

IGRAC

Sharing data on Managed Aquifer Recharge - MAR portal



International Groundwater Resources Assessment Centre

Daniela Benedicto van Dalen

daniela.benedicto@un-igrac.org

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Managed Aquifer Recharge in Europe*

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Content

About IGRAC

- Mission & activities

IGRAC data sharing

- GGIS - Global Groundwater Information System

MAR Portal

- On-line platform
- Get involved

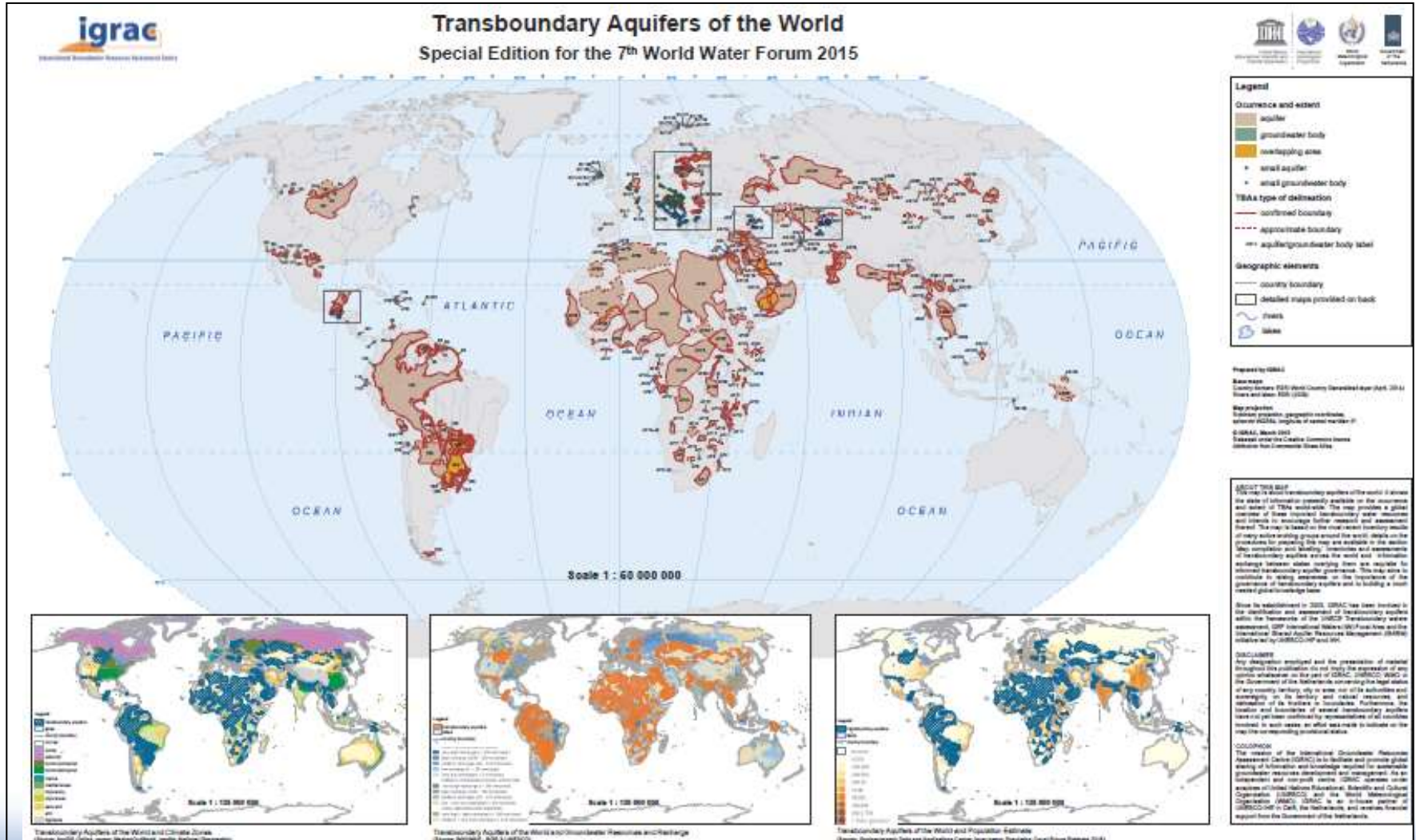


About IGRAC

- **IGRAC** - International Groundwater Resource Assessment Centre (since 2003) is UNESCO and WMO groundwater centre
- IGRAC facilitates and promotes **global sharing** of information and knowledge required for **sustainable** groundwater resources development and management
- Focused on **information** and knowledge **management**, transboundary aquifer **assessment** and groundwater **monitoring**
- Receives financial support from the Government of **The Netherlands**
- In-house partner of UNESCO-IHE in **Delft**, The Netherlands



Transboundary Aquifer Assessment



GGIS - Global Groundwater Information System

Themes

| | | |
|--|---|--|
|  <p>Transboundary groundwater</p> <p>Political, institutional, socio-economic, cultural and other differences among countries make the assessment and management of internationally shared...</p> |  <p>Global Country Data</p> <p>The modules within the Global Country Data section provide information on country level rather than aquifer level. The Global Overview provides a...</p> |  <p>Project Related Information</p> <p>Within several projects, IGRAC has not only contributed to the groundwater assessment, but also provided a project Information Management System (IMS...</p> |
|  <p>Managed Aquifer Recharge</p> <p>To increase its availability and facilitate continuous update, the global MAR inventory is made available free of charge on a web-based GIS platform...</p> |  <p>Small Islands</p> <p>Small Island Developing States (SIDS) have special physical, demographic and economic features. Their very reduced areas, shortage of natural...</p> |  <p>Groundwater monitoring</p> <p>Groundwater resources are vital for drinking water supply, irrigation, the sustainability of wetlands and rivers as well as many other important...</p> |



Meta Information Module

documents, people and organizations

Relevance of the GGIS

- **Information is key to sustainable management of groundwater resources**
 - lack of groundwater data and information, limited accessibility and information loss (e.g. project data)
 - Ensure data will be available on line
- Technology enables cooperation
 - Common analysis and synthesis of transparent data and information
 - Share data amongst project partners only
 - Download public data in Excel-format or shape-files
- Users:
 - Groundwater professionals, government, other stakeholders and anyone else interested in groundwater
 - Protected workspaces to store, process and visualize information
 - Organizations or projects interested in sharing their data and results



