

Environment

Evaluation process of municipal basic sanitation plans for municipalities in the Northwest of Rio Grande do Sul

Processo de avaliação dos planos municipais de saneamento básico de municípios do noroeste rio-grandense

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ABSTRACT

This study aimed to analyze the minimum content provided for in the current legislation on Municipal Basic Sanitation Plans (MBSP) of 27 municipalities in the Northwest of Rio Grande do Sul. The research was carried out in an exploratory way, with a qualitative approach, to provide greater familiarity with the problem, aiming to make it more explicit. The methodology was divided into three stages: 1) referential research and documental research, which counted on the analysis of the MBSP; 2) adaptation of the analysis tool; 3) technical evaluation of the MBSPs, through a methodology adapted from the Ministry of Cities guideline. It was possible to evaluate 23 municipalities, and it was concluded that: in 12 (52.17%), the plan contemplated the minimum content satisfactorily, being of recent elaboration; in 5 (21.74%), the plan contemplated the content in a moderate way, where it was recommended to anticipate the revision of the document; and in 6 (26.10%), the plan contemplated a small part of the minimum content, where it was recommended that the document be immediately revised. As for the tool used, its relevance for obtaining the global result was highlighted, and it was suggested to use it as a primary instrument, serving as a basis for further detailed analysis regarding the quality of content in the plans. Once concluded and approved, this document becomes the development reference for the municipality, as it establishes the guidelines for basic sanitation.

Keywords: Environmental management; Public policies; Universalization

RESUMO

Este estudo objetivou analisar o conteúdo mínimo previsto nas legislações vigentes sobre Planos Municipais de Saneamento Básico (PMSB) de 27 municípios do Noroeste Rio-Grandense. A pesquisa foi realizada de forma exploratória, com abordagem qualitativa, a fim de proporcionar

maior familiaridade com o problema, com vistas a torná-lo mais explícito. A metodologia foi dividida em três etapas: 1) pesquisa referencial e pesquisa do tipo documental, que contou com a análise dos PMSB; 2) adaptação da ferramenta de análise; 3) avaliação técnica dos PMSB, através de metodologia adaptada do roteiro do Ministério das Cidades. Foi possível avaliar 23 municípios e concluiu-se que: em 12 (52,17%), o plano contemplou conteúdo mínimo de forma satisfatória, sendo estes de elaboração recentes; em 5 (21,74%), o plano contemplou o conteúdo de forma moderada, onde recomendou-se antecipar a revisão do documento; e em 6 (26,10%), o plano contemplou pequena parte do conteúdo mínimo, onde recomendou-se revisar imediatamente o documento. Quanto à ferramenta utilizada, ressaltou-se a sua relevância para obtenção do resultado global, sugeriu-se usá-la como instrumento primário, servindo de base para realização de demais análises detalhadas referentes à qualidade de conteúdo nos planos. Concluído e aprovado, esse documento passa a ser a referência de desenvolvimento para o município, pois é onde ficam estabelecidas as diretrizes para o saneamento básico.

Palavras-chave: Gestão ambiental; Políticas públicas; Universalização

1 INTRODUCTION

The Municipal Basic Sanitation Plan (MBSP) is the main instrument of the Municipal Basic Sanitation Policy, and according to article 23 of Decree No. 7.217/2010, it is this policy that organizes basic sanitation in the municipality, pondering on the management functions, the planning and providing of services, and these should be submitted to regulation, inspection and social control (Brasil, 2014). The plan is an opportunity to put basic sanitation on the municipality's agenda, to involve public and social agents in a cooperative environment, and to be a guiding instrument for sanitation policies, programs and actions at the municipal level (Brasil, 2020). It is up to the municipality to visualize the elaboration of MBSPs, for which it is necessary to build a social pact to improve the living conditions of the population and the environment in which they live (Guimarães; Carvalho; Silva, 2007).

