Rural and Regional Affairs and Transport Legislation Committee

ANSWERS TO QUESTIONS ON NOTICE

Additional Estimates February 2016

Agriculture and Water Resources

Question: 221

Division/Agency: Murray Darling Basin Authority

Topic: Murray-Darling Basin Plan – Climate change

Proof Hansard page: Written

Senator SIMMS asked:

The Intergovernmental Agreement on a National Water Initiative was agreed to in 2004. Part of this agreement outlines that climate change should be considered when developing a water plan. Why does the Murray Darling Basin Plan, the biggest water plan in Australia, fail to consider or even acknowledge climate change?

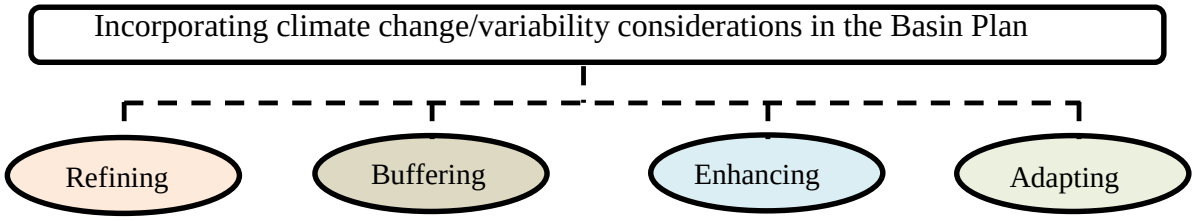
Answer:

The Murray-Darling Basin Plan both acknowledges and considers climate change. The Murray-Darling Basin Authority (MDBA) included climate change considerations in the Basin Plan's high-level objectives and through various provisions that are implemented within an adaptive management framework.

The various provisions in the Basin Plan that are relevant under a changing climate can be grouped into four types of action; those that refine existing water management arrangements; those that buffer the system from the additional stress of climate change; those that enhance responses to climate change; and those that facilitate adaptation to climate change at a range of timescales. These are set out in more detail in Attachment 1.

A fuller description of the range of measures in the Basin Plan that deal with climate change can be found in a recently published paper in the peer-reviewed journal *Water*, Neave I et al (2015): Managing water in the Murray-Darling Basin under a variable and changing climate http://www.mdba.gov.au/publications/journal-articles/managing-water-murray%E2%80%93darling-basin-under-variable-changing-climate.

Question: 221 (continued)



Provision	Basin Plan	Description of Provision
***Refining** existing arrangements*		
Annual water allocations based on prevailing climatic conditions	Chapter 6	The Basin Plan continues to support and strengthen States' annual allocation process. The process is responsive to climate variability and change.
Hydrological modelling covering extremes of climate	Chapter 6	Modelling to support development of SDLs used an extended climate sequence (1895-2009) and therefore captured all the dry and wet periods of that 114 year period.
Strengthening existing water trading framework	Chapter 12	The Basin Plan refines and strengthens the existing water trading framework, allowing the most productive use of scarce water in dry times.
***Buffering** the system from stress*		
SDLs provide additional water to support healthy ecosystems	Chapter 5 & 6	Recovery of additional water (average of 2,750 GL/year) from consumptive use for environmental purposes will help to build the resilience of water-dependent ecosystems in the face of a drying climate.
Inclusion of groundwater and interception in SDL framework	Chapter 6	The Basin Plan brings groundwater diversions and interception activities into SDLs.
Protection of planned environmental water	s10.28	The Basin Plan requires States to ensure there is no net reduction in protection of planned environmental water when updated water resource plans are developed.
***Enhancing** with new arrangements*		
Identification of risks, and strategies to address those risks	s4.03(3)(g)(iii) s4.03(3)(h)(iii)	The Basin Plan identifies climate change as a risk to the condition and continued availability of water resources and provides that new knowledge about its impacts is required.
Setting an environmental objective and outcome that considers climate change	s5.03(1)(c) s5.03(2) s8.04(c) s8.07(1)&(2) s9.04(2)(a)	A Basin Plan objective is ensuring that water-dependent ecosystems are resilient to climate change (Chapter 5, 8 and 9) and an outcome is that water-dependent ecosystems have strengthened resilience to climate change (Chapter 5).
Setting a water trade outcome that considers climate change	s5.07(2)(c)(ii)	A Basin Plan outcome is the creation of a more efficient and effective market that enables water-dependent industries to strengthen their capacity to adapt to future climate change
Annual environmental watering priorities based on prevailing climatic conditions	s8.23-s8.31	The annual environmental watering priorities are determined from an assessment of the amount of water likely to be available in the year in question.
Maximising the benefits of environmental watering	s8.35(f)	Environmental watering is to be undertaken in a way that incorporates strategies to deal with a variable and changing climate.
Arrangements to meet human water needs under extended dry periods	Chapter 11	The Basin Plan has identified the volume of water required to deliver and meet critical human needs on the shared River Murray system, and has arrangements to manage the risks that this cannot be provided.
Water resource plans to develop strategies to address the risk of climate change, protect groundwater systems and managing extreme dry conditions	Chapter 10	States must consider the risks of climate change and determine how to respond. States must consider what rules are required to protect the groundwater-dependent ecosystems and the productive base of groundwater. States must describe how an extreme dry period will be managed, and consider whether management should change if new science about climate change suggests a change in the chance of such events occurring.
***Adapting** to future changes*		
Discrete-point adaptation	s6.06	The Basin Plan must be reviewed at least every 10 years (Water Act s50) and reviews under s6.06 of the Basin Plan must be undertaken having regard to the management of climate change risks and include an up-to-date assessment of those risks. The Environmental Watering Plan and water quality and salinity targets in the Water Quality and Salinity Management Plan must be reviewed every five years (Water Act s22).
Continuous adaptation	s8.17 s8.31	The Basin-wide environmental watering strategy can be reviewed at any time and at least every five years, and the Basin's environmental watering priorities are determined annually and can be updated at any time.
Monitoring and evaluation	Schedule 12 Item 3&17	The matters for evaluation of the Basin Plan include the protection and restoration of water-dependent ecosystems and ecosystem functions, including for the purposes of strengthening their resilience in a changing climate; and the effectiveness of the water resource plan in providing a robust framework under a changing climate.

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Question: 222

Division/Agency: Murray Darling Basin Authority

Topic: Murray-Darling Basin Plan – Modelling of water flows and climate change

Proof Hansard page: Written

Senator SIMMS asked:

Is all modelling used for the MDB plan based on current water flows and therefore does not account for potential reductions in water flow due to climate change?

Answer:

The modelling used to inform the Basin Plan represents the planning models used by State governments and the Murray-Darling Basin Authority (MDBA) in water resource planning. The models have been joined together to form an integrated modelling platform for the Basin. The model period is from 1895 to 2009 and includes the climate variability present over that period in terms of rainfall and evaporation. This 114 year period includes both significant dry periods and wet periods and allows the MDBA to examine the ability of the system to respond to a range of climate scenarios in delivering outcomes for consumptive users and the environment.