Case for GRIPP site on Groundwater-based Natural Infrastructure

The global managed aquifer recharge (MAR) portal

A tool to learn about managed aquifer recharge (MAR) worldwide

About the portal

The first global inventory of managed aquifer recharge (MAR) applications was compiled in 2015 by the Junior Research Group - Innovative web-based Decision Support System for Water Sustainability under a Changing Climate (INOWAS) of Technische Universität Dresden, Germany, based on a comprehensive survey that covered around 60 countries. General information about individual cases, operational parameters, local hydrogeological characteristics and water quality parameters was collected from about 1,200 MAR cases. To provide easy reference and access to the inventory, and make it available to a wider audience, the data were compiled and entered into a dedicated web-based portal by the International Groundwater Resources Assessment Centre (IGRAC). By facilitating access and promoting international sharing of information and knowledge on MAR, the web-based portal aims to increase awareness of this solution for sustainable water resources development and management, and to provide a new tool for better planning MAR applications.

The MAR portal is available online at http://marportal.un-igrac.org/ and can be accessed from any computer browser without the prerequisites of geographic information system (GIS) knowledge or software licenses.

How it works

The MAR portal [1] consists of a data layer catalogue, a map viewer to visualize data on a selected geographic area, and a features panel to provide tabular output of selected data. Additional information for each (point) location, such as references, can be displayed in the feature information. The portal can be used to learn about the application of MAR in different locations and to generate new pieces of information by creating queried overlays of map layers (MAR suitability maps, or other overlays, such as climate zones, population density and global groundwater stress). For each case, the following parameters can be visualized: site name, country, location, main objectives of the project, MAR type, year of scheme deployment, source of recharge water, and final use of abstracted water. Users can visualize this data by making use of the web services provided or can export the entire database in tabular format via the system's download functionalities. In addition to compiled MAR cases, the portal also contains a number of regional MAR site suitability maps, which were collected and made available online to provide guidance for MAR suitability.

What's next?
Further cases and MAR site suitability maps will be added to the portal as these become available, while new technical features will increase its usability.

How to contribute

Do you know of a MAR case that is not yet included in the portal? We kindly invite you to provide new information via the online submission form (data will be reviewed before it is included in the portal; consultation with the submitter may also be needed).

Reference

[1] Stefan, C.; Ansems, N. 2018. Web-based global inventory of managed aquifer recharge applications. *Sustainable Water Resources Management* 4(2): 153-162. https://doi.org/10.1007/s40899-017-0212-6.

Authors
Catalin Stefan[1] and Arnaud Sterckx[2]
[1] Junior Research Group INOWAS, Technische Universität Dresden, Germany; Email: catalin.stefan@tu-dresden.de
[2] International Groundwater Resources Assessment Centre (IGRAC), the Netherlands

Video on the global MAR Portal:

https://www.youtube.com/watch?v=l6jSp669DZA&feature=youtu.be