The basic sanitation deficit in Brazil is ironically democratic, as it compromises all Brazilian regions, influencing in a counterproductive way several other sectors, such as health, education, tourism and the environment (Prado; Meneguim, 2018). According to information provided by the National Health Foundation (FUNASA), having improved management is an essential condition for achieving universal access and progress in

the services provided to the population, since sanitation can help reduce social and regional inequalities (FUNASA, 2018). At the municipal level, this contribution may involve the creation and consolidation of structuring instruments of planning, this being a not delegable function of the titleholder. It is of utmost importance to take into consideration that small municipalities face different challenges and difficulties from those faced by larger municipalities, and this is no different when it comes to the management of the MBSP.

We start from the principle that the more adequate the studies related to basic sanitation to the micro-regional realities, the greater the possibilities for effective solutions so that the MBSPs become numbers that reflect the efficiency, efficacy and effectiveness of municipal management. Thus, this article aimed to identify and analyse the MBSPs of the 27 municipalities that make up the Microregion of Frederico Westphalen/RS. Through a methodology adapted from the Ministry of Cities' (2016) MBSP evaluation guidelines, we sought to assess the compliance of the plans with the minimum content set out in Law No 11.445/2007 and Law No 14.026/2020.

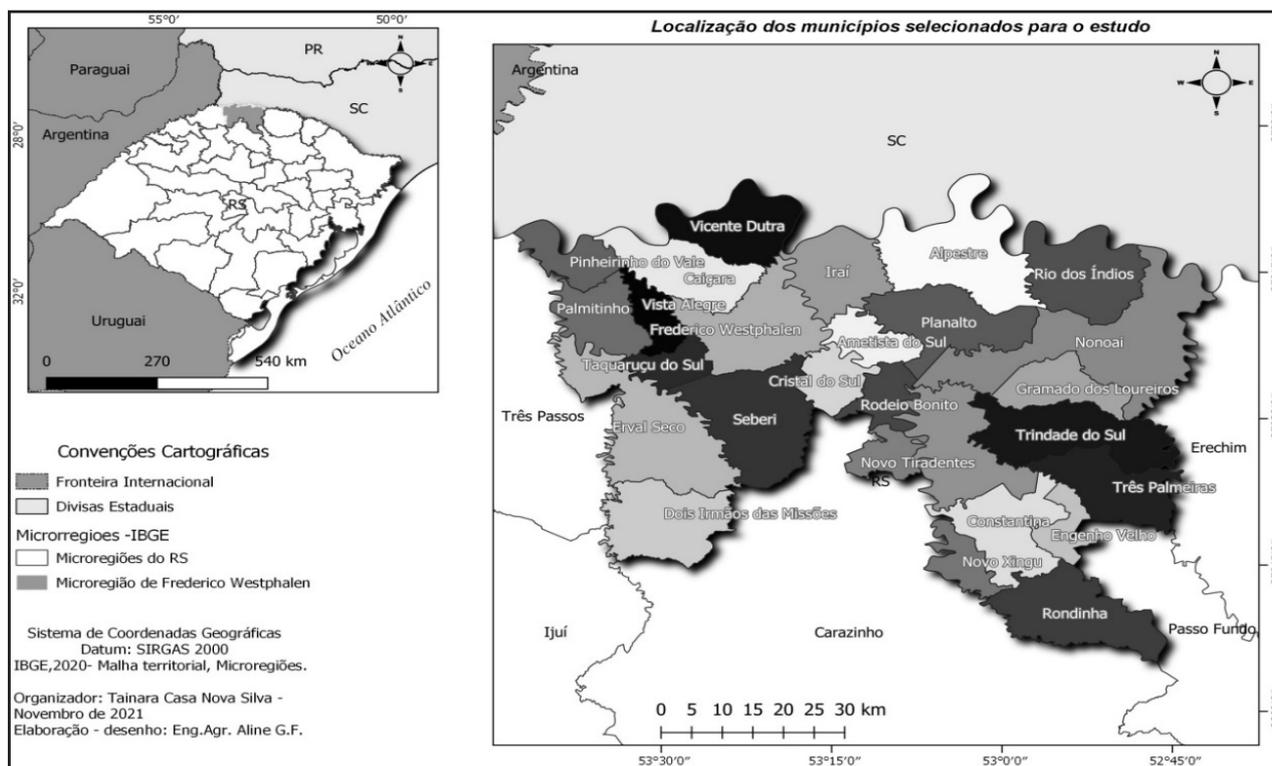
2 METHODOLOGY

The research was conducted in an exploratory manner, aiming to provide greater familiarity with the problem, intending to make it more explicit or to construct hypotheses (Gil, 2007). The qualitative research divided the methodology into three main steps: 1) Documentary research that consisted of material already prepared, consisting of the MBSP and their respective municipal legislations of the 27 municipalities of the Rio Grandense Northwest. Being that the MBSP accessed through communication with those responsible for the document, was in digital or printed format; 2) Adaptation of the Ministry of Cities guidelines (Brasil, 2016); 3) A technical assessment of the MBSPs was conducted, using an adapted methodology to evaluate the compliance of the plans, based on Law No 11.445/2007 (Brasil, 2007) and Law No 14.026/2020 (Brasil, 2020).

2.1 Characterization of the study area

The study area comprises 27 municipalities, all located in Northwest of Rio Grande do Sul (Figure 1). The resident population consists of around 174,605 thousand inhabitants, of which 53.44% live in urban areas (IBGE, 2012) The municipality of Frederico Westphalen is the most populous, with 28,843 inhabitants, while the municipality with the smallest population is Engenho Velho, with 1,527 inhabitants, with an estimated reduction to 932 in 2021. It is worth noting that of the 27 municipalities in the study, 8 have a population of fewer than three thousand inhabitants, and 9 have a population between three and seven thousand inhabitants (IBGE, 2010).

