

23 June 2009

Committee Secretary
Parliamentary Joint Committee on
Corporations and Financial Services
Department of the Senate
PO Box 6100 Parliament House
Canberra ACT 2600

Re: Senate Inquiry into Agribusiness Managed Investment Schemes

Dear Sir/Madam

Reports are emerging in the media¹ about the unrealistically high estimates of productivity by the failed Managed Investment Scheme (MIS) companies Timbercorp and Great Southern. It is very likely that many of the disappointing performances can be explained by a lack of high quality information about soil condition prior to site development, possibly associated with poor on-going management of soil health.

Government agencies that are responsible for the management of Australian soil must learn from the many mistakes that have occurred with site selection and management within failed MIS schemes. Legislative improvements are required.

My suggestions about the way forward are shown below. They address Point 12 of your reference list: "*the need for any legislative or regulatory change*". The main focus is on irrigation developments in the Murray-Darling Basin. I am a soil scientist with 32 years experience.

Background

The dominant soil survey system for irrigation projects in the lower Murray-Darling Basin is a commercialized version² of the Irrigated Crop Management Service (ICMS) methodology. It was developed about 25 years ago by the South Australian Government at Loxton. This was a 'cutting-edge' initiative when introduced. Positive features include:

- An emphasis on the use of soil pits, which allow a much better assessment of soil structure, stoniness, waterlogging severity and root growth than soil cores or augered material;
- Soil examination includes the subsoil as well as the topsoil;
- A framework was developed to link irrigation system design with soil physical properties.

Unfortunately there are several serious problems with the ICMS system – and the associated training courses – which limit its effectiveness:

¹ Williams R, Hopkins P (2009) *Stumped – the death of MIS*. Sydney Morning Herald, 23.5.09; Williams R (2009) *ASX grills Great Southern on yields*. Sydney Morning Herald, 20.6.09.

² Wetherby K (2003) *Soil survey for irrigation*. In: Soil surveying in agriculture: Current practices and future directions, pp. 33-36. (ASSSI (Vic) and DPI Symposium, Tatura, Vic)

- There was no obvious acknowledgement of the need for ICMS trainees (“Registered Soil Surveyors”) to team up with experts on a particular soil science topic, where the soil survey contractor has a technical challenge that is beyond the limits of their expertise;
- Soil structure was overlooked as a factor in the estimation of soil water holding capacity, even though an improvement in soil structural condition of loams and clays from “strongly compacted” to “soft and friable” can double readily available water (RAW) for plants;
- No adjustment is made for anticipated RAW improvement at a site with soil limitations following the recommended soil amelioration;
- Inadequate attention is given to key soil factors such as subsoil compaction, low-permeability clay bands in sandy soil, sodicity and water repellency;
- The ICMS framework is inflexible and incomplete when applied beyond Mallee landscapes; for example, it is not easy to use on acidic soil and cracking clays;
- Procedures for the sensible use of remote sensing data (for example, radiometric and EM surveys to fill information gaps between soil inspection pits) are not built into the ICMS scheme;
- There is no clear inter-connection of the ICMS procedures with recent highly-relevant publications such as the CSIRO “Brown Book”³ and “Blue Book”⁴.

The commissioning of soil survey reports and maps by developers such as Timbercorp apparently was viewed by many as just another bureaucratic hurdle to be overcome when gaining irrigation licences. The ICMS-style information often was not used effectively for the on-going management of soil in new developments.

I know of two professionals within state government departments^{5 6} who tried hard to improve soil surveying standards for new irrigation developments. Unfortunately, their managers failed to strongly support their initiatives. My own experience was that meaningful debate at soil survey planning meetings during the period 2003-06 was stifled by individuals with aggressive self-centred business practices, but very little credible training in soil science.

