Upper Condamine Alluviums groundwater system

Background summary

The alluvial groundwater systems of the Condamine River and its tributaries cover an area of approximately 8500 km^2, commencing in the headwaters near Killarney and extending downstream to the Balonne River north of Glenmorgan. This groundwater system is identified as two sub-units in the Murray Darling Basin Plan (the Basin Plan); the Central Condamine Alluvium (CCA) and the Tributaries (refer to Figure 1).

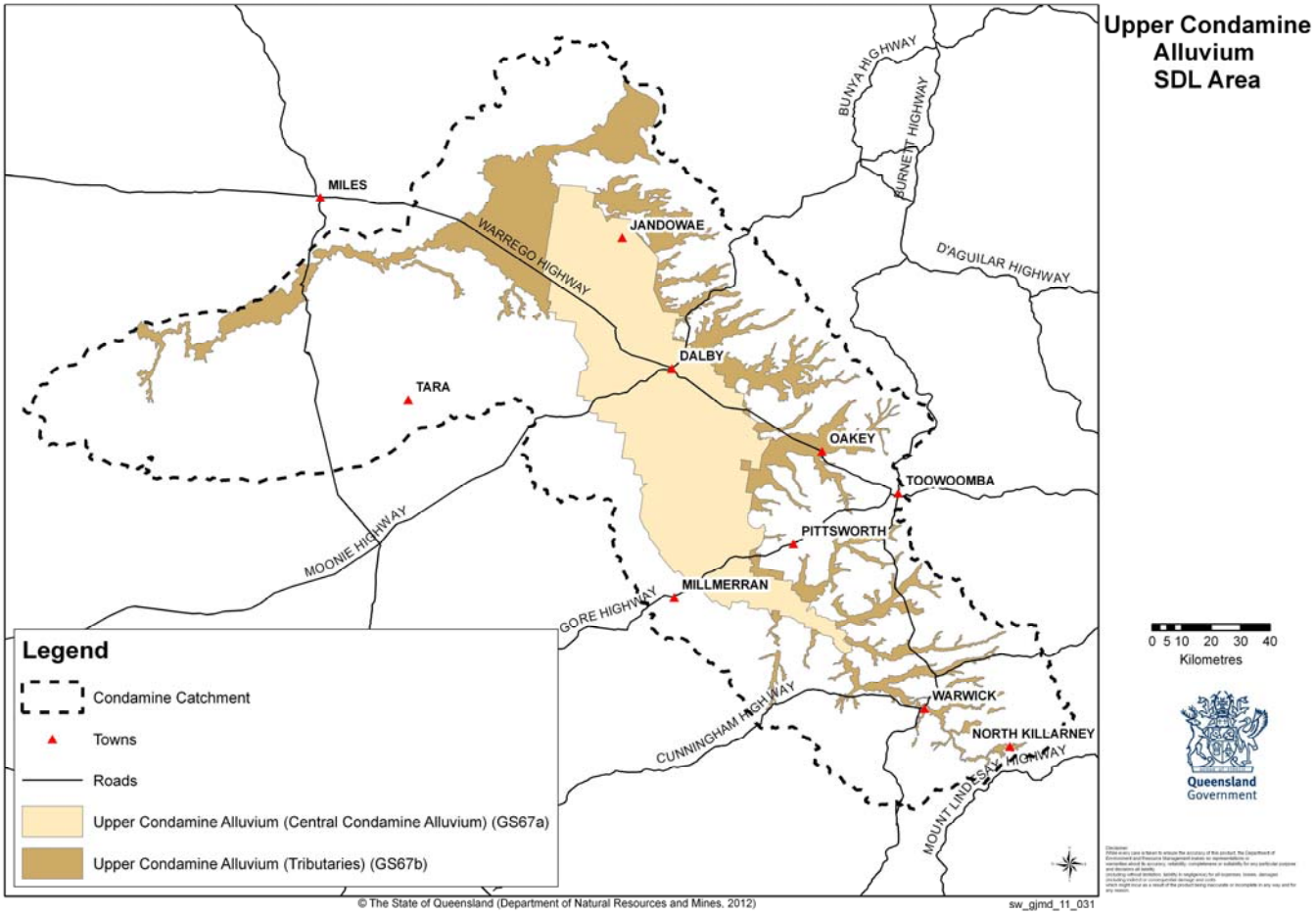

Figure 1: Upper Condamine Alluvium sub-units

The alluvium and tributaries have been extensively developed for irrigation, industrial, stock and domestic purposes and are characterised by overdevelopment and over allocation with respect to the productive yield of the system. Overdevelopment is a historic legacy from major irrigation growth in the 1960s.

