(Republic of) Korea

Capital city: Seoul
Inhabitants: 51 Million

INSTITUTIONAL SETTING AND PURPOSE

The Ministry of Land, Infrastructure and Transport (MOLIT) implements the assessment of characteristics and available reserves of groundwater and establishes a groundwater management plan for the country. MOLIT is also in charge of establishing nationwide and local groundwater monitoring systems.

Other Ministries sharing the responsibilities in groundwater management are the Ministry of Environment (ME); Ministry of Agriculture, Food and Rural Affairs (MAFRA); Ministry of National Defense (MND); Ministry of The Interior (MOI) and the Ministry of Public Safety and Security (MPSS). The objective of the national groundwater management plan is to conserve and characterize the reserves and amount of exploitable groundwater as well as the conditions for their utilization.

CHARACTERISTICS OF THE NETWORK

Korea has 6 main groundwater monitoring networks: National Groundwater Monitoring Network (NGMN), Figure 1; Groundwater Quality Monitoring Network (GQMN); Seawater Intrusion Monitoring Network (SIMN); Rural Groundwater Monitoring Network (RGMN); Subsidiary Groundwater Monitoring Network (SGMN) and Drinking Water Monitoring Network (DWMN), Table 1. They have in total around 3,500 monitoring wells and most of them are equipped with automatic data loggers and remote transfer units. All of them measure water levels, except for GQMN.

Network	Operated by	No. of stations	Frequency
NGMN	MOLIT and K-water	552 (386 deep, 166 of them include shallow)	Every hour
SIMN	MAFRA and the Korea Rural Community Corporation (KRC)	145 monitoring wells (each station has 1 to 3 wells)	Every hour
RGMN	MAFRA and KRC	176	Every hour
SGMN	MOLIT, local governments	1,803	Every hour for automatic systems (60.8%)
DWMN (private data)	ME and commercial bottled groundwater companies	189	Monitoring data has to be submitted to the local government every month

Table 1 – Characteristics of groundwater monitoring networks in South Korea. Source: Lee and Kwon, 2016

The RGMN was established to monitor groundwater changes produced by agricultural activities. The SGMN (or L(Local)GMN) is intended to fill the gaps in the wells from the NGMN, which are sparsely distributed over the country.

Jeju island

Jeju Island has an independent groundwater monitoring network with 132 monitoring wells. Its objective is to protect the groundwater resource from seawater intrusion or anthropogenic pollution. Water levels are measured every hour. Data as water level, water temperature and EC are available to the public on the website: http://www.jeju.go.kr/jejuwater/index.htm

Total number of wells measuring groundwater levels in Korea including the local network in Jeju Island is 2,997.

