

The Secretary
Select Committee on Sustainable Farming Practices
Parliament House
North Terrace
Adelaide 5000

**SUBMISSION ON “SUSTAINABLE FARMING PRACTICES”
by Des Menz**

Introduction

Concerned at where South Australia was heading in terms of its rural directions, I began a website www.SustainableSpace.info in 2009.

It is prescient that the subject of the Select Committee’s inquiry is “Sustainable Farming Practices”, because that is precisely a major part of what I have been investigating for years, culminating in the establishment of my website.

My concerns began on my return to SA in 1997, after an absence of 10 years. I had lived in Murray River towns for more than 20 years of my life, and closely studied the river environment as part of my Environmental Management diploma. I have been a very concerned observer of the Murray-Darling Basin decision-making processes over the years.

My rural work has taken me to many parts of the state where I have been able to view first hand the condition of the landscape and its supporting natural resources.

I have also presented numerous submissions on natural resources management at the national, state, and regional levels in the past 13 years.

The more I have investigated particular aspects, the more I have become alarmed about farming in this state.

I have read the Issues Paper and all related documents for the inquiry. It is a massive task that the Select Committee has before it, for there will be as many opinions about “sustainable farming” as there will be submissions. The important aspect however, is to place opinion in a separate area, and to

examine the facts about the condition of farming and natural resources in SA. This includes not only environmental matters, but economic and social issues.

The focus of my submission is on Issue #3 (Natural Resource Management) and Issue #5 (Variability of Weather and Climate).

Committee members are encouraged to view my website for further details where I discuss many other matters relating to sustainability.

www.SustainableSpace.info

Land Condition

“Digging Into Sustainability In South Australia” is the by-line of my website. And that is exactly what I have been doing to uncover what I consider to be the MOST URGENT PROBLEM confronting us today. I have dug into many reports on the condition of agricultural land, natural resources, soils, water, biodiversity, landscape, and so on. These reports are all in the public domain.

The one thing that sets itself apart from anything else is that all these reports are stating their own specific problems, but when they are combined (as I have been doing) the overall message is very alarming.

I can best illustrate this point by quoting from these reports.

In [Report of the Condition of Agricultural Land in South Australia](#) (Department of Water, Land, and Biodiversity Conservation, December 2004), the Executive Summary states ...

“There are 10.2 million hectares of land used for farming in South Australia. This land has been cleared of its native vegetation and almost all of it has suffered some form of degradation as a result of farming systems that are inadequately aligned with sustainability requirements of its natural resources. Loss of productive capacity of agricultural soils results in

adverse environmental, economic and social impacts, many of which are effectively irreversible.”

This same report states for agricultural land in South Australia:

- “About 781,000 hectares...have a moderate to high inherent susceptibility to water erosion by virtue of soil type and land slope.”
- “About 2.4 million hectares ... have a high inherent susceptibility to wind erosion, due mainly to having sandy soils.”
- “At least 1.9 million hectares ... is either already in a degraded state due to acidity, or is on the brink of damage due to acidification.”
- “The area of land directly affected by water-table induced secondary salinity in the agricultural and remnant native vegetation areas of the state is estimated to be around 398,000 ha. This is predicted to increase to about 593,000 ha in the next 20-50 years, with most of the increase on the coastal plain of the Mid and Upper South East.”
- “Almost 1.7 million hectares...have soils with physical properties that make them inherently susceptible to soil surface structure breakdown.”
- “The majority of South Australian soils have very low natural phosphorus levels, and often have trace element deficiencies. Without very large inputs of key nutrients, agricultural productivity would be very low.”
- “There are about 2.48 million hectares ... that are moderately to severely affected by water repellence.”
- The rate of revegetation of native species for non-commercial purposes is about 4,000 ha annually. “It will take many decades of revegetation at this rate to have a significant impact on major NRM issues like dryland salinity, soil erosion or native habitat restoration.”