Since 1970, the cumulative impact on this resource was recognised and further access to Condamine River alluvial groundwater systems limited. A moratorium to limit development of groundwater in this area was published in June 2008 for the Alluvium and the Basalts in the Upper Condamine Catchment. This moratorium was recently amended to further restrict new take of groundwater in the system.

The following figures identify the impacts on the system's yield as a result of overuse.

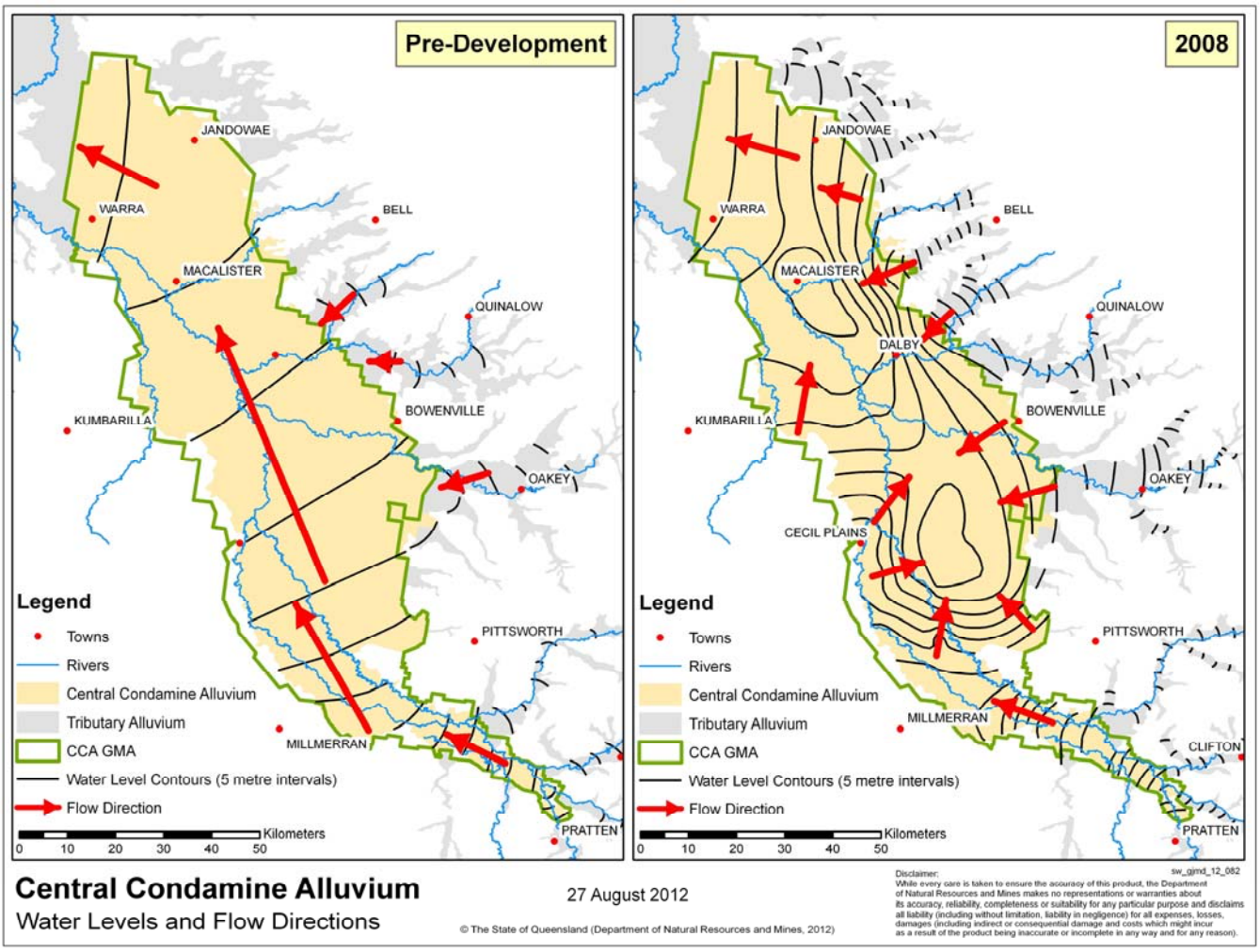

Figure 2: Effect of development—water level and flow

Figure 2 shows that a significant depression, or depletion zone (demonstrated by the contours representing groundwater level), has developed within the central part of the CCA footprint. The change in groundwater flow direction due to the development of the depression is evident. Figure 3 illustrates the progressive enlargement of this depression over time.

