



INSTITUTIONAL SETTING AND PURPOSE

The Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), as an institution under the Ministry of Environment and Sustainable Development (MADS) and as a member of the National Environmental System (SINA), is responsible for generating information and knowledge about the state of the country's renewable natural resources. As a national research institute, it plays a fundamental role in the design of policies for the protection and improvement of the environment.

In recent years, IDEAM has worked hand in hand with MADS, the Regional Autonomous Corporations (CARs), and other national institutions in the development of strategies that contribute to the assessment and management of groundwater in Colombia. As a result, the National Groundwater Programme (PNASUB) was formulated. This programme seeks to generate instruments and tools to i) expand knowledge and hydrogeo-

logical research of aquifer systems of national and regional importance, ii) allow continuous strengthening of technical, operational and financial capacities of the institutions in charge of managing the groundwater resource, and iii) allow to have validated information and groundwater indicators available through an information system.

Among the expected results of PNASUB, the National Basic Groundwater Network (or reference network) was implemented in 2013, with the objective of collecting information on the natural system and long-term trends of groundwater (in terms of quantity and quality), as well as trends resulting from changes in land use and climatic variation in prioritized national aquifer systems. The network is linked to the CAR's regional monitoring programs.

CHARACTERISTICS OF THE NETWORK

The network monitors prioritized aquifers for which there is an acceptable level of hydrogeological knowledge. The CARs are in charge of monitoring the points chosen for the national network. Monitoring is carried out twice a year for groundwater quantity, characterizing the rainy and dry season, while groundwater quality is monitored once a year. Variables to be monitored are piezometric levels, total hardness, pH, temperature, electrical conductivity, total dissolved solids, dissolved oxygen, redox potential, alkalinity and major ions (Calcium, Sodium, Potassium, Chloride, Sulphate, Nitrate, Bicarbonate, Magnesium and Ammonia).

In total there are 114 monitoring stations in the aquifer systems of the Media Guajira, San Andrés, Valle del Cauca, Glacis del Quindío, Villavicencio - Granada - Puerto López, Golfo de Morrosquillo, Morroa, La Mojana, Cesar, Golfo de Urabá and Valle de Aburrá.

Figure 1 – Location of the monitoring points that are part of the National Groundwater Network

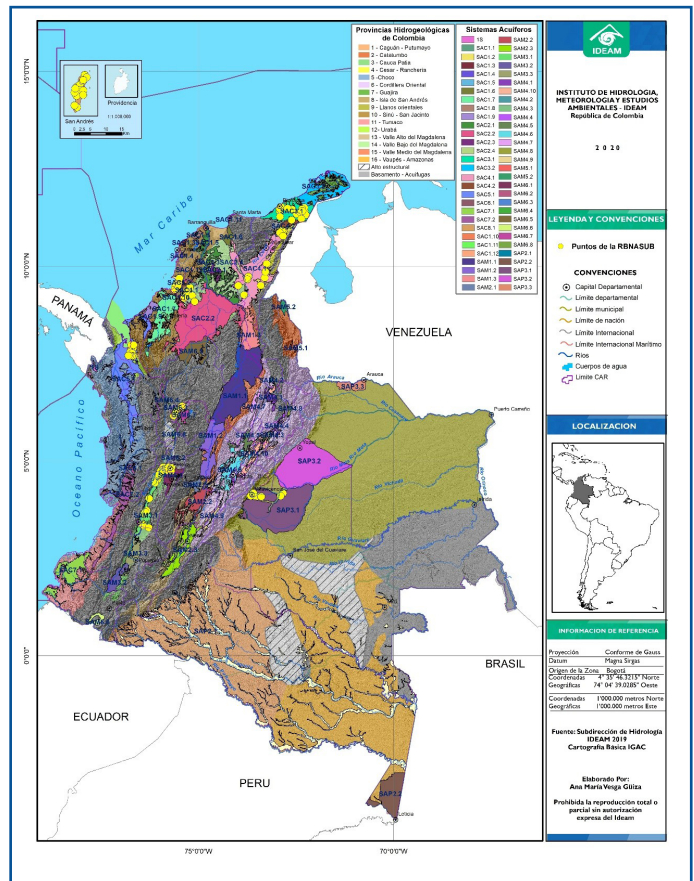




Figure 2 – Monitoring of well Gi_GEO_0041, located in Girardota municipality, Antioquia. AMVA



Figure 3 – Monitoring of well in Hacienda Suarez, located in La Paz municipality, Cesar- CORPOCESAR



Figure 4 – Monitoring of well Aremasain, located in Manauare municipality- Guajira - CORPOGUAJIRA.

