

Journal of Engineering Research

PROCESSES AND TOOLS TO SUPPORT GROUNDWATER MANAGEMENT IN COMPANHIA RIOGRANDENSE DE SANEAMENTO - CORSAN/RS

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Abstract: The challenge of sustainability is intrinsic to any activity that may impact the environment, and management is responsible for managing the consequences, enhancing the beneficial effects and mitigating the effects that result in damage to the environment. The management of water resources at Companhia Riograndense de Saneamento (CORSAN), through the Superintendence of Water Resources Management (SUGERH) comprises attending to underground and surface abstractions, aligning its projects and actions considering the Company's mission, where SUGERH/CORSAN, based on the mapping of processes, has sought to automate its procedures, in order to obtain greater speed and efficiency of results, in terms of monitoring and execution time of demands; identification of obstacles to their completion; publication of technical content related to the area and systematization of technical data, with the purpose of immediate support to management. As partial results, since the second half of 2021, the following have been made available: A DIGITAL portal; a Web Portal; Dashboards, in addition to a project to implement a Water Resources Management System (SGRH/CORSAN), using the features of the Hydro GeoAnalyst (HGA) software, where all the information necessary for obtaining/maintaining the Grants will be registered. of CORSAN's wells and surface abstractions.

Keywords: Water Resources Management, Funding, Process Mapping.

INTRODUCTION

The proper management of water resources goes beyond the observance of sustainability criteria and compliance with current regulations for legal use, by processes and tools that can optimize the fulfillment of demands related to the area. Therefore, decision-making involving the

use of water is always a challenge to be met and improved by the management teams. In this context, Companhia Riograndense de Saneamento (CORSAN/RS), through the Superintendence responsible for the management of groundwater, is responsible for the management of approximately 4,000 (four thousand) tubular wells spread throughout the territory of the State of Rio Grande do Sul. South, of which approximately 900 are in operation. These tubular wells have particularities and specificities regarding constructive, geotechnical, geochemical, hydrogeological, operational, administrative and judicial issues. CORSAN does not yet have an internal system that makes the unique and exclusive management of the particularities (data) of each tubular well, in such a way that their information is decentralized in databases and parallel systems. Added to this scenario is the urgency to regularize the Company's tubular wells in accordance with current State legislation. In addition, the Company is now part of the Global Compact, adhering to best practices that contribute to the sustainability of the state of Rio Grande do Sul and the planet, seeking to meet the SDGs (sustainable development objectives), provided for in the principles of this document, where among the In total, SDG 6 corresponds to the provision of drinking water and sanitation, which is also CORSAN's commitment to society and the environment.

As a result, the Superintendence, upon prior identification of difficulties in the operational flow of its activities and the mapping of processes, has sought to automate its service and operation procedures, in order to obtain greater speed and efficiency of results, in terms of monitoring and analysis time. and execution of demands; identification of obstacles to their completion; publication of technical content relevant to the area and systematization of technical data,

with the aim of providing immediate support to management. Considering that water is a fundamental resource for the maintenance of life on earth, management must therefore provide subsidies to all those interested in groundwater resources, starting from the government, with its legal and institutional structure, through the private user, civil society, drillers wells and water supply concessionaires. Because, everyone has different and specific motivations, such as consumption, provision of services or inspection, but all must have the same objective, which is to protect the quality and quantity of available resources (Conicelli & Hirata 2016).

THE USE OF PROCESS MAPPING IN GROUNDWATER MANAGEMENT

Due to the need for organizational optimization of activities and growing demands of the area responsible for groundwater management at CORSAN, based on a well-known methodology, the PDCA (Plan/Plan; Do/Execute; Check/Assess/Measure; Act/Adjust/ Acting/Adjusting) it was verified in the mapping of processes, a viable alternative in the search for improvements and support to the management. Thus, referring to groundwater since the second half of 2021, the mapping of processes and automation of flows performed through the SESUITE platform (currently used by the Company) has been expanding and structuring. With a similar purpose, an environmental information portal has also been fed, SIGAmb - Environmental Geographic Information System, with the implementation of georeferenced data to support water management; also the elaboration of dashboards, in the Power BI software, with indicators, also with the purpose of supporting water management at CORSAN; in addition to a project to implement a Water Resources Management

System (SGRH/CORSAN), using the features of the Hydro GeoAnalyst (HGA) software, where groundwater will be inserted.

SOME RESULTS AND FINAL CONSIDERATIONS

As a result of the identification of the main difficulties, needs and the mapping of processes of the Superintendence, partial results described below are already configured. A DIGITAL portal of the Superintendence is available through the SESUITE platform, with flows for requesting and servicing drilling, excavation, recovery, plugging and technical support services related to tubular wells within the scope of CORSAN.

SIGAmb publishes layers with spatialization of georeferenced vector data from CORSAN wells, wells registered in SIAGAS/CPRM, geology, hydrogeology, lineaments and mining processes managed by ANM, in addition to other georeferenced vector layers made available by Organs competent bodies that were integrated into SIGAmb CORSAN. Since this portal is potentially able to insert new layers with technical information related to and relevant to groundwater management in CORSAN.

The elaboration and use of dashboards with indicators to support water management at CORSAN, highlighting, for example, the situation of the wells and their characteristics, essential in the matter of the regularization of wells (grants), which is one of the biggest management challenges. Figure 1 below, consists of a compilation of screens, just illustrative of the results already obtained.



Figure 1. Illustrative compilation of results.

The aforementioned results are examples of a management improvement work that is being carried out considering that the idea is that they are even more comprehensive, from the consolidation of the Water Resources Management System (SGRH/CORSAN), to the groundwater.

And, given that the attributions of the Superintendence of water resources management, in what concerns groundwater, with its well-defined processes and the

maximum use of available tools, can reflect in greater efficiency, as in the execution of new drillings, with the presentation of better results in terms of the volume to be exploited and the quality of groundwater to meet the needs of public supply. Therefore, one of the main objectives of the management improvements is to reduce the current percentage of approximately 30% of wells drilled, which do not meet CORSAN's operational needs.

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