Bolivia

Capital city: Sucre
Inhabitants: 11 Million

INSTITUTIONAL SETTING AND PURPOSE

The Ministry of Environment and Water (MMAyA) is in charge of water resources management in Bolivia and has three underministries being responsible for different fields. The Underministry of Water Resources and Irrigation contributes to the development and execution of plans, policies in Integrated Management of Watersheds and Irrigation, and designs strategies for the conservation and use of surface and groundwater. For instance, this underministry participates and coordinates the management of the Yrenda-Toba Tarijeño aquifer system within the framework of the Inter-American Committee of the Plata Basin with the Binational Commission together with Argentina, Paraguay and UVSMA/OAS and ISARM Americas.

There is no national groundwater monitoring programme in Bolivia but several local groundwater monitoring networks in place. For example, the groundwater monitoring network in the Katari River Basin and in the Yacuiba municipality.

CHARACTERISTICS OF THE NETWORK

1. Groundwater monitoring network in the Katari River basin

MMAyA is in charge of the Master Plan for the Katari River basin since 2010. Two aquifers are located in this area: the Purapurani and the Viacha aquifers (figure 1). They are being monitored since 2016 under the Purapurani and Viacha Aquifers Preliminary Management Plan (2016) with the objective to evaluate the spatial and temporal variation of the aquifer regime during the rainy and dry seasons and to assess the groundwater quality.

The monitoring of groundwater levels is carried out monthly and manually in 30 locations. Measurements are mostly carried out manually, but some wells are equipped with automatic sensors.

The data are used for calibration of the numerical flow model developed for this aquifer.

Data processing is done via statistical analysis and spatial interpolations.

2. Groundwater monitoring network from the Drinking Water and Sanitary Sewer Services Providers

According to the Bolivian Standard 512 (NB 512) on drinking water the Drinking Water and Sanitary Sewer Services Providers (EPSAs) must take water samples from wells twice a year. The EPSA of the Yacuiba municipality, in the Tarija department, has 28 wells. Measurements of groundwater levels are taken there manually once a month (static and dynamic levels), together with groundwater flow and energy consumption.

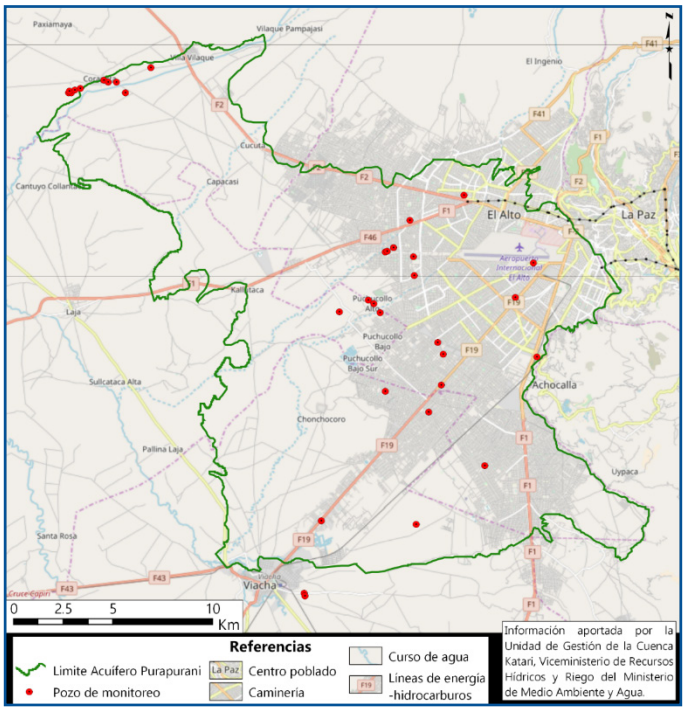

Figure 1 – Location of monitoring points in the Purapurani Aquifer. Source: Katari Basin Management Unit, Underministry of Water Resources and Irrigation of the Ministry of Environment and Water.

PROCESSING AND DISSEMINATION

Groundwater data collected under the Master Plan for the Katari River basin is accessible only for governmental organisations. Data collected by the EPSA of the Yacuiba municipality are available by request (at the municipality).

Additionally, two country-wide information systems contain metadata of wells and various hydrogeological information: SIHIBO and SIASBO.

