

Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Innovation, Industry, Science and Research Portfolio
Supplementary Budget Estimates Hearing 2010-11
20 October 2010

AGENCY/DEPARTMENT: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Murray-Darling Basin Authority (MDBA)

REFERENCE: Written Question—Senator Colbeck

QUESTION NO: SI-58

1. How many staff were involved in contributing to the CSIRO research that was provided to the Murray-Darling Basin Authority (MDBA) to help it prepare its recently-released document about its proposed Basin Plan?
2. Were any of these staff also involved in the development of the Rising Groundwater Theory (and/or any of the modelling associated with that) about alleged rising salinity in the Murray-Darling Basin in the 1990s? And, if so, how many?
3. Did the MDBA formally commission the CSIRO to undertake work for it? If so, when? What was the cost if any of the work?
4. Will the CSIRO be undertaking any additional work for the MDBA as it moves to finalise the Basin Plan?
5. Is the CSIRO a member of the MDBA's panel of consultants?
6. Will the CSIRO be tendering to perform the additional socioeconomic study that was announced by the MDBA on 17 October 2010?
7. The MDBA relies on climate change models that forecast a reduction in rainfall in the Basin of 10% by 2030. What role did the CSIRO play in advising the MDBA on this estimate? How much uncertainty exists around this estimate?
8. Mike Taylor, chairman of the MDBA, said on 15 October 2010 that the science “still needs to be tested”. Does the CSIRO agree with this statement – and, if so, in what ways does the science need to be tested? How is this view consistent with the view expressed in the Guide that the findings are based on the best available science?
9. Does the CSIRO rely on data from the Bureau of Meteorology in assessing historical rainfall patterns in the Murray-Darling Basin?
10. ‘Quadrant Online’ published an article by Tom Quirk on 14 October 2010 titled ‘BOM loses rainfall’. In that article, Mr Quirk claims that the Bureau of Meteorology rainfall data for the Murray-Darling Basin has been modified in the past two years. In particular, a comparison of the BoM’s historical data (going back to 1900) between that published in August 2008 and that

published in October 2010 shows a loss of 900mm of rainfall. Is the CSIRO aware of these claims in relation to BoM's data? If so, does it have a response?

11. How reliant are the CSIRO's estimates of future rainfall patterns on the historical record of rainfall patterns?

12. In your research to support Murray-Darling Basin industries and communities, did you have any involvement in the claim that the action proposed in the MDBA's document would cost a total of only 800 jobs?

13. At the Estimates hearing on 20 October 2010, Dr Clark and Dr Johnson were asked if they were aware of Ken Stewart's recent research which has indicated that there has been artificial adjustment of temperature records in urban areas in Australia. His research is summarised online from the following starting URL: <http://kenskingdom.wordpress.com/2010/09/14/the-australian-temperature-record-part-9-an-urban-myth/>. In relation to that research, and given your extensive collaboration with the BOM on climate data, is it your view that it is normal for reputable scientists to start increasing the adjustments to raw temperature data 50 years after the measurements were recorded?

14. Can you explain why there was apparently such an overestimation of temperature measurements in the first half of the 1900s? And why that would be so substantially different in any respect to other periods so that larger adjustments are needed?

ANSWER

1. Since 2008 35 CSIRO staff have worked on 18 projects for the Murray-Darling Basin Authority (MDBA) to provide research to inform the development of the MDBA plan.

2. CSIRO was not involved in the rising groundwater theory per se but we were involved in research tying groundwater and salinity in the early 1990's that informed the development of theories by other people. If the project referred to is the Ultimate Salinity project commissioned by the MDBC, CSIRO was not involved except in a partial review role through the Cooperative Research Centre for Catchment Hydrology. This review by the CRC involved three CSIRO staff members— all of whom have worked on projects for the MDBA in recent years.

3. Since 2008 CSIRO has had 18 contracts with the MDBA to provide research to inform the development of the MDBA plan. These contracts had a combined value of \$4 million and employed 35 CSIRO staff.

4. CSIRO stands ready to assist should access to our research capabilities be requested.

5. Yes

6. Having considered the scope of this work including communications with MDBA, any CSIRO involvement would likely be relatively minor. This is because the focus of the assessment is on the social impacts on local communities whereas CSIRO capabilities are in the assessment of broader economic impacts.

7. The MDBA has relied on climate change advice from CSIRO from the Murray-Darling Basin (MDB) Sustainable Yields project (and through MDBA's involvement as a partner in the South

Eastern Australian Climate Initiative). For the MDB Sustainable Yields project CSIRO used information from 15 Intergovernmental Panel on Climate Change (IPCC) global climate models to assess the potential impacts of future rainfall on runoff/water availability and to provide information around the uncertainty in these assessments.

The MDB Sustainable Yields Project found that by 2030 the possible changes in mean annual rainfall across the Basin averaged from an 8 per cent increase to a 13 per cent decrease, with a median value of a 3 per cent decrease. Such changes in rainfall by 2030 equate to possible changes in mean annual runoff across the Basin of a 16 per cent increase to a 33 per cent decrease, with a median value of a 9 per cent decrease. A 9 per cent reduction in mean annual runoff equates to a 10 per cent reduction in mean annual water availability as assessed further downstream.

8. No. CSIRO has provided MDBA with updated assessments from the MDB Sustainable Yields project as a part of the Basin Plan preparation. These updates include minor improvements to the assessment method and consider an additional three years of data (2006-2009). These updates have not significantly altered the earlier estimates of the climate change impacts by 2030. CSIRO do not anticipate a need to update these assessments in the few years, as this is the most rigorous assessment than can be provided with the data sets presently available. The next opportunity to update these assessments will be in two to three years when results from research in the South Eastern Australian Climate Initiative are available and the Fifth Assessment Report of the IPCC released.

9. The technical work that CSIRO provided for the MDBA has been rigorously peer reviewed. All the science that CSIRO has provided to the MDBA has been adequately tested. CSIRO has not been asked to comment on other science that the MDBA has used. We have not seen the level of detail that would allow us to assess how rigorously it has been reviewed.

10. In the climate and hydrological modelling and assessments for the MDBA, CSIRO primarily uses the SILO gridded historical climate data sets that are owned by the Queensland Government. These are gridded climate data based the climate observations made by the Bureau of Meteorology.

11. No, CSIRO is not aware of these claims. This question should be directed to the Bureau of Meteorology.

12. The estimates of future rainfall used by CSIRO do rely on historical records of rainfall patterns, which have been interpolated by the Queensland government and made available through the SILO dataset. Interpolation compensates for gaps in raw data where gauges are scattered or unreliable. CSIRO estimates of future rainfall patterns are based on assessments of the likely degree of relative change in rainfall which are not affected by changes to the modelled historical datasets.

13. No.

14. Australian temperatures and temperature trends are reported by the Bureau of Meteorology based on high quality data using standard scientific practices and open, well documented methods of assessing and presenting trends. Australian mean temperatures are calculated from a national network of about 100 high quality non-urban weather stations. This question should be directed to the Bureau of Meteorology.