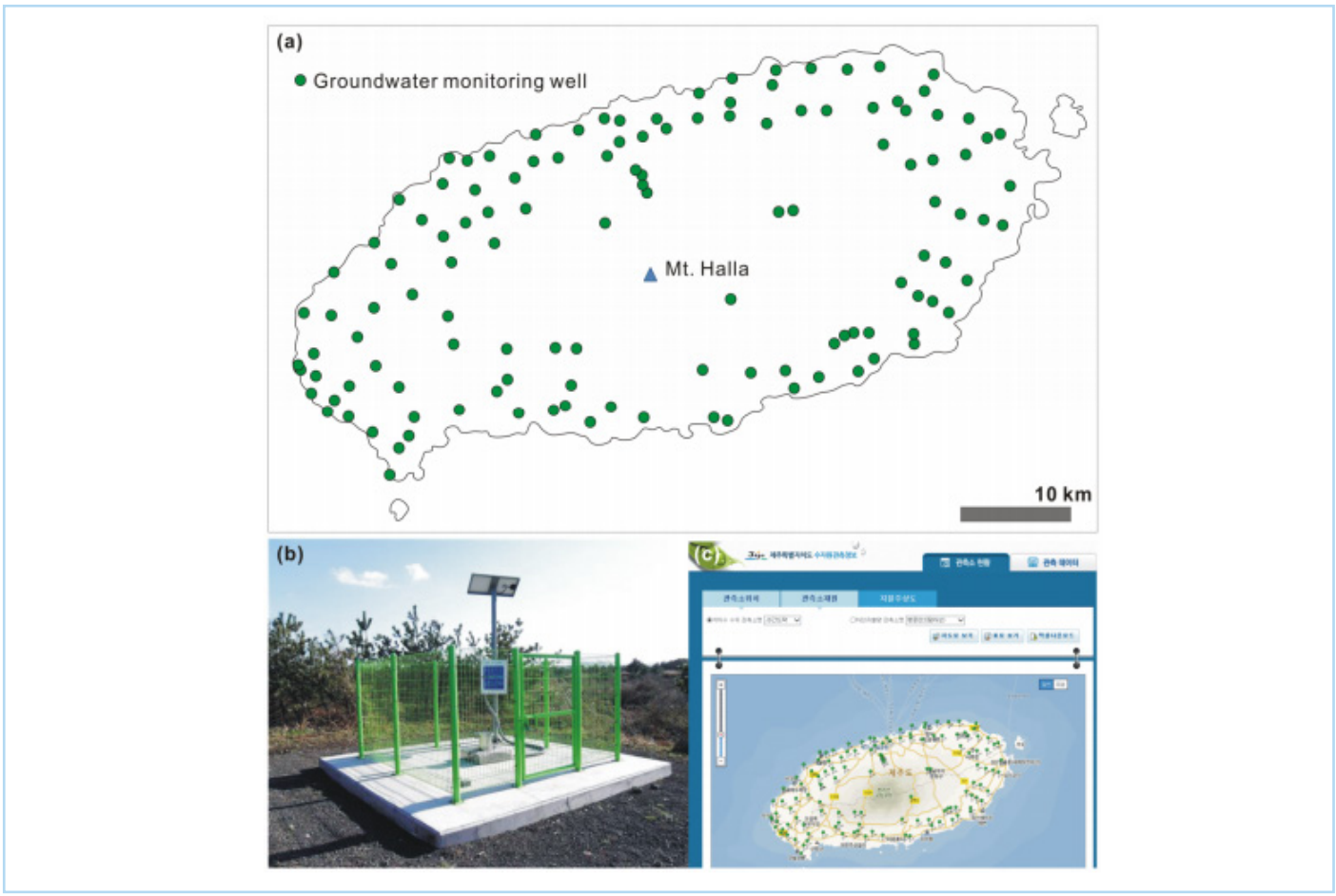

Figure 1 –Groundwater monitoring network in Jeju Island. (a) Location of monitoring wells; (b) Scene of a monitoring well; (c) Webpage with the real-time monitoring on an hourly basis (currently not available). Source: Lee and Kwon 2016

PROCESSING AND DISSEMINATION

All the monitoring data are stored at the National Groundwater Information Center (NGIC). In 2004, Soil and Groundwater Information System was developed to support installing and operating monitoring networks, including data and information accessibility.

Sources

- **Lee J.-Y., Lee K.-K., Hamm S.-Y., and Kim Y., 2017. Fifty years of groundwater science in Korea: a review and perspective** - http://dx.doi.org/10.1007/s12303-017-0015-7;
- **Jin-Yong Lee J.-Y. and Kwon K. D., 2016. Current Status of Groundwater Monitoring Networks in Korea** - https://doi.org/10.3390/w8040168;
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- **Ministry of Environment, Korea Environment Industry Technical Institute. Country Report of Korea (ROK), Soil and Groundwater, 2015. Available in** - https://sgw.epa.gov.tw/Resag/Upload/Files/201704181150303fa1d6.pdf; and
- **Soil Groundwater Information System (SGIS)** - http://sgis.nier.go.kr.