These are alarming statistics, and recall that the figures quoted relate to a total agricultural area of 10.2 million hectares. The situation has not changed in the state since that report of 2004. There are numerous statements similar to these in the literature.

What does all this mean? We need to go back one step.

“A Climate Change Adaptation Framework”

Perhaps the most pivotal document to have been released in decades is the state government's [Prospering in a Changing Climate - A Climate Change Adaptation Framework for South Australia](#) (August 2012).

All South Australians should read this document. I presented a submission on the December 2010 Draft.

It is evident that the use of agricultural land for existing production is drifting inexorably into the eye of a storm where landscape-scale collapse is a high probability. The Framework document alludes to this by stating “many natural systems ... are already degraded”. Indeed it is reasonable to contend that most of the natural capital of the state's agricultural lands is degraded. Go back to the list (on page 3) from the “Condition of Agricultural Land” report.

No consideration of adapting to changing climate can occur without connecting the long term sustainability of existing practices with the loss that has occurred in the natural environment. My examination of available information during the past 20 years or so of agriculture in the state reveals a truth - that there will come a time when inputs (e.g. fertilisers, nutrients, lime applications on acidic soils, applications of chemicals to combat pests and diseases) reach a threshold at which the soil's capability to respond is reached, and thus outputs will decline. This is fundamental chemistry and soil science.

It has happened in the past in other farming systems in history, and will occur again. This will determine whether any adaptation strategy will be successful. It is a truth that is not being openly confronted today. A cynic would say that there is too much profit in cropping and primary production today to get in the way of future sustainability. That is a myopic view.

Some of the concerns I am referring to are dryland salinity, sodic soils, boron toxicity, soil acidity, low fertility, loss of biodiversity, pests, and weeds. Therefore, what is to be done if, as written in the Framework document, predicted consequences of a changing climate are combined with these problems? They must be connected, for it is natural capital that we are

talking about. Adaptation to an existing paradigm of land use is likely to fail in the long term.

In the past 13 years or so I have examined the fundamental issue of connecting land degradation with climate change and have concluded that there is only one way to proceed for South Australia, and that means there has to be massive restitution of formerly cleared agricultural land. Although the Climate Change Adaptation Framework document touches on some aspects of revegetation and biodiversity support, it does not cover these to the extent that is needed. There has to be recovery of abandoned agricultural land, and in the Mid North region and around the state there is plenty of that. It is a sad indictment on the human capacity that a blind eye continues to be turned to failed past ventures, including forgetting what nature once provided. It is no more evident than in the NRM Plans that exist today.

All this means that South Australia needs a new direction, and urgently. It needs to be substantially more than an "adaptation" model as enunciated in the Climate Change Adaptation Framework. Adaptation to my mind means acceptance of the inevitable - and of course these inevitabilities have been clearly enunciated in the Framework document - but there is one aspect that is absent, and it is as though it is beyond comprehension or indeed beyond the realms of economic capacity. I'm referring to very extensive landscape-scale change.

Farming System Instability

Because of the ancient landscapes and their relatively infertile soils, farming systems require high and persistent inputs of energy, materials (e.g. fertilisers, lime, weedicides, herbicides, and other sprays) and human endeavour. The farming system is human-controlled of course, but is influenced greatly by outside, or external, factors such as weather, pests, prices, commodity demand, global influences, to name a few. These systems however, consume non-renewable resources, and as stated in [Report of the Condition of Agricultural Land in South Australia](#) (pg 20) "are inherently unstable".

Here lies the conundrum. Although these farming systems deliver the outputs (i.e. crops and fibre) to the market economy, and create wealth to individuals, corporations, and the state, they are operating in an unstable state. To accept a continuance of this situation is dangerous, and foolhardy. At some point in time, this instability will reach a critical zone from which recovery to a stable state of the landscape and ecosystems within it, will not be available. What will happen is that a new stability harmonised with a modified environment, will be reached, and it will not be entirely as a result of the original influences that caused the instability in the first place. The system at greatest risk therefore, will be present-day farming.