Figure 1 – Location of the municipalities that integrate the study



Source: Produced based on IBGE (2020)

2.2 Evaluation Method of the MBSP

The methodology was adapted from the Guidelines for the Evaluation of a Municipal Basic Sanitation Plan, published in November 2016, and developed by

the National Secretariat of Environmental Sanitation of the Ministry of Cities (SNSA/MCidades) aiming to assess the compliance of plans based on Laws No. 11.445/2007 and No. 14.026/2020, Decree No. 7.217/2010 and Recommended Resolution No. 75/2009, of the Council of Cities Ministério das cidades (2016).

This guideline was also used and adapted by Pereira and Heller (2015), Brito and Araújo (2017) and Sousa et al. (2021). This adaptation was also incorporated, in part, by Silva (2019) and adapted, anew, with new contributions. The adaptations proposed for this study were made necessary due to the difference between the locations of application of the methodology, apart from the peculiarities of the region, where municipalities are considered small so that the proposed tool has the characteristic of enabling a primary and simplified analysis of the MBSP. It is composed of a table organised into a total of 11 blocks, containing 45 items presented in Chart 1.

The main change in the guideline was made with regard to the division by evaluation blocks, and some items of the original guideline were dismembered to more accurately evaluate the four sanitation components (water supply, sewerage, solid waste management and urban drainage). It is worth noting that this tool was adapted to verify the presence or absence of the minimum contents established in the legislation. The plan is understood to be the first and most important step towards improving municipal sanitation management.

Chart 1 – List of blocks and items that compose the tool for analysis of the MBSP minimum content

(Continue)

Blocks	Items	Minimum Content
Coordination	1	Plan edited by the titleholders, which may be based on studies provided by the providers of each service
Territory	2	Municipal coverage (urban and rural areas)
Compatibility	3	Mentions the compatibility of the sanitation plan with river basin plans and Municipal master plans
Diagnosis	4	Status of water supply services (WS)
	5	Status of the sewage services (SS)
	6	Status of urban cleaning and solid waste management services (UCWMS)
	7	Status of urban rainwater management and drainage services (RMDS)
	8	Health, epidemiological, environmental, hydrological and socio-economic indicators

Chart 1 – List of blocks and items that compose the tool for analysis of the MBSP minimum content

(Continue)

