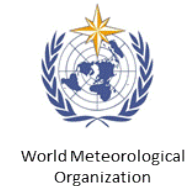


# Feedback on the Draft *Updated Strategies for Monitoring and Assessment of Transboundary Rivers, Lakes and Groundwaters*

Expert Meeting on Monitoring, Assessment and Data Exchange  
UNECE, 13-14 April 2022



International Groundwater Resources Assessment Centre



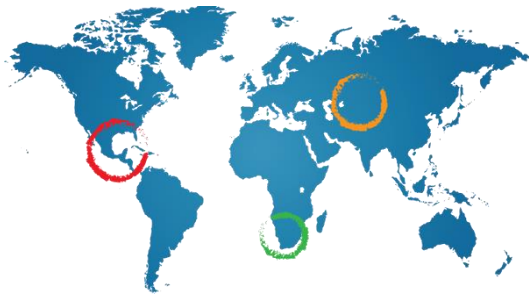
# IGRAC - Global Groundwater Centre

- IGRAC is **UNESCO** Global Groundwater Centre, it works under the auspices of **WMO** and it is supported by the Government of **The Netherlands**. IGRAC is also a **UN-Water Partner** and works closely with **IAH**.
- Since 2003, IGRAC promotes and contributes to the production and the dissemination of **information and knowledge** required for sustainable groundwater resources development and management worldwide.
- Over the years, IGRAC has built up a specific expertise, including in **transboundary aquifer assessment**, groundwater **monitoring** and **information & knowledge sharing**.



# IGRAC's experience with joint assessment and monitoring

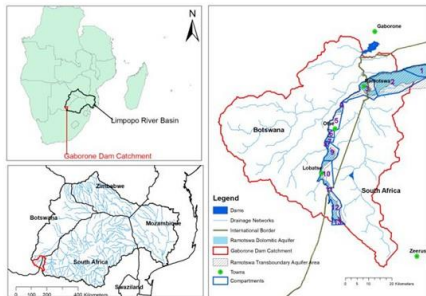
199 transboundary aquifers were assessed worldwide



GGRETA (Groundwater Resources Governance in Transboundary Aquifers) project

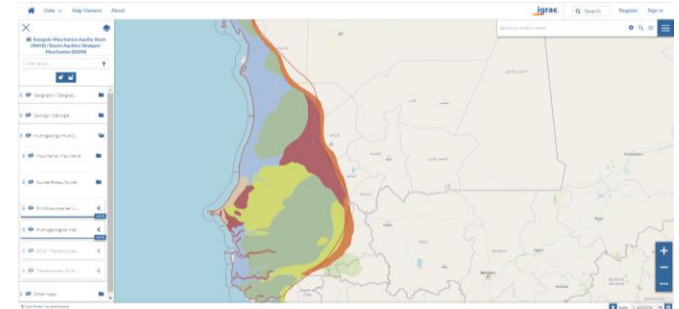


Protection and Sustainable Use of the Dinaric Karst Aquifer System



Ramotswa aquifer project

Senegalo-Mauritanian Aquifer Basin (SMAB)



<https://www.un-igrac.org/areas-expertise/transboundary-groundwaters>

# Shortlist of publications

- IGRAC (2008) Guideline on Groundwater monitoring for general reference purposes, revised version - <https://www.un-igrac.org/sites/default/files/resources/files/WG1-7-Guideline-v12-03-08.pdf>
- IGRAC & UNESCO-IHP (2015) Guidelines for Multidisciplinary Assessment of Transboundary Aquifers, draft version - <https://www.un-igrac.org/news/draft-guidelines-multidisciplinary-tba-assessment-now-available-online>
- Integration of Groundwater Management into Transboundary Basin Organizations in Africa (2014) - <https://www.un-igrac.org/sites/default/files/resources/files/Training%20Manual%20Integration%20of%20GW%20Management.pdf>
- SADC-GMI, IGRAC, IGS (2019) SADC Framework for Groundwater Data Collection and Data Management - [http://sadc-gmi.org/wp-content/uploads/2019/07/Report-Framework-Groundwater-DataCoM\\_LOW-RES-1.pdf](http://sadc-gmi.org/wp-content/uploads/2019/07/Report-Framework-Groundwater-DataCoM_LOW-RES-1.pdf)
- IGRAC (2020) National groundwater monitoring programmes - A global overview of quantitative groundwater monitoring networks - <https://www.un-igrac.org/resource/national-groundwater-monitoring-programmes-global-overview-quantitative-groundwater>