The Mining and Geological Service (SERGEOMIN) of Bolivia launched the Hydrogeological Information System of Bolivia (SIHIBO) in 2016 (figure 2). SIHIBO contains information on 3000 water wells drilled by SERGEOMIN for more than 40 years. Among the data included per well are: lithological, geological, geophysical and geochemical data, water analysis and monitoring, as well as other socioeconomic variables.

The Ministry of Environment and Water hosts the Bolivian Groundwater Information System (SIASBO), a web platform where locations of wells (updated until 2016) can be visualised along with downloadable metadata.

Neither SIHIBO or SIASBO store groundwater level data so far.

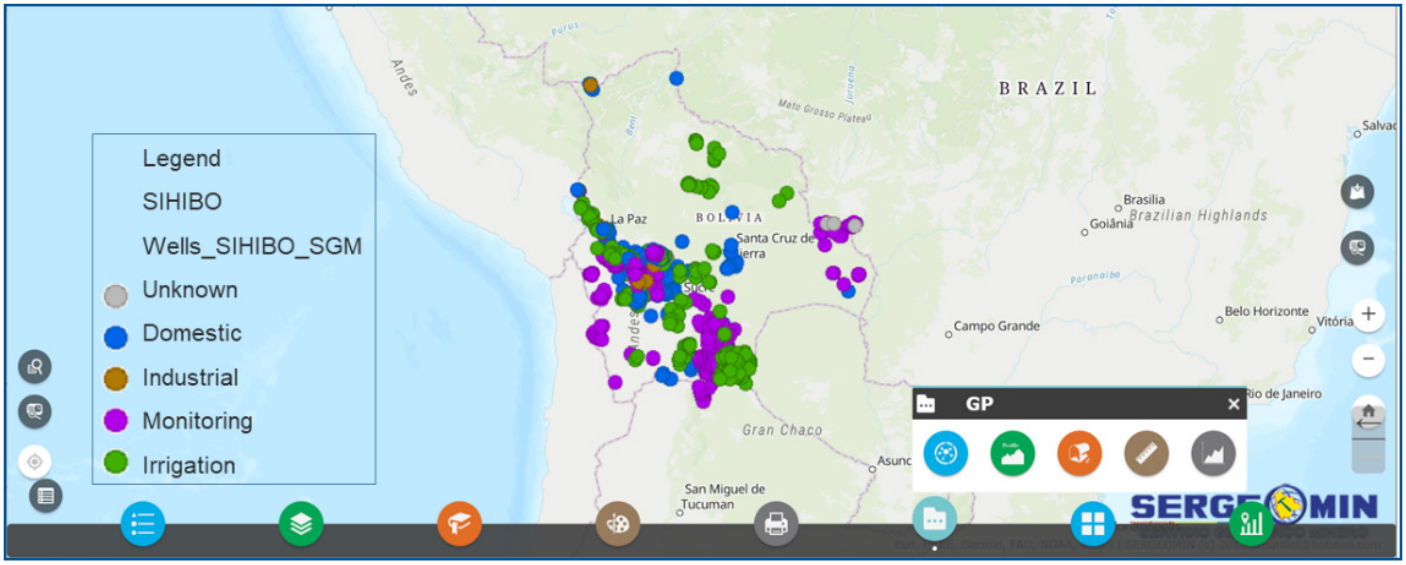

Figure 2 – SIHIBO

Sources

- **Feedback from German Cooperation PERIAGUA-GIZ (answer to form)** - received in 2018;
- **Feedback from MMAyA (answer to form)** - coordinated by CeReGAS and received in 2019;
- **Vice Ministries -** https://www.mmaya.gob.bo/viceministerios/viceministerio-de-recursos-hidricos-y-riego/atribuciones;
- **SIHIBO -** http://ide.sergeomin.gob.bo/wsihibo;
- **SIASBO -** http://geosirh.riegobolivia.org/layers/geosirh:pozos_siasbo_1 (currently not available); and
- **Ward Quaghebeur, Riley E. Mulhern, Silke Ronsse, Sara Heylen, Hester Blommaert, Sid Potemans, Carla Valdivia Mendizábal, Jhonny Terrazas García, 2009. Arsenic contamination in rainwater harvesting tanks around Lake Poopó in Oruro, Bolivia: An unrecognized health risk -** https://doi.org/10.1016/j.scitotenv.2019.06.126.