Blocks	Items	Minimum Content
Prognosis: Objectives, Goals and Prospects	9	Goals for water supply
	10	Goals for sanitary sewerage
	11	Goals for urban cleaning and solid waste management
	12	Goals for urban drainage and rainwater management
	13	Short, medium and long-term targets for water supply
	14	Short, medium and long-term targets for sanitary sewerage
	15	Short, medium and long-term targets for urban cleaning and solid waste management
	16	Short, medium and long-term targets for urban drainage and rainwater management
	17	Technical engineering solutions for the water supply system(s)
	18	Technical engineering solutions for the sewerage system(s)
Programmes, Projects and Actions	19	Engineering solutions for urban cleaning and solid waste management
	20	Engineering solutions for urban drainage and rainwater management system(s)
	21	Definition of programmes, projects and actions for water supply
	22	Definition of programmes, projects and actions for sanitary sewerage
	23	Definition of programmes, projects and actions for urban cleaning and solid waste management
Emergency and Contingency Actions	24	Definition of programmes, projects and actions for urban drainage and rainwater management
	25	Association of programmes, projects and actions with the objectives and goals
	26	Compatibility with the MAP and other government plans/programmes
	27	Presents the indication of possible funding sources aimed at making each programme, project or action proposed in the MBSP feasible.
Systematic Evaluation	28	Presents a prediction of emergency and contingency events for the water supply component
	29	Presents a prediction of emergency and contingency events for the sanitary sewage component
	30	Presents a prediction of emergency and contingency events for the urban cleaning and solid waste management component
Systematic Evaluation	31	Presents a prediction of emergency and contingency events for the urban drainage and rainwater management component
	32	Mechanisms and procedures for systematic evaluation
	33	Indicators for assessing the efficiency of the water supply component
	34	Indicators for assessing the efficiency of the sanitation component
	35	Indicators to assess the efficiency of the urban cleaning and solid waste management component

Chart 1 – List of blocks and items that compose the tool for analysis of the MBSP minimum content (Conclusion)

Blocks	Items	Minimum Content
Systematic Evaluation	36	Indicators to assess component efficiency for the urban drainage and rainwater management component
	37	Indicators for assessing the effectiveness of the water supply component
	38	Indicators for assessing the effectiveness of the sanitation component
	39	Indicators to assess the effectiveness of the urban cleaning and solid waste management component
	40	Indicators for assessing the effectiveness of the component for the urban stormwater drainage and management component
Information System	41	Establishes information system and/or database
Review	42	Revisions envisaged every 4 years, prior to the preparation of the MAP
Mobilisation, participation and social control strategy	43	Mechanisms and procedures to guarantee the effective participation of society at all stages
	44	Procedures and mechanisms for the wide dissemination of the plan and its monitoring, including the Internet
	45	Use of collegiate bodies in social control

Source: Adapted from Ministry of Cities (2016)

The main change in the guideline was made with regard to the division by evaluation blocks, and some items of the original guideline were dismembered to more accurately evaluate the four sanitation components (water supply, sewerage, solid waste management and urban drainage). It is worth noting that this tool was adapted to verify the presence or absence of the minimum contents established in the legislation. The plan is understood to be the first and most important step towards improving municipal sanitation management.

In order to obtain a final conclusion, the following scoring scale was attributed to each item: 2 (two) points meant that the content found in the item was satisfactorily met; 1 (one) point meant that the content found in the item contemplates moderately and can be improved; and, 0 (zero) meant that the content found in the item was not satisfied and needs to be remade.

So on, it was possible to apply an overall score per plan, which was given by the sum of points of the assessed items of the tool. The average mentioned

by the original guideline (Ministry of Cities, 2016) was adapted for this study by identifying the total points through the sum of points assigned to each item, thus, it was ranked through the equivalence of the classification. The result of this was a global ranking by Plan, presented in Chart 2.

Chart 2 – Global classification by MBSP provided by considering the total points, obtained in the analytical tool applied, with the respective conclusion

Total Points	Conclusion
63 < Total Points ≤ 90	The Plan presents an extensive content, addressing most of the necessary scope, and the part of the content not included in the Plan tends not to inhibit the achievement of good results in its implementation.
36 < Total Points ≤ 63	The Plan moderately includes the necessary content, and the not included part of the content may inhibit the achievement of better results in its implementation, and it may be necessary to anticipate the review of the Plan to incorporate this missing content.
0 ≤ 36	The Plan contemplates a small part of the necessary content, with a tendency to not achieve good results in its implementation, being necessary to immediately review the Plan.