GGIS Viewers



Country-based Information

Aquifer-based Information

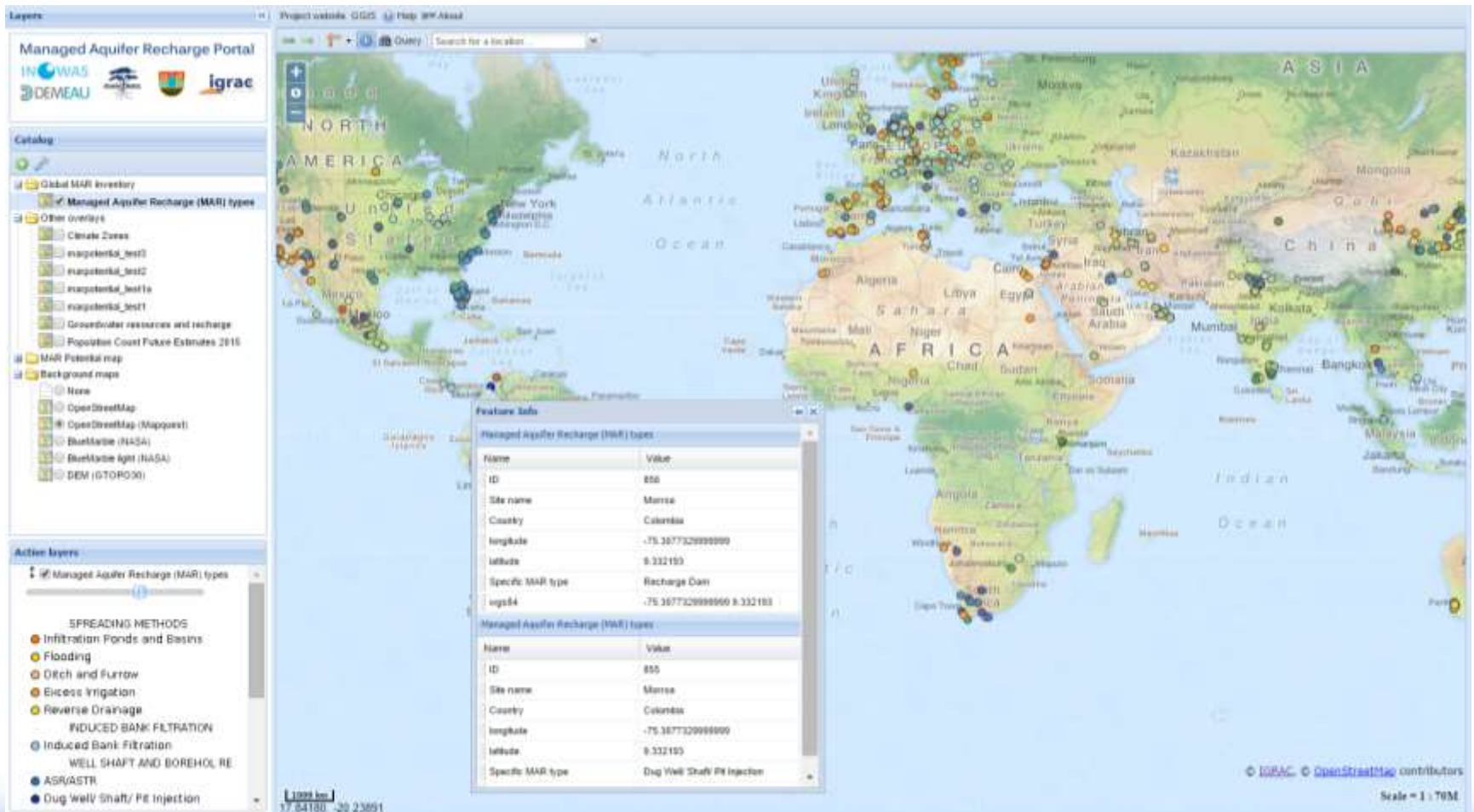


Relevance of the MAR Portal

- Stand alone system
 - can be further integrated with other groundwater components in the GGIS
- Upload of geographical information
 - shapefiles (maps)
 - raster files (maps)
 - borehole data
 - locations of MAR applications in the area
- Upload reports and other meta data in MIM
- No-fees

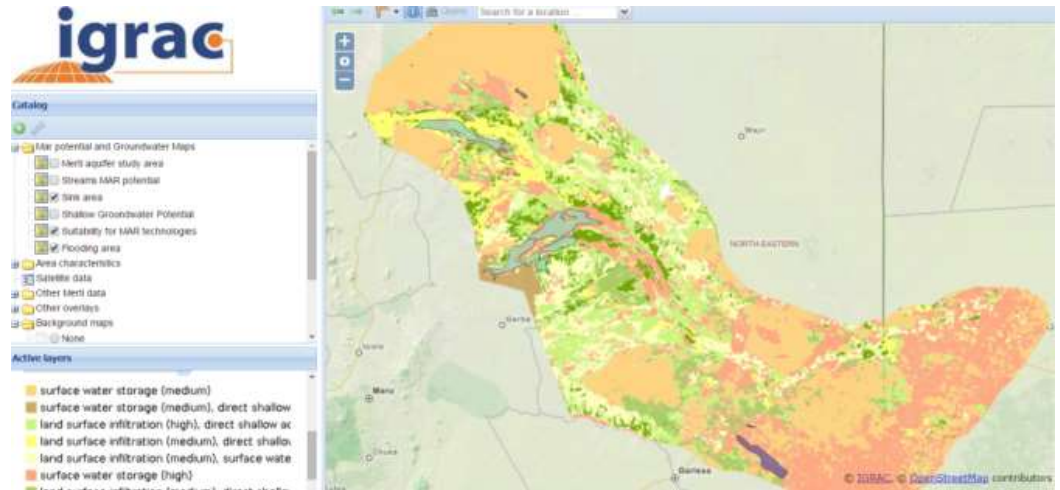
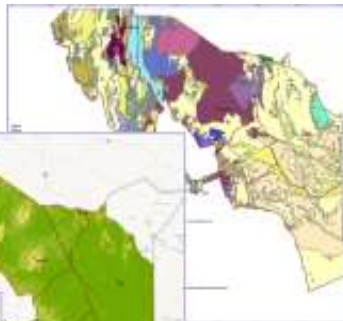
MAR Portal