Those involved in agricultural and horticultural systems require and seek stability of every component that affects farm output. It is rare that all components are in synchronicity in a farming system annual cycle, but if most are then high financial returns are likely to result. If one component fluctuates significantly (just think rainfall), then greater intervention (i.e. inputs) is required to achieve a relatively stable system output.

If the component soil adopts a different state (think dryland salinity), then it will be only a matter of time, perhaps following a sequence of "corrective" interventions to maintain productivity (i.e. system stability), before the response of the soil fails to meet the criteria required of the farming system.

It is a natural principle ...

"Nature cannot withstand a systematic deterioration of its capacity for renewal ..."

(One of four systems conditions in Karl-Henrick Robert's 'Educating the Nation: The Natural Step')

If the beginnings of instability are not checked and the system is not recalibrated to a "natural" state, or to a state that harmonises farming and the environment in which it operates, then sustainability in all its forms (i.e. ecological, economic, and social) will suffer. The greatest threat of all would be collapse of the agricultural system.

So, has the farming system in the agricultural lands of the state reached a threshold of permanent instability? Has it crossed it?

In the [Report On The Condition Of Agricultural Land](#), the results listed at page 3 of this submission are approaching 10 years or more of age, and there does not appear to be similar information available for the present time ((2012) Ref http://www.environment.sa.gov.au/Knowledge_Bank/Science_research/Monitoring_evaluation_analysis/Monitoring/soil-and-land-condition).

It is most likely that there has not been a reduction of the various impacts, and so on the face of it, they should be cause for great concern. Connect the results with the predictions that South Australia will experience a 1 - 6 deg.C increase in mean temperature by 2070 (ref [No Species Loss - Overview ... A Nature Conservation Strategy for South Australia 2007-2017](#) {Department for Environment and Heritage}), and a concomitant 25-30% decline in rainfall (mostly Winter and Spring rainfalls) in the agricultural areas, then the cause for alarm should be further heightened. Consider the following disturbing statement from the [No Species Loss - Overview](#).

"The loss of South Australia's native plant and animal species since the arrival of European settlers is alarming. At least 23 mammals, 2 birds and 26 plants have already gone forever. Our State's extinction rate is one of the highest in Australia.

Today about one-quarter (over 1000 species) of all terrestrial vascular plants and vertebrate animals in South Australia are considered to be threatened - 63% of our mammals and 22% of our vascular plants are formally listed as threatened at the State level. Our ecological communities are also threatened.

Despite sustained hard work by professionals, landholders and volunteers alike over many years, the decline continues. Clearly we need to work smarter and learn from our mistakes and successes, and we need to do this with a sense of urgency if we are to clear our extinction debt.

"Native biodiversity within South Australia is in decline, yet relatively few threatened species and ecological communities are being managed for recovery.

The threat is real and present for terrestrial, aquatic and marine ecosystems. We can no longer modify habitat, fragment ecological communities and populations, introduce invasive species, and alter environmental water flows and fire regimes. Climate change is now adding further challenges and often unknown complexity to how we might manage current threats, and restore ecosystems in the future.

Instead we must intervene with serious planning, innovation and endeavour.

State of the Environment Report 2008

Here is a Blog post I wrote on 20 June 2009 (see www.SustainableSpace.com/blog/state-of-the-environment.html)

The last **State of the Environment Report (2008)** for South Australia states "our environment is under significant stress and requires urgent attention from government, business and the community." The report is based on research and scientific evidence, and identifies key trends for seven environmental themes - atmosphere, inland waters, coasts and the sea, land, biodiversity, human settlements, heritage. Calls for urgent action are made for each of them.

The SOE report is extensive in scope, however it, and the government's response, do not tackle some of the very real issues confronting the South Australian environment, ecosystems, agricultural land, and communities. The approach to "economic growth", sustainable support for rural communities, and the direction that our political leaders are taking the state, are all integral to decisions affecting the condition of the environment and they are not without their problems and issues. These matters have not been

articulated. The call to action in past decades has gone unheeded. The very same issues apply across all of Australia.