Source: Adapted from Ministry of Cities (2016)

3 RESULTS AND DISCUSSION

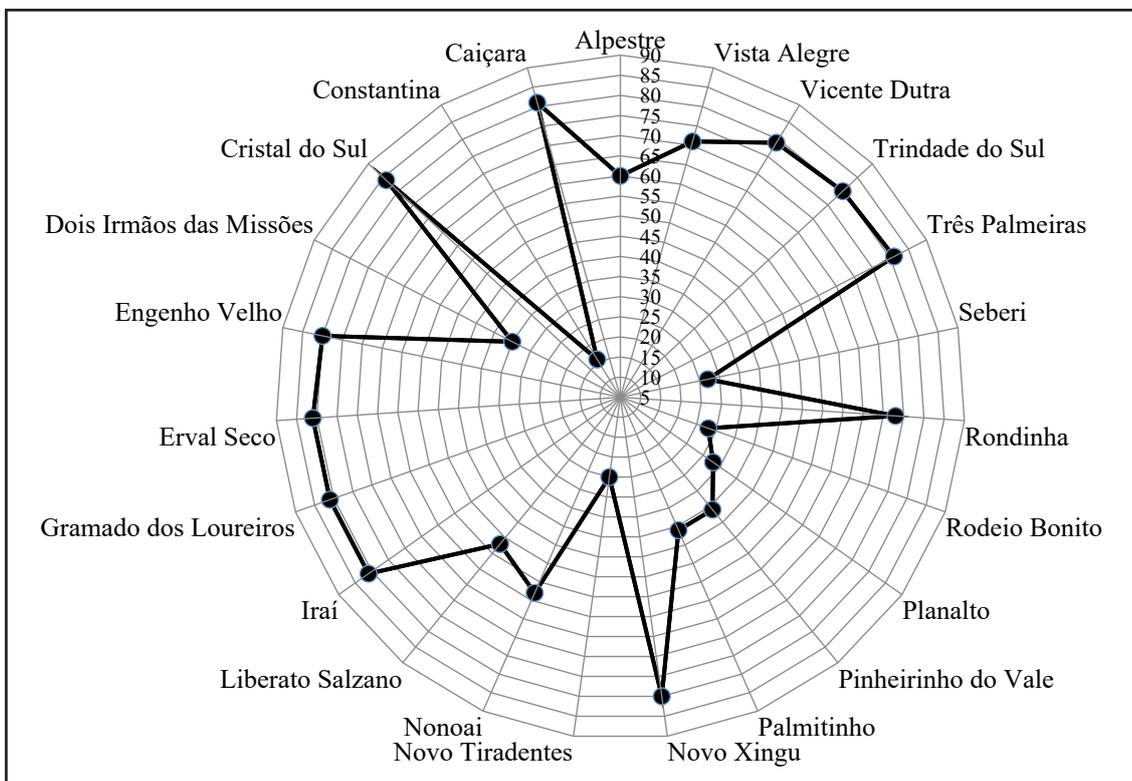
The first step was to identify the people responsible for the MBSP in each city, presenting difficulties by not knowing who was responsible; transferring responsibility from one sector to another; the person responsible being on vacation or on leave; and having worked in the position for a short period. After identifying the person responsible through telephone, an e-mail was sent with explanations about this study, the moment at which access to the MBSP was formally requested.

Other difficulties faced were: not having the digital documents; claiming that the plan does not exist; confusing it with the Solid Waste Management Plan. In this sense, of the 27 municipalities, 3 claimed not to have the Plan. It should be noted that these difficulties were also reported by Sousa et al. (2021).

Upon receiving the MBSP (by e-mail or printed), a brief reading was performed in which it was identified that of the 26 documents, 7 were prepared with the assistance of the Federal University of Rio Grande do Sul (UFRGS) through an agreement between FUNASA and UFRGS, so that these documents are available on the University's website. In sum, it was possible to carry out the proposed analysis in only twenty-three (23) municipalities out of the twenty-seven (27) selected, since three (3) provided incomplete documents, making it impossible to apply the methodology; and one (1) did not have a MBSP.