- Global MAR Inventory of locations where MAR techniques have been applied



MAR Portal

- Implementation of a regional MAR portal for data publication for different projects

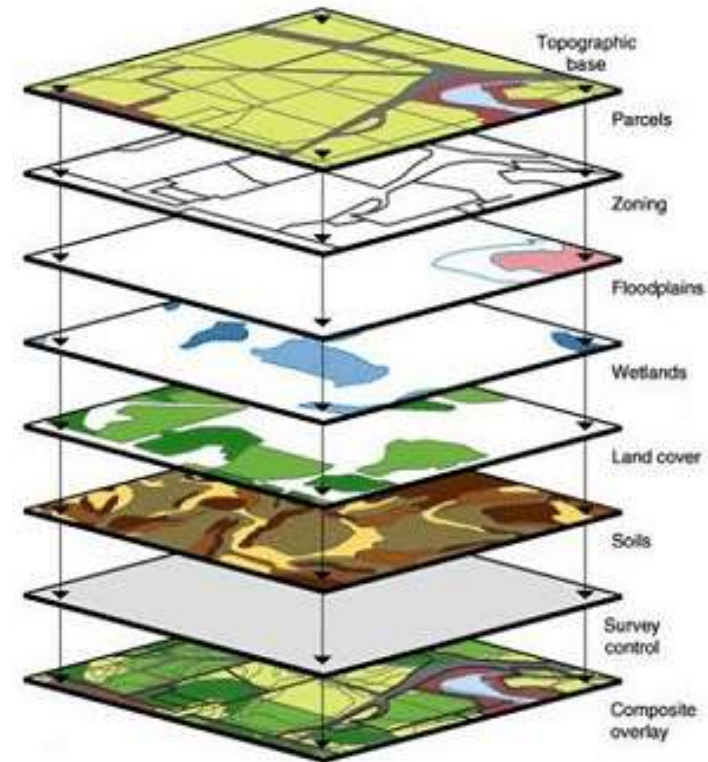
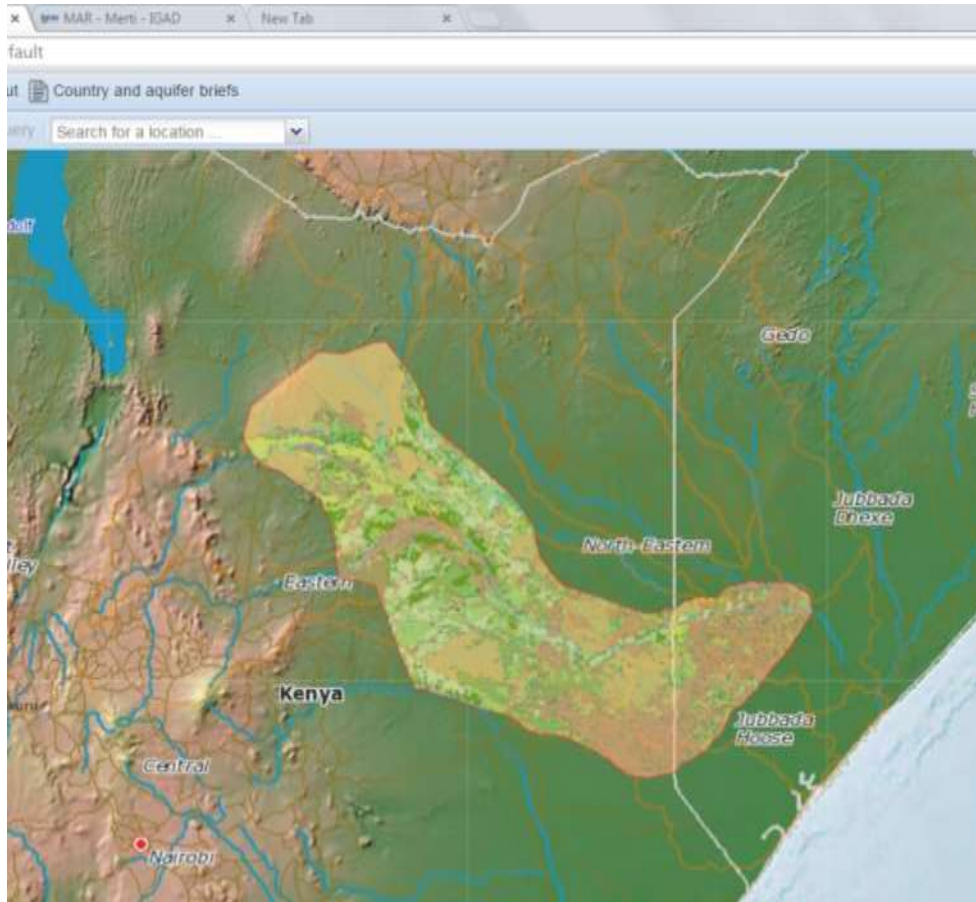