I attempted to overcome these unsatisfactory circumstances by accepting the invitation to be Chairman of an informal group referred to as ‘Association of Commercial Soil Surveyors’ (ACSS) in late-2003. Most of the participants were South Australian soil surveyors. Our main achievement was preparation of the following documents, in conjunction with Department of Land, Water and Biodiversity Conservation (DLWBC), for use along the Murray River in SA where transfers of water for large new irrigation developments were being proposed:

³ McKenzie N, Coughlan K, Cresswell H (eds.) (2002) *Soil physical measurement and interpretation for land evaluation* (CSIRO Publishing: Collingwood)

⁴ McKenzie NJ, Grundy MJ, Webster R, Ringrose-Voase AJ (eds.) (2008) *Guidelines for surveying soil and land resources, 2nd edition* (CSIRO Publishing: Collingwood)

⁵ Adem H (2003) *Soil surveying for company clients*. In: Soil surveying in agriculture: Current practices and future directions, pp. 47-50. (ASSSI (Vic) and DPI Symposium, Tatura, Vic)

⁶ Davies R (2003) *A draft of a Code of Conduct for professional soil scientists*. In: Soil surveying in agriculture: Current practices and future directions, pp. 94-96. (ASSSI (Vic) and DPI Symposium, Tatura, Vic)

- Code of Conduct for Commercial Soil Surveyors: An Introduction to the Code and Guidelines; July 2004;
- Code of Conduct for Commercial Soil Surveyors: The Code; July 2004;
- Code of Conduct for Commercial Soil Surveyors: The Guidelines; July 2004.

Unfortunately, DLWBC decided in late-2006 not to go ahead with implementation of the Code and Guidelines. No explanation was given, despite the input of many hundreds of hours of time and significant expenditure by ACSS volunteers.

I understand that two very capable commercial soil surveyors in South Australia were heavily criticized and severely disadvantaged, by less-qualified soil surveyors, in about 2002 following their attempts to modify and improve the ICMS approach.

Timbercorp was the owner of a well known soil survey company that apparently carried out much of the soil assessment work for Timbercorp's new irrigation developments along the Murray River. This brings into question the degree of independence of some of the cut-price "Registered Soil Surveyors" and the quality of their conclusions about soil condition on Timbercorp projects. The commercial playing field for soil survey work certainly was not level in that region when large MIS projects were being developed.

Important questions remain unanswered:

- Why was the ICMS system – which is clearly outdated, inflexible and empirical – given such uncritical support by state government managers?
- Why didn't state government technical leaders set up a soil assessment and management framework that allows new research results to be sensibly incorporated and implemented?
- Why wasn't there encouragement of free trade by government authorities to stimulate high quality inputs by a diverse mix of properly qualified commercial soil scientists, rather than supporting what amounted to a low-cost monopoly arrangement for the servicing of MIS companies based on unsatisfactory methodologies for soil assessment and an inadequate training/accreditation program?

Ideas for the future

New legislation is required for soil-related aspects of MIS developments. The importance of high quality soil information for successful agricultural developments cannot be underestimated. The bar has to be raised for soil science professionals, their teachers, and their managers!

I believe that all commercial soil surveyors in the future need to be accredited by the Certified Professional Soil Scientist (CPSS) scheme within Australian Society of Soil Science Inc. (ASSSI). This will help to reward and encourage the highly skilled and innovative professionals who have gone to the trouble of gaining meaningful tertiary qualifications in soil science and soil management. To protect clients and to give them best possible value for money, CPSS accreditation obliges all members to act with integrity, to participate in on-going professional development, and to form teams with specialist colleagues who have essential skills beyond the capabilities of the lead contractor.

In conjunction with support for the CPSS scheme, there is an urgent need for nationally coordinated soil science training through accredited universities – maybe a Master of Soil Science framework – that includes a mentoring program provided by established practitioners with CPSS accreditation.

Most importantly, the proposed minimum standards for the training and accreditation of commercial soil scientists need to be built into the national action plan associated with the report by Andrew Campbell (2008) entitled: '*Managing Australian Soils – a Policy Discussion Paper*' (Natural Resource Management Ministerial Council: National Committee on Soil and Terrain).

If required, I'd be happy to provide further details about any of the above issues.

Thank you

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Soil Scientist