Consequently, it was possible to apply a global score per MBSP, which is obtained by the sum of the scores given for all assessed items, obtaining a total of points. That is, a single value, related to a conclusion. In Figure 2, the global result can be seen, and the closer the municipality was to the centre, the lower its score.

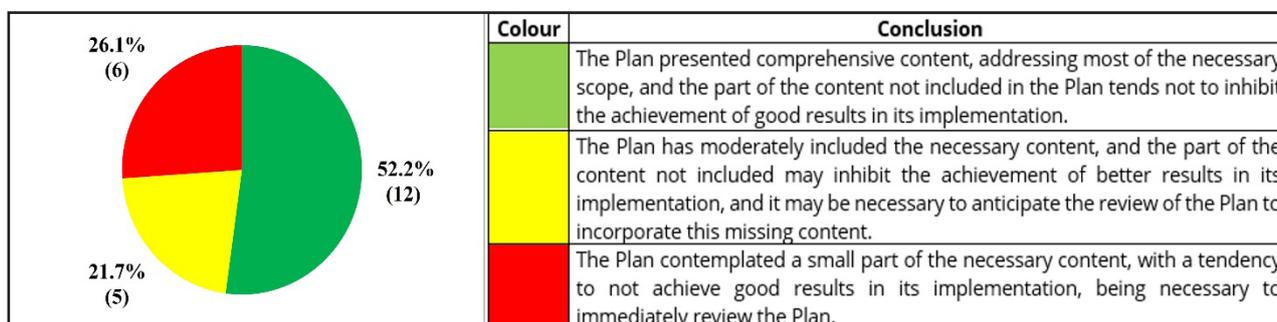
Figure 2 - Global ranking by MBSPs in the municipalities by the total number of points (sum of items) defined in the analytical tool for analysis of the minimum content of the MBSP



Source: by the Author (2021)

In Figure 3 there is a compilation according to the conclusion, in which: for 12 municipalities, representing 52.20%, the plan satisfactorily contemplated minimum content; for 5 municipalities, representing 21.70%, the plan contemplated the content moderately; and for 6 municipalities, representing 26.10%, the plan contemplated a small part of the minimum content.

Figure 3 – Conclusion (definition in the legend) according to the global ranking by MBSP by the total number of points



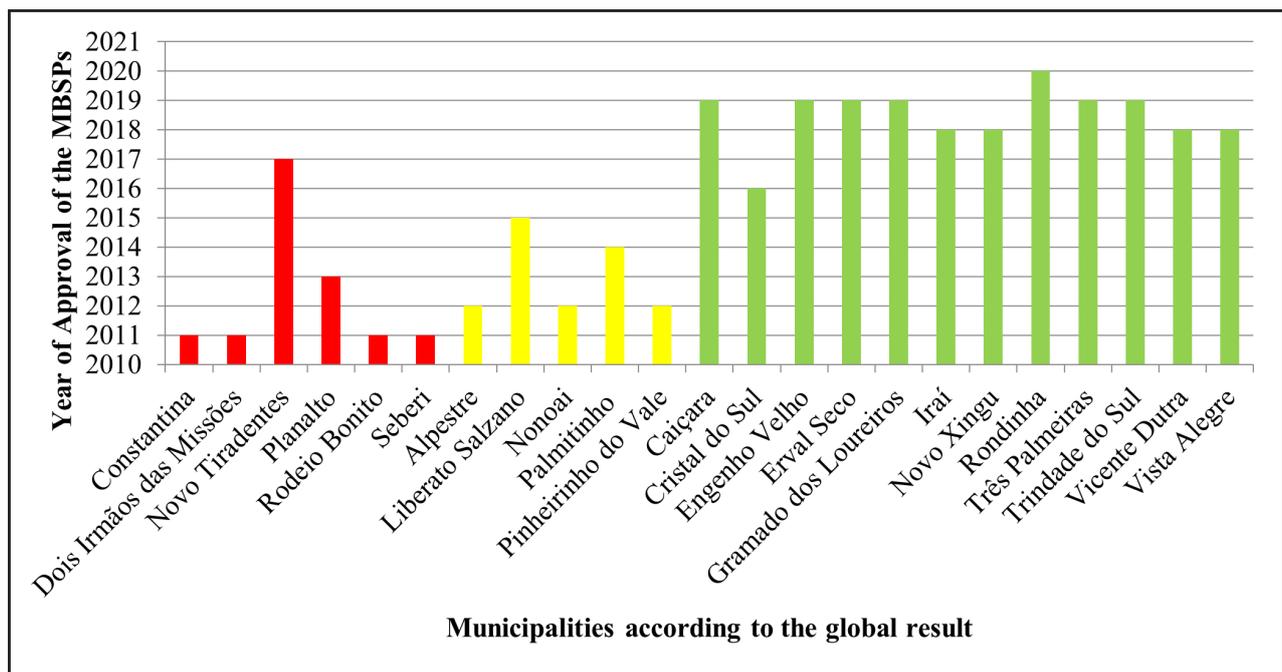
Source: by the Author (2021)