Cooperation with:

- IAH
- TU Dresden (INOWAS)
- DEMEAU
- Acacia Water
- MAR to Mark€t

Creating overlays of maps

- Generate new information by making **overlays** of thematic maps



Query or filter data

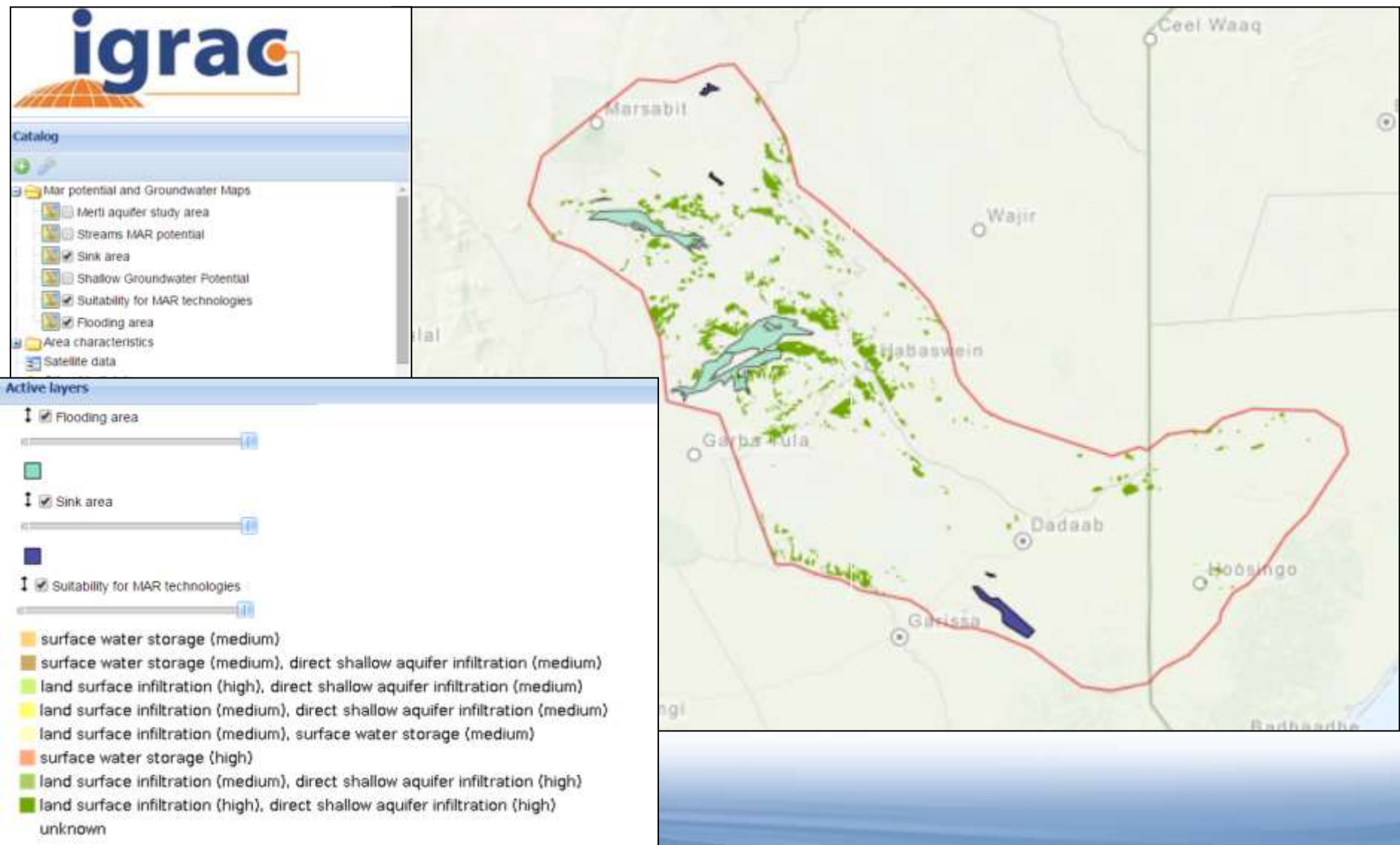
- Analyze data by using filters / queries

The screenshot displays the IGRAC GIS viewer interface. The browser address bar shows the URL <https://ggis.un-igrac.org/ggis-viewer/viewer/mar/public/default>. The main map area shows a geographical region with various colored overlays, including orange and yellow areas. A red circle highlights the 'Query' button in the top navigation bar. The 'Query' dialog box is open, showing the following options:

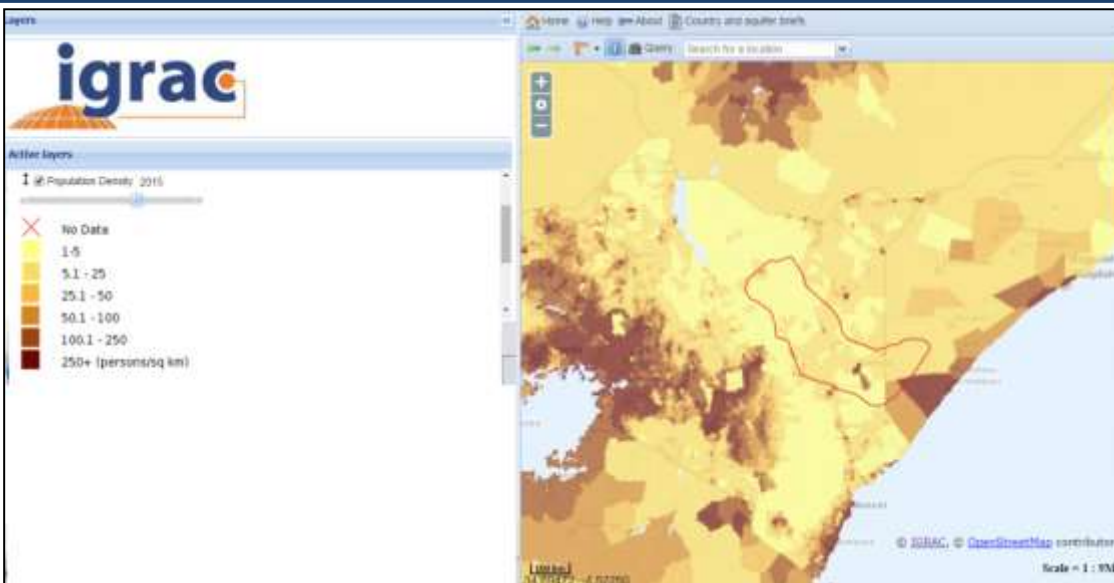
- Query by current map extent
- Query by attributes