# Feedback on Annex 1

1. The annex is a succession of excerpts from the Guidelines on Monitoring and Assessment of Transboundary Groundwaters (2000). Every excerpt is valid, but as a whole **the annex could gain clarity and focus.**
2. **The difference between *monitoring* and *assessment* is not clearly established.** The assessment of transboundary aquifers is a joint and continuous effort. It requires the collection and the frequent exchange of numerous data of different types (e.g. hydrogeological data, surface water data, environmental data, socio-economic data). Groundwater monitoring data (level and quality) are very important, but many other data are needed, such as groundwater abstraction, land use changes, surface water data, etc.

3. It is recommended that the annex conveys the following messages:
- i. **The monitoring of groundwater quantity is different from the monitoring of groundwater quality.** The first requires a monitoring network, where the same wells (observation wells) are monitored at frequent intervals, while the latter often consists in surveys.
  - ii. Aquifers are three-dimensional, sometimes complex environments. **Monitoring data must be taken in different places and at different depths.**
  - iii. Groundwater flow is generally slow. **The frequency of monitoring must be adjusted to the groundwater flow system (for the sake of cost-efficiency)**

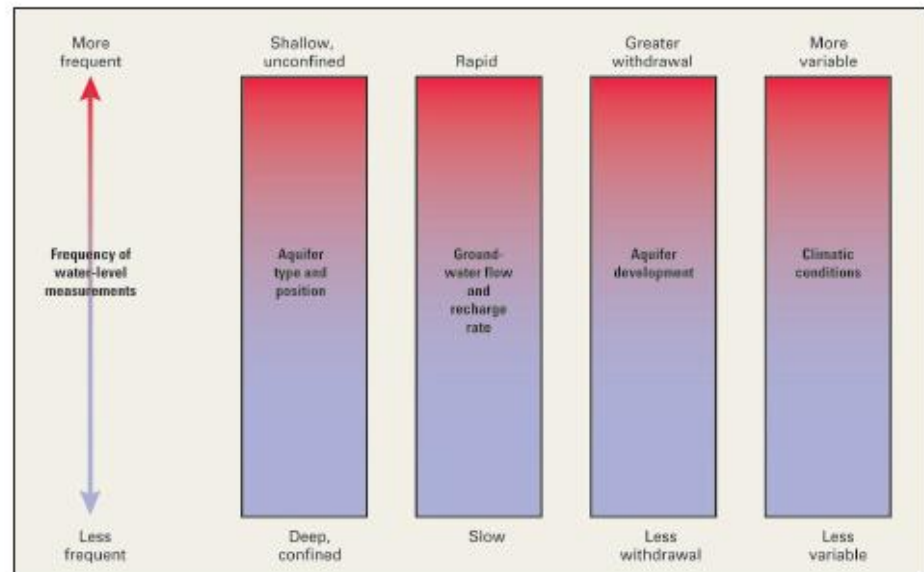


Figure 4.5.1.1 Factors that determine the frequency of monitoring ground-water levels (Taylor and Alley, 2001).

- iv. **Groundwater abstraction must be monitored too.** Production boreholes managed by water companies are usually equipped with flowmeters. Private wells are usually not. Inventories of private wells and licensing can provide proxy data to monitor the abstraction through private wells.
  - v. **Monitoring activities can (should) be regularly assessed and updated.**
4. Once shared, **monitoring data (and other data) need to be interpreted and processed into relevant information**, for various types of audiences. This part is often overlooked, although it is difficult to plan for the exchange of data without having in mind the final outcome. The interpretation of data requires human resources, more than the exchange of data.



*Thank you for your attention!*



**International Groundwater Resources Assessment Centre**

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Delft, The Netherlands



United Nations  
Educational, Scientific and  
Cultural Organization



International  
Hydrological  
Programme



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Government of  
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