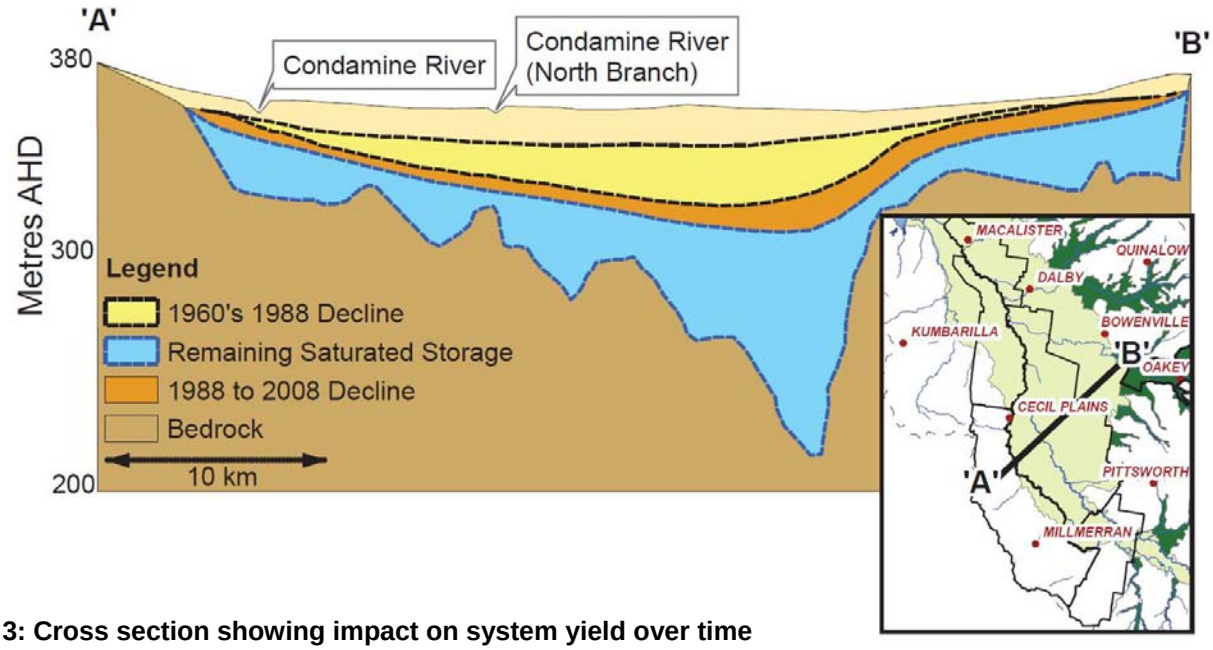

Figure 3: Cross section showing impact on system yield over time

To manage the declining groundwater levels, annual entitlement limitations on take have been implemented in sections of the CCA since 1995. Currently entitlement holders in the CCA are restricted to 50 per cent of their nominal entitlement and those in the tributaries to 30 per cent.

The department has worked with Central Downs Irrigation Limited since 2004, providing information on system performance and the condition of the Central Condamine groundwater resource and to negotiate annual management arrangements. In 2006, a review of system performance identified the aquifer was still in decline despite the measures implemented to reduce use. The management area was expanded at this time to form the CCA.

A process to address over allocation by amending the Condamine and Balonne Water Resource Plan began in 2009, with preliminary involvement of groundwater users to discuss potential cuts of 60 per cent to entitlements to bring the use of groundwater back to sustainable levels. In 2010, the Murray–Darling Basin Authority released the Guide to the Basin Plan. Work on amending the water resource plan was delayed as it was unclear what final Basin Plan requirements would be. The Commonwealth announced it would purchase groundwater entitlements in the Upper Condamine Alluviums to align current levels of use with sustainable diversion levels.

Table 1 identifies figures for sustainable diversion levels and current levels of use of the CCA and tributaries. These figures are taken from the draft Basin Plan and they identify that the level of groundwater use in the system is 40.4 gigalitres more than the sustainable level. The Commonwealth required an interim Water Resource Plan before they would commence any buyback of groundwater entitlements. The water management plan released on 10 August 2012 is an interim water resource plan which meets the Commonwealth's requirement.

Table 1: Sustainable and current use levels stated in the Basin Plan

	Upper Condamine Alluvium (UCA)	
	Central Condamine Alluvium (GS67a) (GL)	Tributaries (GS67b) (GL)
Total Entitlement volume	86.1	42.0
Stock and domestic estimated use	6.0	3.5
Current levels of use	81.4	45.5
Sustainable diversion levels	46.0	40.5
Gap (Commonwealth water recovery)	35.4	5.0

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