

Ms. Caroline Williams
Executive Officer
Environment and Natural Resources Committee
Parliament House
Spring Street
East Melbourne, VIC, 3002

**Inquiry into soil carbon sequestration in Victoria
Submission no. 22**

15 February 2010

Dear Ms. Williams,

Thank you for providing the opportunity for the Victorian Catchment Management Council to provide comment on the Terms of Reference from the Environment and Natural Resource Committee's inquiry *Soil Carbon Sequestration in Victoria*. These Terms of Reference were provided to the Environment and Natural Resource Committee in September 2009 from Legislative Assembly to inquire, consider and report on soil carbon sequestration. I have attached the Council's submission to the Terms of Reference for this enquiry.

The VCMC supports ongoing work to identify possible agricultural opportunities and environmental benefits, and quantify methods to measure carbon sequestration from atmospheric sources, and sees the role of soil carbon sequestration in Victoria as an important part of broader strategies and policies to combat and reduce carbon pollution. The outcome of this enquiry may also support the use of soil carbon sequestration as an important ecosystem service provided by healthy soils.

The Victorian Catchment Management Council (Council), established under the *Catchment and Land Protection Act 1994*, is Victoria's peak independent body responsible for providing expert advice to the Minister for Environment and Climate Change on land and water management issues. Members are appointed by the Victorian Government for their skills and experience in land protection, water resource management, primary industry, environment protection, conservation and local government.

The Council looks forward to the release of the inquiry *Soil Sequestration in Victoria* report by 31 August 2010.

Council is pleased to have had this opportunity to comment. If you require any clarification or elaboration please contact Patricia Geraghty (Executive Officer) on 9637 8306.

Yours sincerely



Mick Murphy OAM
Chair

Premises

- Healthy land, and its concomitant supply of ecosystem services, is critical in maintaining the vigour and health of ecosystems and biodiversity. This premise forms the basis of the VCMC vision that:

Victoria will have healthy rivers flowing through ecologically sustainable and productive catchments

- Soil can be thought of as the “engine room” in which ecosystem services are marshalled, moderated and mobilized.
- Soil health is directly related to the movement of carbon into soil. High levels of embedded carbon invariably mean healthy soils. Healthy soils produce a broad range of ecosystem services and will not experience degradation.
- Degrading soil tends to have exhausted existing stocks of embedded organic carbon. Furthermore, degraded soils have less capacity to easily capture new carbon.
- Any loss of soil capacity through processes like erosion, acidification, salinisation, structure decline, harvesting, or hard surfacing results in reducing carbon cycling, and compromises both ecosystem productivity and landscape stability.

Comment

- The exchange of carbon between the atmosphere and soil is a significant part of the global carbon cycle. Photosynthesising plants capture carbon from the atmosphere and incorporate it into organic matter which cycles into and through the soil. Respiration by soil organisms and plants will steadily release this carbon back into the atmosphere, as the organic chains are oxidised to provide energy for the organisms.
- Literature shows that agricultural activities in Australia – especially regular cropping – have caused major reductions to pre-agricultural soil organic carbon levels. The literature also shows that while it is quite easy to deplete organic carbon in soil through accelerating both oxidation and respiration via vegetation removal, cultivation, and burning surface litter, it is difficult to rebuild soil carbon to previous levels while retaining (rather than maintaining) normal agricultural outputs.
- Land managers should aim to maximise the capture, incorporation and deployment of organic carbon in soil. However, the transition between surface organic carbon and soil organic carbon means that it is difficult to compartmentalise the two - the term “terrestrial organic carbon” is often used to cover both surface and soil organic carbon. This can provide a convenient concept for now, until we have a greater understanding of the processes of transition between surface and soil organic carbon and how these operate in the context of the broad range of climatic, topography, soil type and management variables.
- Strong arguments can be presented on the need to learn much more about organic matter cycling and biological activity in a range of land types. This is needed to get much smarter management for both soil health and carbon accumulation. The benefits to soil health and ecosystem productivity (linked to increasing levels of terrestrial organic carbon) cannot be overstated.

- It is worth reconsidering an increased focus on degraded lands because of the additional benefits now associated with carbon sequestration potential. The assumption that historic land degradation has been uneconomic to repair and restore should be challenged.
- High quality research into soil organic carbon cycling is essential. The topic of soil carbon sequestration and carbon pollution reduction has created an environment where opportunistic operators may invalidly promote poorly researched solutions or even solutions to soil carbon sequestration that have no basis at all. Currently, there are several invalid and unfeasible claims and much controversy surrounding these topics. There is a lot to be learnt from the "biological" farming groups, but there is a lot of dogma and zealotry which should be critically assessed. Any and all research and current scientific approaches should also be assessed using similar criteria.
- Any terrestrial organic carbon trading needs to include all land types, all tenures and all uses. It must not focus only on agricultural activities.
- Equity and transparency are paramount. Land managers who have maintained higher organic carbon levels (often with significant opportunity cost) need to have their contribution recognised. Methods of unequivocally identifying changes in terrestrial organic carbon are urgently needed.
- The message should be based on organic matter. Organic carbon is a measuring tool to quantify the amount of organic matter in soils.

Conclusion

- Organic matter provides the energy delivery arrangement for the entire soil system. It is almost impossible to overstate its importance. Organic matter is generally the stuff which supports the physical attributes and hence is fundamental in delivering aeration, permeability, water holding capacity, and physical resilience.
- The important role of soil biota should also be addressed within this framework.
- The Environment and Natural Resource Committee's inquiry *Soil Carbon Sequestration in Victoria* will create interest from a broad audience. It will be paramount to provide clear and understandable explanations of the complex issues raised by this inquiry in the final report.



Caroline Williams/ParlOfficer/PARL
15/02/2010 11:11 AM

To Karen Taylor
cc
bcc
Subject Fw: Submission - ENRC Inquiry - Soil Carbon Sequestration

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Neil.Meyers@dse.vic.gov.au

15/02/2010 11:07 AM

To enrc@parliament.vic.gov.au
cc
Subject Submission - ENRC Inquiry - Soil Carbon Sequestration

Dear Ms. Williams,

Please find attached the Victorian Catchment Management Council submission to the Environment and Natural Resources Committee Inquiry into Soil Carbon Sequestration in Victoria Terms of Reference.

Many thanks,

Neil

Neil Meyers

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