

Identification of local sewage treatment systems in small municipalities in the State of Santa Catarina, Brazil

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Highlights:

- Low sewage coverage: Only 41.82% of Santa Catarina's population is served by sewage collection networks.
- Municipal challenges: 67.80% of municipalities have fewer than 15,000 inhabitants, hindering the implementation of sanitation systems.
- TRATASan Project: ARIS initiated a sewage assessment to assist small municipalities in deciding on appropriate systems.

Keywords: Sanitation regulation; Public policies; Municipal planning.

INTRODUCTION

Santa Catarina (SC) State, located in the Southern Region of Brazil, has a population of over 7.2 million people, with only 41.82% of the population being served by sewage collection networks (SNIS, 2022). Of the 295 municipalities in Santa Catarina, 67.80% have a population of less than 15 thousand inhabitants, and 57% have less than 5 thousand inhabitants (IBGE, 2021). This reality makes it difficult to adopt collective sanitation solutions that are technically viable for their implementation and operation. Additionally, most of these municipalities have a significant portion of the population living in rural areas, and their urban areas have low population density and growth rates (TONETTI et al., 2018; MCCONVILLE et al., 2019).

In light of this scenario, the Intermunicipal Sanitation Regulatory Agency (ARIS/SC) initiated a project to identify Local Sewage Treatment Systems through the TRATASan program - "Diagnosis of the Current Situation Regarding Sanitation Management." The project aims to assist municipalities in making decisions regarding the actions necessary for implementing sewage treatment services in a manner most suitable to their local realities.

METHODOLOGY

ARIS offers the TRATASan Project to municipalities partnered with it and with a total population of fewer than 15 thousand inhabitants. Interested municipalities must sign a Membership Agreement, specifying the duties and responsibilities of each party involved. The agency is responsible for hiring a

technical team to develop the diagnosis, which must contain the following detailed information in a specific chapter:

- Census questionnaire application: identification of installed individual and collective treatment equipment and procedures adopted for their maintenance and operation;
- Population study: defining the population projection through the analysis of consolidated mathematical methods and analysis of observed population growth at the site;
- Unit location: detailing the location of treatment systems (individual and collective);
- Municipal sewage situation: diagnosis of sewage in the urban region of the municipality, including a description and scope of the currently adopted solutions;
- Prognosis and alternatives for sewage in the region: indicating alternatives for sewage in the study area;
- Actions to regulate existing individual systems: presentation of a Program for the Adequacy of Individual Sewage Treatment Systems.

The municipality, in turn, must provide the technical team from the Municipal Health Surveillance Department, which undergoes training to apply the census questionnaires developed by the contracted technical team.

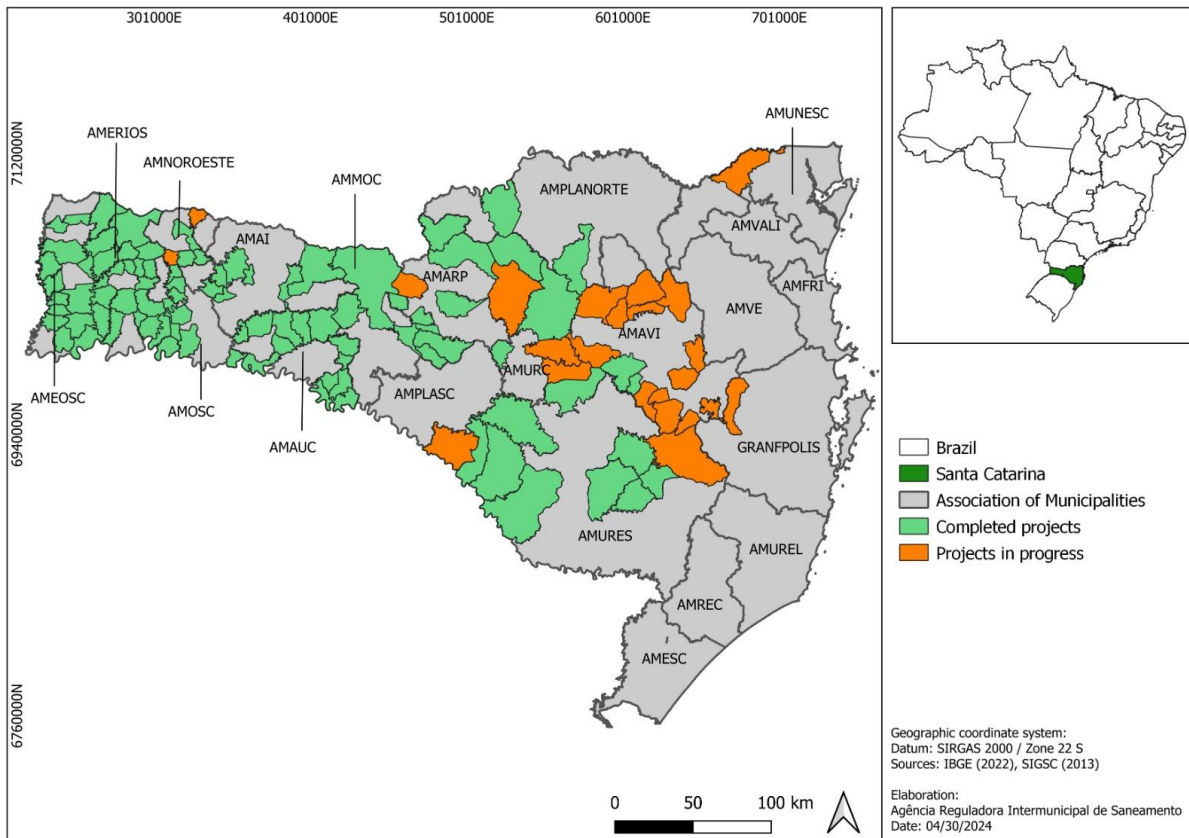
After the completion and delivery of the TRATASan Project product, the municipality must use it to support decision-making on the sewage system model to be adopted. If the municipality decides to adopt individual systems as a model, it must take actions such as: regulating by law the individual sewage solution; registering buildings; inspecting buildings to ensure that individual solutions are adequate; promoting the cleaning of individual solutions; charging for the service provided through a fee or tariff; and conducting environmental education activities with the population.

RESULTS AND CONCLUSIONS

So far, 117 out of 120 eligible municipalities have chosen to join the project. Of these municipalities, 92 have completed reports, and 25 are in progress (Figure 1). Of the municipalities with completed reports, 23 have proceeded with the action plan, approving municipal laws and decrees regulating individual systems as a solution for sewage disposal.

The results obtained indicate a widespread use of local wastewater treatment systems in the state, while at the same time showing a high rate of potential irregularities among the systems analyzed.

Figure 1. Participating municipalities in the Tratasan project.



It is evident that basic sanitation remains a significant challenge in many municipalities of Santa Catarina. The lack of adequate coverage of sewage treatment systems is a concern for public health, the environment, and the sustainable development of local communities. Therefore, it is imperative that municipal managers implement effective sanitation strategies, promoting the expansion of adequate treatment systems and the regularization of existing ones.

Additionally, the continuous collection of data must be carried out in a consistent and reliable manner. Regular updates of information and collaboration between various data sources are essential to monitor progress, identify gaps, and guide future interventions.

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