We are living in an age where there has been enormous environmental harm, biodiversity loss, ongoing threats to the existing agricultural system, complacency about the severity of these threats, and lack of action to repair past damage.

An area of continual neglect is the condition of inland river systems other than the Murray River. There has been ample said of the Murray, but scarcely anything about other important river systems in this state. Consider the Broughton, Wakefield, and Light Rivers - all in the Mid North. Here is what the SOE Report (pg 10) says ...

"As may be expected as a result of the drought, inland freshwater riverine ecosystem health has generally declined throughout South Australia. Among the regularly monitored sites, 58% have shown a decline in river health assessments during 2005-06 compared with earlier results. If rainfall patterns return to past average levels in the near future, aquatic ecosystems are likely to recover. If however the current drought continues and rainfall remains below average for much longer, then long-term changes to the structure and functioning of these ecosystems are likely."

If there has been a 58% decline in inland rivers health generally (compared with earlier results) then these rivers, and the environment in general, are in deep trouble. Why? Consider this. In 1999-2000 the EPA conducted what was called "Mid North Rivers Management Plan" project. The report described in detail the condition of these rivers, and each was categorised as "degraded" or "severely degraded".

Therefore, are we to read into this that there has been a further 58% decline from the "degraded state" that these rivers were found to be in back in 1999-2000? There has been no work of significance to rehabilitate these river systems since that time, and none under the Natural Resource Management Board structure.

This is a failing of the SoE report, as much as it is a failing of the “system” to implement the work described in the Plan.

The condition of the general environment in SA is in an unstable state, just as is the condition of farming land. Both are inextricably linked.

There can not be a viable and permanent agricultural system without correcting the ills of the broader environment.

More Issues About Managing Soils

In late 2008, comments were sought on “[Managing Australia's Soils - A policy discussion paper](#)” by NCST Secretariat (Department of Agriculture, Fisheries and Forestry).

Because of my strong interest in landscape matters and sustainable use of resources, I prepared a brief submission. In summary, here is what I submitted.

Australia is entering a very different era in land use which will be impacted by continual global volatility in terms of climate, climate change, food availability, food transportation, energy costs and availability.

Soil management will involve greater emphasis on local/regional food production.

To satisfy food requirements, reallocation of land may need to occur away from “trendy non-essential (luxury?)” crops such as wine-grape viticulture.

Side note - I acknowledge that the viticulture and wine industry in SA is important to the economy, but there have been enormous changes to the industry in the past 20 years that have attracted many entrants for the wrong reasons. It has involved SA Water Corporation in what I call spurious developments (e.g. Clare Valley Water Supply Scheme) that has a state government as a major shareholder. This is not

sustainable agriculture. This is putting economic development before the needs of the Murray River, and it was, and is, wrong.

The foundation premise of “how soils can be given greater emphasis within an integrated NRM framework” is vital. For example, in my region of SA, the Northern & Yorke Natural Resources Management Board's NRM Plan (Draft) 2008 acknowledges key information gaps including lack of soil mapping, no measurable indicators, little quantitative information on impacts of improved land management practices. There are very large knowledge gaps in terms of soil health and catchment condition. This problem is mirrored by the chronic low attention of human resources to the issue.

In terms of “ecological values and ecosystem services” I believe there should be action to restore systems to some semblance of acceptability in highly degraded landscapes. Australia's landscape is littered with a history of failed agricultural ventures, and no restitution of failed practices.

A New Direction

The real danger is that there are few if any plans in place for a new direction. We should not accept that declining rainfall will continue, because it may just be possible to have an effect by taking action in restoring a natural balance.

The concern for the future is continual decline and further retreat of agricultural production and still further decline of the rural population. The effects will be continued urban sprawl of metropolitan Adelaide as people migrate to where jobs are available. Unless there's a decentralisation policy that's implemented; now that's food for thought!

