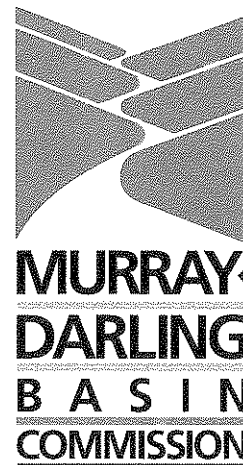


In reply please quote: MDBC: 08/3156  
Your reference



4 April 2008

The Secretary  
Standing Committee on Rural and Regional Affairs and Transport  
PO Box 6100  
Parliament House  
Canberra ACT 2600

To The Secretary

Thank you for your invitation to provide a submission on Climate Change and the Australian Agricultural Sector. The information provided below specifically addresses the matter of:

*The scientific evidence available on the likely future climate of Australia's key agricultural production zones, and its implications for current farm enterprises and possible future industries.*

The Murray-Darling Basin Initiative is a partnership between the governments and the community which has been established to give effect to the 1992 Murray-Darling Basin Agreement. The purpose of the Agreement (Clause 1) is 'to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin'.

Agriculture and grazing in the Murray Darling Basin generate annually approximately \$14 billion, 40 per cent of Australia's agricultural income. Agriculture in the Basin uses 70 per cent of Australia's irrigation water. The Basin is extremely important for indigenous and rural communities, tourism, manufacturing and mining. The environment of the Basin is highly diverse with a number of world heritage listed sites and important biosphere reserves.

Average annual inflows to the River Murray system are 11,100gl/yr (estimated over the period 1891-2007). In 2006/07 inflows were approximately 1000gl. The current drought is having a significant impact on communities, agricultural industries and the environment and it is likely that even under a return to average annual inflows it will take many years to recover storages. It is however likely that over the medium to longer term the average annual inflows in the Basin will be reduced as a result of climate change. Increasing temperatures and associated evaporation in conjunction with reductions in rainfall will reduce water availability in the Basin.

In 2006 the Murray Darling Basin Commission (MDBC), Victorian Department of Sustainability and Environment, Managing Climate Variability Program of Land and Water Australia, the Australian Greenhouse Office, CSIRO and the Bureau of Meteorology signed a collaborative agreement called the South Eastern Australian Climate Initiative (SEACI).

The SEACI is a three year, \$7 million research program to investigate the causes and impacts of climate change and climate variability across south eastern Australia. The Murray Darling Basin Commission is the managing agency for SEACI.

The focus of the research is on the fundamental underlying science of climate change and initial attempts to understand the impact of changing climate on water availability in the southern Basin.

The initiative consists of three scientific themes examining and attempting to answer a series of research questions as they relate to south eastern Australia:

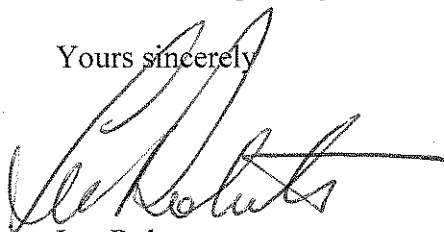
1. The characterisation and attribution of current climate.
  - How has climate changed?
  - What are the major drivers affecting historical and current climate?
  - What are the relationships between the drivers operating at different timescales and have these changed over time?
  - What are the causes of the dry conditions affecting parts of the study area over the last decade, and what is the prognosis?
2. High resolution climate projections and impacts
  - How is the climate (average, inter-annual variability and extreme events for rainfall, temperature and evaporation) likely to change over the next 25-65 years?
  - What are the probabilities attached to these changes?
  - How can methods for regional projections be improved to provide greater confidence for stakeholders?
3. Seasonal forecasting.
  - Can reliable methods of forecasting climate variations 3-12 months in advance be developed for south eastern Australia?
  - Can these new forecast methods with greater skill and longer lead times be applied to forecast streamflow and crop yields?

Final project reports for SEACI are due at the end of 2008. We are currently undertaking a mid-term review of SEACI which will provide valuable input to each agencies planning for future climate change research and investment.

The MDBC is also developing a climate change and climate variability research and investment plan which we anticipate will highlight the need for ongoing research into estimating the nature, scale and impact of climate change and climate variability on water and other resources in the MDB and understanding how these impacts can be incorporated into water resource planning.

Should you require further information please contact Katrina Maguire, Senior Manager, Climate Change Program, MDBC on telephone 6279 0149 or [katrina.maguire@mdbc.gov.au](mailto:katrina.maguire@mdbc.gov.au).

Yours sincerely



Les Roberts  
Acting Chief Executive