT AND DISCHARGE in the 2006 IPCC Guidelines, follow this manner.

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G_6_0026	Canada	6		312	313	The original source of these Bo values should be stated (cite primary literature or expert judgement)		Rejected	The default values of Bo is consistent with Chapter 6, Volume 5 of the 2006 IPCC Guidelines. Original paper (Doorn et al., 1997) has been cited in 2006 GLs. Of course, to use country-specific data for Bo is preferable.
G_6_0027	Canada	6		312	313	What Bo values should be used for "Collected runoff from agricultural land" and "Landfill leachate" in table 6.3?		Accepted	It is good practice to use the IPCC COD-default factor for Bo (0.25 kg CH ₄ /kg COD) for all the industrial wastewater including "Collected runoff from agricultural land" and "Landfill leachate" if county-specific data cannot be available.
G_6_0028	Canada	6		389	389	Suggest stating how these uncertainty ranges were determined.		Accepted with modifications	We followed IPCC methods for quantifying uncertainty (95% confidence interval). Explanation was added in Annex.
G_6_0029	USA	6		447	449	This paragraph has some structural/grammatical problems or typographical errors that make it difficult to understand.		Accepted	We modified this sentence to make it clear.
G_6_0030	Chile	6		451	451	"Two tier methods" is mentioned, but in fact there are three tier methods described.		Accepted	
G_6_0031	Canada	6		575	575	Could some guidance for agricultural systems be added? (c.f. table 6.3)		Accepted with modifications	We replaced agro-industrial with processing factories of agricultural products in Table 6.3. All types of industrial wastewater must be included.
G_6_0032	Canada	6		587	587	Suggest stating how these uncertainty ranges were determined.		Accepted with modifications	We followed IPCC methods for quantifying uncertainty (95% confidence interval). Explanation was added in Annex.

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G_6_0033	USA	6		Figure 6.4		There is a typographical error in the decision diamond near line 526. I think "is" is repeated.		Accepted	The second "is" was deleted.
G_6_0034	Spain	6		general	general	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. The inclusion of the definition in chapter 1 (lines 108-111) would help, but saying what other guidelines can be found in this supplement on constructed wetlands (what has been included in other chapters) and what has not been included in the supplement (for example, water supply constructions apparently are not included)		Accepted with modifications	This chapter deals with CWs that serve wastewater treatment. Other types of CWs that serve other purposes will not taken into account in this chapter. However, if the condition of other chapter are in accordance with other chapter in this supplement GL, they are taken into account in other chapter. Chapter 1 has been revised and presented clear information about other wetlands. Information of wastewater sources are revised in 6.1.1.
G_6_0035	USA	6		General		The text stresses issues related to avoiding double counting of emissions (Table 6.3, line 211). These are important points. Together, Figures 6.1 (line 101) and Figure 6.2 (line 191) are quite useful for understanding processes related to constructed wetlands and what is and what is not covered in this supplement and in the 2006 IPCC Guidelines.		Noted	
G_6_0036	Sweden	6	general			the chapter is well structured and easy to follow. Table 6.1 is a good help.		Noted	
G_6_0037	Sweden	6	general			Table 6.2 difficult.		Accepted	We made the Table 6.2 more easily understandable. We also explained how to calculate EFs and uncertainties in the Annex.

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G_6_0038	Australia	6	general			Default N2O emission factors are provided which are different to those in the 2006 guidelines, “based on data provided in the literatures.” Clarity is requested on what “literatures” are being referenced here.		Accepted	More explanation on how we calculated EFs were in Annex.