The Climate Change Adaptation Framework response of “increasing demand for agricultural crops as world population rises” will count for nought if soil fertility, rainfall, and different agricultural responses can not provide the output.

South Australia's soils are trending towards exhaustion, and the cropping and grazing systems risk more frequent episodes of failure. It will be insufficient, and inappropriate in terms of sustainability, to rely on genetics and biotechnology to maintain farm and rural productivity in the future.

So, what has all this got to do with adapting to a changing climate? Because it is all about **SUSTAINABILITY**.

When land clearance was in full swing in the period 1860-1880 and then from 1900, there was no consideration of the long-term effects on landscapes, soils, ecosystems, biodiversity. The prime motivation for the government of the day was to remain the number one grain producer in the land. As history reveals, other states soon caught up as the years rolled by.

But the legacy of those years of land clearance are being felt today more than ever. At least 10.2 million hectares of land have been cleared, ecosystems wiped out, and extinction of species unknown. It is only in recent years that two species thought to have been extinct have been “rediscovered” - the spiny daisy and the pygmy blue-tongue lizard, both in the Mid North region. How many other species are out there surviving in tiny enclaves? How many have been erased forever?

Mallee was once widespread across the state, generally in a band along the southern extents, but today there are just remnants, some tiny, many very isolated and disconnected. The mallee lands were seen as good cropping land. What has been lost is affecting local and regional climate today.

If we are to accept what is contained in the report **“It's About People : Changing Perspectives On Dryness”** (“Drought Policy Review Expert Social Panel” - Report to the Minister for Agriculture, Fisheries and Forestry, Canberra, September 2008), then the underlying assertion is that at the very least a proportion of what was removed from the landscape in those many decades of land clearance must be replaced, if community health is to prevail.

If we are to accept the statement in that report that “farming systems ... are inadequately aligned with sustainability requirements of its natural resources” then change must occur.

Of critical importance, if we accept the outcomes of the report “**Modelling impacts of vegetation cover change on regional climate**” (Land and Water Australia, July 2009) then there is only one option for South Australia.

To illustrate my point, I quote extensively from the study for this report, which concluded :

The study demonstrates the need for more integrated, long-term and adaptive policies and regional natural resource management strategies that restore the beneficial feedbacks between native vegetation cover and local-regional climate, to help ameliorate the impact of global warming. There is a critical need to reassess national climate change and natural resource management policies to include the interactions and feedbacks between the land surface and regional climate, particularly the role native vegetation plays in ameliorating climate extremes and the severity of droughts.

And in another two extracts :

In recent decades, the deforestation of the Australian landscape has been compounded by increased and sustained land use pressures arising from a steadily growing human population, rapid economic growth and rising global demand for Australian commodities, especially mineral and energy exports. There are also pressures on the extensive rangelands, with the sustainable management of rangeland landscapes continued to be outpaced by the need for growth, droughts, personal gain and invasive species. It is likely therefore that loss of ground cover due to drought and overgrazing will have a similar effect on energy fluxes and convective processes as broad-scale land clearing. A major uncertainty in attributing causes to changes in perennial land cover (trees and shrubs) in agricultural and rangeland landscapes results from the number of interacting factors involved (CO₂, grazing management, frequency of pasture burning and wildfires, and severity of intermittent drought).

The risks of ignoring the role of land surface feedbacks in current and future droughts are potentially catastrophic for Australia’s environment, economy and communities. Climate changes due to increased anthropogenic greenhouse gases coupled with land surface feedbacks appears to be

amplifying the natural climate variability and has the potential to tip Australia's climate, especially in southeast Australia, into a new regime of more extensive, frequent and severe droughts. The combined effect of transient increases in greenhouse gases and pressures from land use/land cover change may already be contributing to more severe droughts for eastern and southern Australia, and is an ominous sign for the increased incidence and severity of projected future droughts.

