

SOUTH WEST YARRAGADEE AQUIFER, INVESTIGATION

36. Mr P.D. Omodei to the Minister for Water Resources

Will the Minister provide the following information -

- (a) a breakdown (by aquifer or groundwater formation) of the number of bores currently capable of drawing water from major aquifers and groundwater formations in the metropolitan and South West region;
- (b) a breakdown (by aquifer or groundwater formation) of the number of bores that currently draw water from major aquifers and groundwater formations in the metropolitan and South West region;
- (c) the reason why each bore that is capable of drawing water from major aquifers and groundwater formations in the metropolitan and South West region is not currently being used to do so;
- (d) the procedures that have been established to calibrate bores used for any investigations or research into the extraction of water from the South West Yarragadee;
- (e) details on the number of bores that have been sunk as part of the current investigation into the South West Yarragadee;
- (f) the rationale as to why only one bore is being used to assess impacts of water extraction on the Yarragadee aquifer;
- (g) in regards to the Yarragadee investigation, what consideration has been given to the impact that water extraction from aquifers in the metropolitan region has had on the viability of these aquifers and the environment;
- (h) the rationale for the short assessment period being used to investigate the impact of water extraction from the Yarragadee aquifer; and
- (i) the rationale as to why reliance is being placed on assessment of the impact of water extraction from the Yarragadee aquifer during a time of diminished rainfall?

Dr G.I. GALLOP replied:

- (a) For public water supply in the metropolitan area (Water Corporation), there are 158 bores currently capable of drawing water from the Superficial aquifer, 10 bores capable of drawing water from the Mirrabooka aquifer, 29 bores capable of drawing water from the Leederville aquifer and 19 bores capable of drawing water from the Yarragadee aquifer. For public water supply in Bunbury (Aqwest), there are 15 bores currently capable of drawing water from the Yarragadee aquifer. For public water supply in Busselton (Busselton Water Board), there are 6 bores currently capable of drawing water from the Leederville aquifer and 12 bores currently capable of drawing water from the Yarragadee aquifer.
- (b) For public water supply in the metropolitan area (Water Corporation), there are 120 bores which currently draw water from the Superficial aquifer, 5 bores which currently draw water from the Mirrabooka aquifer, 28 bores which currently draw water from the Leederville aquifer and 18 bores which currently draw water from the Yarragadee aquifer. For public water supply in Bunbury (Aqwest), there are 10 bores which currently draw water from the Yarragadee aquifer. For public water supply in Busselton (Busselton Water Board), there is 1 bore which currently draws water from the Leederville aquifer and 12 bores which currently draw water from the Yarragadee aquifer.
- (c) In the metropolitan area, there are 38 public water supply bores that are currently capable of drawing water from the superficial aquifer that are shut down. Of this total, 31 are shut down because of likely adverse impacts on the environment or statutory breaches of the minimum water level criteria set by the Minister for the Environment when the groundwater schemes were originally approved. The remaining seven are shut down for operational reasons such as problems with water quality or very low production rates. In addition, five bores in the Mirrabooka aquifer are shut down because of likely adverse impacts on the environment or statutory breaches of the minimum water level criteria, 1 Leederville aquifer bore is shut down because of water quality problems and 1 Yarragadee aquifer bore is shut down because of casing failure. In Bunbury, Aqwest has shut down 5 Yarragadee aquifer bores because of casing failures. In Busselton, the Busselton Water Board has shut down 5 Leederville aquifer bores as part of a decision to obtain its public water supply from the Yarragadee aquifer.

- (d) The standard procedures used in investigation drilling for groundwater, including the South West Yarragadee, are to:
- drill the bore and geologically log (describe) the samples;
 - geophysically log the bore with natural gamma-ray detector and electrical resistivity tools;
 - case and screen the bore;
 - airlift, develop and obtain a water sample for chemical analysis of major ions;
 - pump the bore to obtain air-free samples for detailed chemical and isotopic analysis;
 - measure the static water level, and monitor thereafter at regular intervals; and
 - carry out test pumping if bore is designed appropriately, and measure drawdown response in nearby observation bores.
- (e) 163 bores have been constructed at 67 sites.
- (f) All of the 163 bores are used to assess the hydrogeology of the area. This information is used to model the impact of extraction.
- (g) The South West Yarragadee aquifer and the Yarragadee aquifer between the Perth and Geraldton areas are quite separate, as the Yarragadee Formation is absent between Kemerton and Mandurah. The experience gained from use of the Yarragadee aquifer in the metropolitan area has been accounted for in the predictive groundwater flow modelling of the South West Yarragadee.
- (h) The Government has been assessing this project since October 2002. Throughout the assessment process, the Government has stated that the decision on the project will be made when it has sufficient information to make such a decision. Therefore, the assessment is information dependent rather than time dependent.
- (i) The assessment being undertaken by the Government takes into account current and future potential climate change. Continued monitoring of the resource also provides information on how it is responding to use and other factors such as climate. This information allows the performance of the resource to be reviewed and changes to its management regime made, as appropriate. This approach allows the Government to protect the economic, social and environmental values of the resource.