Under 'Query by attributes', the configuration is set to 'Match any of the following:'. A condition is defined as 'combi = high-high'. There is a red minus button to remove the condition and a green plus button to 'add condition'.

Combine data

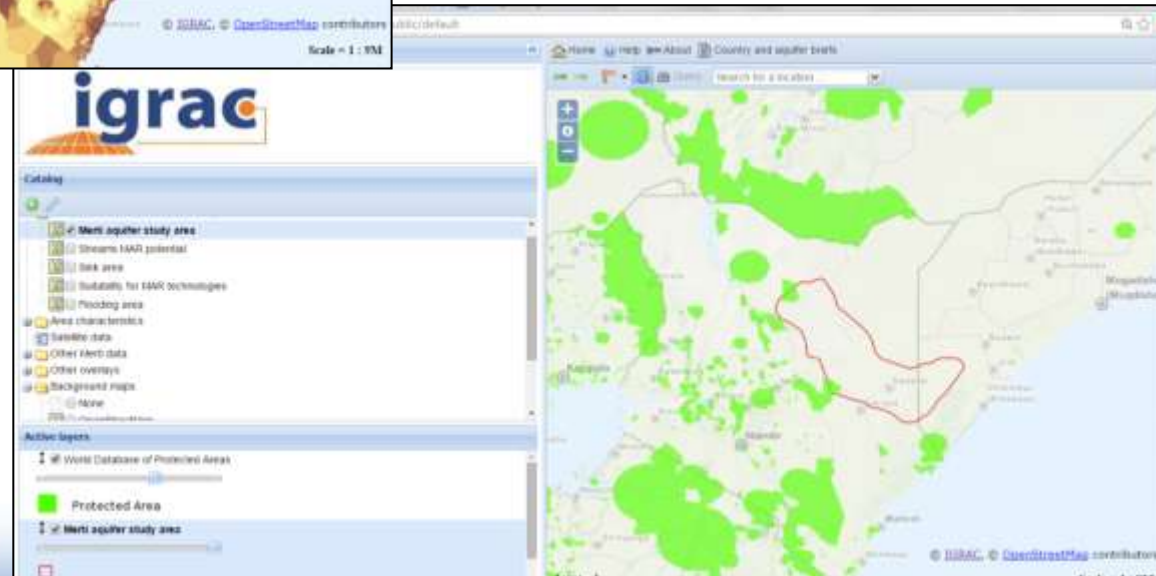


Web Mapping Services (WMS)



Population density 2015
(person/km²)

World database on
protected areas



Thank you for your attention!



International Groundwater Resources Assessment Centre

info@un-igrac.org

www.un-igrac.org

Delft, The Netherlands



United Nations
Educational, Scientific and
Cultural Organization



International
Hydrological
Programme



World Meteorological
Organization



Government of
The Netherlands

Project overview

- **ISARM** – Internationally Shared Aquifer Resources Management



- Participation in GEF (Global Environment Facility) projects like **TWAP**



- **GGRETA** project with 3 case study (Pretashkent, Stampriet and Trifinio)

- Development of a **TBA Methodology**, contribution to UNILC, WWAP, SDC



- **GROFUTURES** project in Sub-Saharan Africa (UPGRO)



- **FREEWAT** project H2020



- **Transboundary Aquifers of the World Map & Large Aquifers of the World Map**

