Comments and Responses on Public Review Draft of SOCCR/SAP 2.2 (September 2006)

COMMENTS FROM PUBLIC REVIEWERS						AUTHOR'S RESPONSE						
Comment Number	Reviewer ID	Chapter	Page	Line	Comment Text	Acknowledged, but no further reponse or revisions are required	Revisions have been incorporated as suggested in the comment	Agree, but see "Notes on Response"	Agree, but elaboration is precluded by length limitations	Disagree; see "Notes on Response"	Beyond scope of report/chapter	Notes on Response
10-001	12	10	10-2	5-7	Uncertainties are not specified.			X				Value cited is from a study that did not compute/report uncertainties. At present there are insufficient studies using comparable methods to compute uncertainties from, for example, a meta-analysis.
10-002	12	10	10-3	Table 10-1	The caption and notes should specify how the given ranges are determined, and how the given grazing land stocks account for woody encroachment.		X					We inserted text describing the source of the information for our estimate of uncertainty. We also clarified that these values are soil C pools and do not include vegetation.
10-003	12	10	10-3	31 & Text Box 2	Depending on the involvement of organic acids, the role of primary and secondary carbonates with respect to atmospheric CO2 sources and sinks is most likely the opposite of that stated. Weathering of primary carbonates consumes CO2, which is converted to bicarbonate ion; formation of secondary carbonates releases CO2 from dissolved bicarbonate.					X		From a mass balance approach, an increase in inorganic C as secondary (pedogenic) carbonates, represents a net **uptake** of CO2, since the carbonate formation 'consumes' 2 moles of CO2 and only 1 mole is released as CO2 with the precipitation of Ca/MgCO3. Weathering of primary carbonate minerals (e.g. CaCO3), will over time, tends to be a **source** of CO2, because even if 1 mole of CO2 is consumed in weathering, 2 moles of carbonate ions are formed. Some of the carbonate ions can degas in the soil and/or In humid (leaching) environments, carbonate ions are lost in drainage water and can degas in surface waters and/or be transported to lakes/oceans.
10-004	12	10	10-4	7-9	It is not at all clear that "much of the carbon lost from agricultural soil and biomass pools can be recovered … while still maintaining outputs of food, fiber, and forage." Documentation of cumulative recovery (not just rates over a few years) should be provided to support this statement. Another important clarification is that any recovered carbon will likely be more labile, and thus more susceptible to return to the atmosphere, than the originally depleted carbon.		X					In later sections of the paper, several studies and reviews documenting soil C accrual through improved management practices are given (including studies that span several decades, not just a few years). We've added a sentence, as suggested, that emphasizes that C gained can be subsequently lost if the improved practices are not maintained.
10-005	12	10	10-8	5-8	The difference between Canadian and US potential cropland soil sequestration is at least an order of magnitude, yet the area difference is only 4-fold. This discussion should include assessment of why the area-specific rates appear to be much higher for the US than for Canada. Also, the potential annual flux estimates should be accompanied by potential cumulative capacities.						X	Primary references are cited. The reasons for the differences are complex, involving not only inherent differences between US and Canada associated with climate, types of crops and management systems, baseline C stocks, etc., but also differences in methods, assumptions and mitigation scenarios used by different authors in making these potential estimates - hence a discussion/analysis of this is beyond the space available.
10-006	12	10	10-10	23	The text should describe the basis for asserting that 10-70 Mt/yr is a "significant amount" of carbon sequestration. The statement implies comparison – to what?	X						
10-007	12	10	10-10 & 10-11	23 & 7-10	The text alternates units between Mt C and Mt CO2. Consistent units should be used throughout the report.		X					We converted all data in Mt CO2 to Mt C.
10-008	12	10	10-12	28 ff	This is a good summary of research needs with an effort toward prioritization.	X						

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10-009	12	10	10-24	Fig 10-2	This figure is confusing because the y-axis appears to indicate relative changes in soil carbon stocks, but the caption describes determination of "emission factors to estimate carbon sequestration rates." The caption should clarify whether the indicated bars represent relative stocks or rates. If they represent stocks, the caption should describe what time period is required to achieve the indicated values.		X					We clarified the caption to refer to C stock factors rather than emission factors and clarified that the period over which these changes occur is 20 yrs.