PROCESSING AND DISSEMINATION

Data collected must be uploaded to the Water Resources Information System (SIRH), which systematizes and articulates the information related to water generated by the IDEAM and the Environmental Authorities.

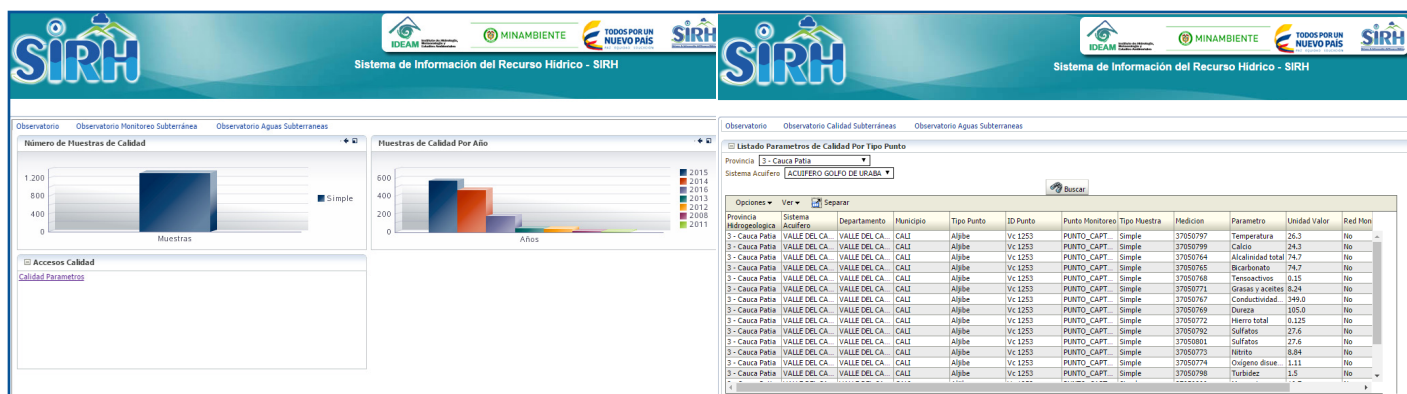


Figure 5 – View of groundwater information in SIRH

At the moment, users cannot view or download data. However, users can request data to the office of attention to citizens, which delivers it in the required format.

Currently, functionalities of the SIRH regarding reporting, spatialization and web service are being strengthened, which will allow viewing and downloading all information available from the National Groundwater Network. Below it is a proposal of what it is expected to have in the new network Geovisor.

