For many years, from the development of the Environmental Impact Statement through to today, Adani Mining has been studying, assessing and reviewing water management at the Carmichael Project. We recognise the critical importance of managing any impact on groundwater in and around the mine site.

Our extensive scientific studies have informed the Groundwater Dependent Ecosystem Management Plan or GDEMP - one of the many management plans in place for the construction and operation of the Carmichael Mine.

The GDEMP is a regulatory document that describes the monitoring and management activities, and any approved potential impacts to groundwater dependent ecosystems. The plan also outlines the actions we will take to protect these ecosystems during the construction and operation of the Carmichael Mine and beyond, post operations.

The GDEMP has been through 11 rounds of assessment with the Australian and Queensland Governments and has also been independently reviewed by CSIRO and Geoscience Australia.

Water for the Carmichael Mine and Rail Project

On site, water will be used for:

- Washing coal – approximately 30% of coal will be washed to increase its energy efficiency
- General human use – workshops, offices and in the accommodation village
- Dust suppression – water is sprayed onto roads and stockpiles to minimise dust to keep employees and neighbours safe.

Water will come from:

- Sutton River water pumped under licence when the river is in flood and after farmers and other users have taken the water they need
- Groundwater – for the purpose of enabling safe mining
- Rain water
- Recycled water.
Groundwater assessment findings

As part of our extensive groundwater studies completed between 2014 and 2018, we engaged third party scientific and environmental experts to complete field surveys, underground water monitoring assessments and geological studies based on the Australian water modelling guidelines. Groundwater and potential groundwater drawdown have been modelled for the life of the project and beyond to 2129. This modelling reflects a range of climatic conditions including drought.

During mining, groundwater is extracted from in and around the mine to allow mining to occur safely. Adani Mining has approval to take and reuse this water that is removed. The water will come from local aquifers, the Betts Creek beds, connected to coal seams beneath the mine site. These aquifers are not connected to the Great Artesian Basin (GAB). The mine is separated from the GAB by a natural underground layer of thick claystone, the Rewan Formation, which stops water from moving from the GAB to the mine.

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A cross-section of the ground beneath the Doongmabulla Springs and the Carmichael Mine site shows that they draw water from different underground sources.
The Carmichael Mine will not source water from the Great Artesian Basin.
Adani does not have unlimited access to groundwater – we will only take the water required to support the safe operation of the mine at each stage of production. The Carmichael Mine will produce approximately 10 million tonnes of coal per annum and we will only take the water required to operate safely at this rate.

Groundwater monitoring will be regularly conducted at more than 100 sites to observe and track water levels. Some of these sites are grouped together in the same location as 'nested bores'.

The information from these monitoring bores is used to ensure the mine’s water use is safe and sustainable and will be reported to Federal and State regulators. In addition, we will share the data with local landholders and communities. Reports will also be publicly available at www.adaniaustralia.com

Water monitoring will continue throughout the life of the project and after mining is completed to ensure early detection of any changes.

The GDEMP:

The Groundwater Dependent Ecosystem Management Plan (GDEMP) is a regulatory document that outlines the actions we will take to protect the Doongmabulla Springs and groundwater dependent species during the construction and operation of the Carmichael Mine, ensuring we meet project conditions.

- Describes the assessed and approved impacts to groundwater and ecology of the Groundwater Dependent Ecosystems (GDEs)
- Details the environmental values that have been monitored
- Identifies goals and triggers for each GDE, which will be refined over time
- Details the monitoring program throughout the project
- Describes mitigation and management measures
- Achieves compliance with relevant Commonwealth and Queensland approvals.
How is groundwater protected?

There are more than 270 conditions within the mine approvals to protect the natural environment and 100 of those relate to managing groundwater.

The GDEMP outlines how we will meet the regulatory conditions to protect the ecosystems that depend on groundwater. This includes a range of ‘triggers to take action’ that will be investigated, reported and acted upon to ensure we stay within approved limits. All of these triggers were modelled on a mine producing coal at 60 million tonnes per annum and, as we now plan to commence at 10 million tonnes per annum, we are confident we will not reach these limits.

‘Make good’ provisions exist in case there is a drop in water levels of those bores neighbouring the mine site. If water levels drop, Adani Mining will supply water to landholders to replace what has been lost or provide compensation. The Queensland Government has a range of ‘make good’ measures in place across the mining industry.

As well as these protections, we will review planned mining activities to ensure we stay within approved groundwater impact levels.

Adani is committed to responsibly managing groundwater and will continue to monitor and report on any potential impacts throughout the life of the project and beyond.

For more information on water use and management for the Carmichael Project, visit www.adaniaustralia.com and download our ‘Safe and Sustainable Water Management’ and ‘Protecting the Doongmabulla Springs’ fact sheets.