

## **Using Innovations in Managed Aquifer Recharge to Improve Coal Seam Gas Water Management**

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### **Abstract**

Managed Aquifer Recharge (MAR) is one of the priority water management solutions outlined in the Queensland government's CSG water management policy. However, feasibility investigation costs and risk of succeeding to the operation phase can be quite high due to the need for trial studies. In recent years, much work has been undertaken on investigating the technical and science capabilities of MAR in the Surat Basin. The work undertaken as part of the Healthy HeadWaters study provides a suitable backdrop to assess the conceptual feasibility of various MAR options not previously considered. An innovative MAR technology, known as the Aquifer Recharge Injection Device (ARID), has been designed to reduce construction and operation costs. Originally developed for the coal bed methane industry in the United States, the technology utilises the existing coal seam gas well as the MAR injection well. The treatment of produced water is conducted at the well head, foregoing the need for large up-front investment in centralised treatment plants and pipe networks. Using environmental innovation theory, we have identified economic efficiencies gained through these types of innovations can lead to social and environmental benefits as well. This research highlights some possible ways that environmental sustainable technology, such as ARID, could be positioned for development in the Australian CSG industry for the future.