



MAR in Korea

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In South Korea, which depends heavily on surface waters for water resources, there has been interest in the development of indirect water intake systems, such as riverbank filtration, in order to solve problems such as water quantity variability and water pollution. The development of riverbank filtration in Korea is mostly operated by municipalities in relatively small and medium sized facilities in Gapyeong, Haman, Iryong, and Daesan areas. A facility currently under construction has the capacity of 180,000 m³/day, and it is scheduled to be completed in 2017. And, the Korea Water Resources Corporation is carrying out large-capacity Nakdong riverbank filtration business of 68,000 m³/day in Changnyeong area (K-water, 2016).

The annual amount of groundwater use in South Korea reached 3,807 Mm³ in 2010 (Ministry of Land, Transport and Maritime Affairs, 2011). Water supply by managed aquifer recharge totals 146.4 Mm³ per year, accounting for 3.8% of total groundwater use. Riverbank filtration accounts for 89.1 Mm³/year and underground dams and 57.3 Mm³/year. Six underground dams have been developed and completed in the 1980s and 1990s, of which 5 are used for agriculture and 1 is used for drinking water (Ministry of Land, Transport and Maritime Affairs, 2012).

In Jeju Island, reservoirs for flood mitigation have been combined with well injection systems since 2010 to produce what is called Jeju-friendly Aquifer Recharge Technology(J-ART). The system has been built in the Hancheon upstream area, and proved to be effective in intentional increase groundwater recharge by about 2 Mm³/year (Korea Institute of Geoscience and Mineral Resources, 2011). In addition, several empirical studies have been conducted over the past decade to recirculate the abandoned groundwater for heat utilization in green house areas to replenish groundwater and reduce the groundwater drawdown (Korea Institute of Geoscience and Mineral Resources, 2011).

Table 1. Growth in volume of Managed Aquifer Recharge (Million cubic metres/year)

Annual MAR volume in Korea in the decade centred on date (Mm ³ /y)						Annual Groundwater use (Mm ³ /y)	MAR as % groundwater use
1965	1975	1985	1995	2005	2010-15	2010	2010-15
	3.7	12.4	46.0	91.3	146.4	3,807	3.8%

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