For years I have been writing about the urgent need for landscape-scale change in South Australia. I have presented submissions to Northern & Yorke NRM Board (my regional board) on this subject, and I have presented similar responses to other research investigations. Unfortunately there does not seem to be the will to embark on landscape-scale change. These are opportunities lost. I see it everywhere I drive (and that is extensively) in rural South Australia. I witness decline of natural capital.

All of this decline can be arrested, but it will take a new direction, a new form of agriculture and land use, to be introduced.

What Can Be Done?

Nationally and globally, there is an incremental movement towards a carbon economy. The discussion around the myriad arguments about carbon is outside the scope of this commentary. It is sufficient to say that a balance has to be returned to our natural capital in South Australia, and the store of carbon has to be returned. For decades, carbon has been released from its earthly chambers by mining and burning of coal. In addition, 10.2 million hectares of land clearance has released an enormous store of carbon in SA, when much of the cleared material was burnt and the residue released to the atmosphere.

In both cases - coal mining and land clearance - huge quantities of carbon dioxide have been released and have become greenhouse gases. And all this

has resulted from a relatively small population in South Australia. The impact per capita is extraordinary.

Now consider the 10.2 million hectares of cleared land. When living in an irrigated area of Victoria between 1987 - 97, I concluded that irrigated agricultural properties would need to give up at least 15% of their space for re-establishment of native vegetation just to remain viable and to limit the dire consequences of rising saline groundwater (this was the conclusion of the Murray-Darling Basin Commission many years later). In the South Australian context, dryland farms will conceivably need to convert up to 20% of their land to native revegetation. The same applies to irrigated farms. Research may be needed to test the 20% assumption.

There are sound economic reasons why this should occur, aside from environmental and ecological reasons. This means that 2 million ha would need to be revegetated - it is a staggering figure.

If, as reported, we accept that 4,000 ha annually is being revegetated in the state (and I'm not sure if it is this much), then that is equivalent to 500 years of revegetation work. I don't think we can wait that long.

If just 10% of cleared land (i.e. 1 million ha) is revegetated, it would take 250 years at the present rate of 4,000 ha per year. I don't think we can wait that long.

To have a real impact on a changing climate at the state and regional level, what is needed is a **new agricultural economy** based on a 50 year time horizon of revegetation - i.e. 40,000 ha annually. Not only would this protect farm incomes, but it conceivably would add to state income.

How can this be achieved? By direct seeding primarily. However, any on-farm revegetation would also include new crops (e.g. Guayule, a latex-producing plant with non-allergenic properties). This is an example of the new economy. In abandoned, semi-arid, cleared, agricultural land there is potential and opportunity to introduce new crops - there just needs to be the will.

It is predicted that the rural sector would resist allocating 20% of land to revegetation, but what is happening on the farm now is generally unacceptable, and conceivably poor, practice. Go back to that list on page 3 of this submission and look at those figures again.

A better way involves the following, and they are all very simple; there's nothing complicated about them:

- vegetation buffers along all paddock fences
- fencing off paddock trees to at least twice the tree height to allow micro ecosystems to evolve and for tree survival
- establishment of native vegetation corridors linking remnant scrub
- exclude cultivation within a 20 metre zone of watercourses
- exclude cultivation within 10 metres of the edge of woodlands for the establishment of understorey
- revegetate land that has remained idle or abandoned
- exclude grazing from existing woodlands to allow understorey to re-emerge

Land owners may be surprised at how much can be achieved from these actions, and the economic benefits that can be derived.