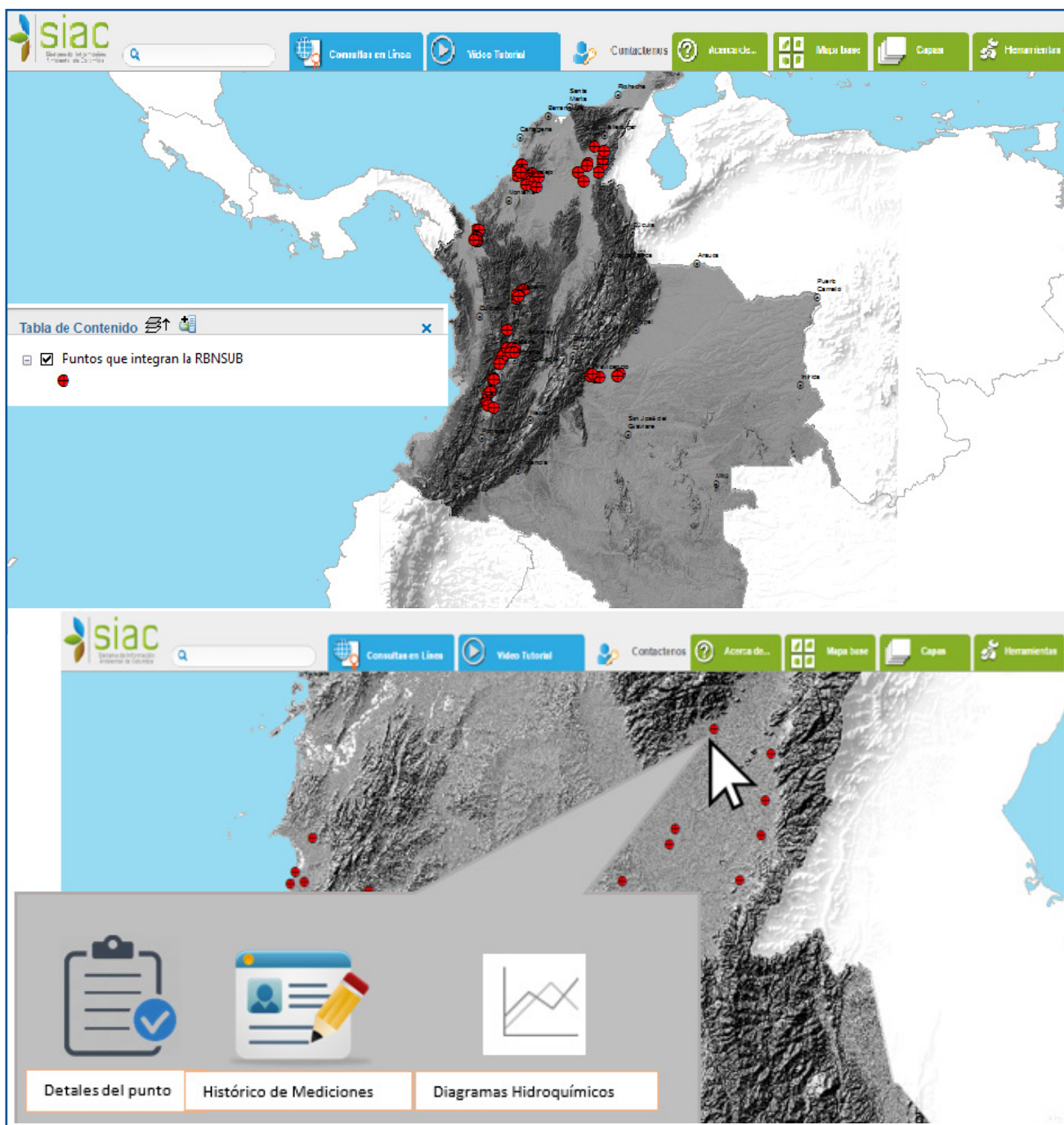


Figure 6 - Geovisor proposal with information from the National Basic Groundwater Network

Sources

- IDEAM, Sub directorate of Hydrology (no year). National Basic Network for Groundwater Monitoring in Spanish. Available in - <http://capacitacion.sirh.ideam.gov.co/homeSIRH/HOME/RBSUB/RBASUB.pdf>;
- Feedback from IDEAM - received on 20-05-2020;
- Feedback from IDEAM (answer to form) - received in 2019;
- SIAC Geographic Viewer - <http://sig.anla.gov.co:8083/>;
- Ministry of the Environment and Sustainable Development, Directorate for the Integrated Management of Water Resources, 2014. National Groundwater Program (PNASUB), in Spanish. Available in - <http://www.minambiente.gov.co/index.php/gestion-integral-del-recurso-hidrico/planificacion-de-cuencas-hidrograficas/acuiferos/programa-nacional-de-aguas-subterranas>; and
- Colombia's Environmental Information System - <http://www.siac.gov.co/monitoreo>.