

15th February 2010

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Environment and Natural Resources Committee
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**GOULBURN
BROKEN**

CATCHMENT
MANAGEMENT
AUTHORITY

www.gbcma.vic.gov.au

Inquiry into soil carbon sequestration in Victoria Submission no. 24

Dear Caroline

Submission to Inquiry into Soil sequestration in Victoria

Thank you for the opportunity to comment on the terms of reference for the inquiry. We have provided our response around the three specific areas of our expertise.

(b) Explore possible environmental benefits

There is an ongoing need to promote practices that protect soil carbon – benefits will relate to agriculture and land/soil health (soil structure stability and soil biodiversity). For example, conservation and establishment of native perennial pastures, primarily through improved grazing practices that support perenniality in the landscape.

The Goulburn Broken Catchment Management Authority (GB CMA) considers sequestration of carbon as a critical ecosystem service that has the potential to assist in meeting carbon capture and storage targets, providing the drivers to improve the husbandry of a critical resource and creating the opportunity for rural and regional communities to contribute to and benefit from the market-based opportunities that could follow from the growth of a carbon market.

Key features that we would wish to see highlighted include:

- The role that increased carbon levels have on:
 - improving soil condition-structure and chemical reactivity;
 - improving soil water holding capacity, increasing water use efficiency and mitigating against excessive losses from water shedding; and
 - improving the biodiversity of soils and the resilience of ecosystems.
- We would also see that the debate on the merits of increased soil sequestration should also recognise the link between increased carbon sequestration and the retention of the long-term productive capacity of the land and production systems.
- The GB CMA would also like to see it recognised that the conservation and restoration of native vegetation is crucial in the creation of organic carbon and carbon storage and long-term sustainable land management.
- The science and management of soil carbon and its long-term storage are attended by important unknowns, including the rates at which carbon accumulates, the storage pools and their stability, and the interaction between soil carbon and other chemical and biological processes in the soil. These need to be considered as part of an integrated knowledge creation and knowledge brokering program.

(c) Consider methodologies for measurements of the effects of carbon sequestration, including any potential issues associated with the measurements of benefits

- On the basis of a discussion paper commissioned by the GBCMA¹ on soil sequestration, carbon trading and the CMA, there are obviously some critical unknowns. These

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¹ Botta, C. (2008) Soil sequestration, carbon trading and the CMA: discussion paper prepared for the Goulburn Broken Catchment Management Authority.

include having verifiable methods of soil carbon assessment, feasibility of broad scale measurements, and the link between accounting and modelling.

- We support further research into soil carbon accounting so that active sequestration of carbon into the soil to address increases in atmospheric CO₂ can be supported through future carbon sequestration/trading schemes.
- Technology such as *biochar* should be considered in the review to ensure that there are no negative side effects and that solutions are proven.
- Soil ecosystems are poorly understood, with very little developed in the way of accounting for soil sequestration. Scientists will always argue about how good the information is, or the models are. The challenge is to determine when there is sufficient, rather than complete understanding. There are precedents already in place in other environmental programs that can inform a soil sequestration program on integrating modelling, local knowledge and perception and actions that should be considered in the development of a program.
- Acceptance by the community of soil sequestration initiatives will depend on there being an agreed process for verifying changes to soil carbon storage.
- It is critically important that the assessment of the effectiveness of carbon sequestration are done at the farm gate, taking into account all the carbon storage and release processes that contribute to preferred practices.

(h) Explore options for the Victorian Government to support the benefits (if any) of soil sequestration

- Time and again community groups have shown a great capacity to adopt new ideas and concepts and apply them to the appropriate circumstances. The Victorian Government would benefit from establishing links through community groups to facilitate knowledge exchange and to champion new or improved practices that increase soil carbon sequestration.
- The GBCMA would support an evolutionary approach to improved soil management, achieved by working with the community and taking into account the local conditions and circumstances that drive carbon accumulation.
- We would consider it important to review the progress in soil conservation practices and, through modelling, the impacts on changes in soil carbon storage, particularly the quantum, stability, service life and limitations to soil carbon storage under different management and edaphic conditions. We would also encourage the review to assess the possible and likely impacts (benefits/disbenefits) of carbon storage on the outcomes of other natural resource management programs.
- The review needs to look closely at the change management process and the effectiveness of communication, social networking, policy, regulation, marketing and incentive and market based programs in bringing about practice change.

The Goulburn Broken CMA is supportive of the inquiry and looks forward to receiving a copy of the Committee's report to the Parliament of Victoria in August 2010.

Yours faithfully



Chris Norman

CEO

Goulburn Broken Catchment Management Authority