Some outcomes of landscape-scale revegetation are :

- establishment of new businesses and support services in rural and regional economies in land restoration
- substantial flow-on effects, with jobs and businesses created in site assessment and monitoring, native seed production, direct seeding, native crop products harvesting, establishment of new markets in sustainable products, higher education etc.
- participation in the Carbon Farming Initiative which can potentially yield a substantial future on-farm income for participating farmers
- farm diversity in seed production and new crops
- provision of a buffer to economic and climatic (drought) cycles
- scope for local government to use its enormous vacant road reserve inventory for revegetation corridors and participation in the carbon market

- participation in the provision of environmental services (refer to “**Creating Markets for Environmental Goods and Services: A Mechanism Design Approach**” by Gary Stoneham, Research project number DSE3 of the Social and Institutional Research Program, Land & Water Australia - Project completed June 2007)
- bio-energy potential
- improved crop output by reduction in soil moisture loss

These aspects have all been examined by others in the past, so there's nothing new here. But what is needed is an integrated approach and a commitment to a new rural economy embracing these ideas.

Neither the **State Strategic Plan** nor the Draft Climate Change Adaptation Framework, nor other government/agency plan to my knowledge, has examined the scope for massive revegetation of the cleared landscape as proposed above.

How is landscape-scale revegetation to be funded?

Funding of revegetation projects has always been a thorny issue, as it is seen by land owners not to produce tangible economic benefits. This is not true. An interesting report by CSIRO “**Market-Based Instrument approaches to implementing priority revegetation in the South Australian Murray-Darling Basin**” (December 2005) concludes the following ...

“We have found that conservatively, revegetation of deep-rooted perennials for both biomass production and carbon trading are likely to be at least as profitable as existing agriculture, particularly sheep grazing in spatially optimised locations. At higher prices, both activities are likely to be substantially more profitable than existing agriculture over much of the SA MDB.”

Should such an exercise be extended to all agricultural areas of the state, then it is logical that there would be negligible decline, if any, of farm income in the future. It is the diversity that improves income yields.

In times of emergencies - e.g. food shortages, drought, global volatility - greater resilience at local/regional levels will need to be asserted. The same will occur when transportation costs escalate beyond viable limits. Limitations on fuel availability (i.e. emergency fuel supplies) are presently in a perilous state - this will affect broadacre farm production, and ostensibly soil management.

Local/regional food production systems will need to re-emerge to serve local/regional populations. Strengthening of such systems will need re-assessment of social, economic, and productive capabilities. This approach needs much greater investigation, particularly if a fall-back position is needed in the event of major global crises emerging.

Reduction of food miles and use of recoverable/recyclable wastes will be essential elements in this altered economic scenario.

Conclusion

This submission has focused on what are conceivably the most important and urgent issues confronting sustainable agriculture in South Australia. And they are all about re-framing the agricultural model that still has its roots deep in the 19th century. There is ample evidence from many studies and investigations about the need for change, and these have been articulated in this submission.

“Sustainable farming” can not be considered in isolation. It is one part of many connected links.

If we do not embrace actions to avert the effects of predicted long-term rainfall decline, natural resources decline, and a changing climate, then decisions about the future sustainability of agriculture will be irrelevant. Everything else will be subservient to what nature will bring.

What is really needed is a very long-term plan about landscape change in this state.

-----+++++++-----

Des Menz

B.Tech (Civ. Eng.), Grad.Dip Management, Grad. Dip. Environmental Management

14 December 2012

About the author

I am a self-employed consultant (since 1989) in civil/municipal engineering and environmental management, having practiced in both Victoria and SA. I have been a practicing professional since 1973, and have also had 10 years experience in local government at a senior level.

My qualifications include a degree in Civil Engineering, and post-graduate qualifications in Management and Environmental Management.

I have been involved in Landcare projects in Victoria, and personal and community revegetation projects here in SA.

I have lived much of my life in rural settings, most of which have been in SA. My forbears were Prussian immigrant farmers who located to the Mid North in 1865 to farm in the Caltowie wheat-belt area. They were pioneers. They knew not what they were doing.

Together with my wife, I live on a small 33 ha property 6km north-west of Clare. This land was in a very poor state when we acquired it. Today, it is unrecognisable from its past use.

Contact details :

PO Box 117, Clare SA 5453

88423495

desmenz@aussiebb.com.au