Although some items are in accordance with the minimum required content, these were not sufficient to support the robustness of the plan as a whole, especially when considering that all stages of the plan are built in a complementary manner. It is noteworthy that the absence of information with details, taking into consideration the minimum content present in article 19 of the Sanitation Law, was also contacted by Muniz (2014); Souza and Galvão Junior (2016); Brito and Araújo (2017); Costa and Reis (2017); Silva, Imbrosi, Nogueira (2017) and Ventura and Farias (2017).

Another pertinent way to analyse the global result was by considering the year in which the plan was approved. Figure 4 depicts this, where the data was separated by the colours of the global analysis: the data in red represents municipalities where the plan contemplated a small part of the necessary content, and where it is necessary to review the plan immediately; the data in yellow means that the plan has moderately contemplated the necessary content, and it may be necessary to anticipate the Plan's

review to incorporate this missing content; and the data in green, which represent the municipalities where the plan presented comprehensive content, addressing most of the necessary scope, and the part of the content not included in the Plan tends not to inhibit the achievement of good results in its implementation.

Figure 4 – Comparison between the approval year of the MBSPs and the global result defined by the analytical tool for simplified analysis of the minimum content of the MBS



Source: by the Author (2021)

As such, it can be seen that the municipalities that are in green were the MBSPs recently elaborated, more precisely: 1 municipality in the year 2016; 4 municipalities in the year 2018; 6, in the year 2019; and, 1 in the year 2020. As for the municipalities in the yellow and red ranges, the years in which their Plans were approved were 2011, 2012, 2013, 2014, 2015, and only one in 2017.

It is believed that the municipalities approved their plans according to the deadlines set by the Federal Government at the time when there were actions to collect data for the first National Sanitation Plan (PLANSAB), as can be seen below:

Chart 2 – Ordinances related to the elaboration of PLANSAB

2010	Ordinance no. 634, of 22 october 2010 - To appoint the following members to be part of the Interinstitutional Working Group responsible for coordinating the preparation and promoting the dissemination of the National Basic Sanitation Plan.
2011	Ordinance No. 418, of January 31, 2011 - Rectification of Ordinance No. 409, of January 31, 2011. Ordinance No. 409, of 31 January 2011 - Rectification of Ordinance No. 634, of 22 October 2010.
2012	Ordinance No. 819 of 4 October 2012 - Appointment of members to integrate the Interinstitutional Working Group, responsible for coordinating the preparation and promoting the dissemination of the National Basic Sanitation Plan and revocation of Ordinances No. 634 of 22 October 2010 and No. 418 of 31 January 2011.
2013	Interministerial Ordinance No. 571 of 5 December 2013 - Approves the National Basic Sanitation Plan.
2014	Ordinance No. 171, of April 9, 2014 - Appoints the members of the Interinstitutional Working Group for Monitoring the Implementation of the National Basic Sanitation Plan.

Source: by the Author (2021)

It is worth noting that the document called “Pact for Sanitation: more health, quality of life and citizenship”, approved by ConCidades Recommended Resolution No. 62 of 3 December 2008, precedes and converges efforts for the preparation of the PLANSAB. It is noteworthy that the four municipalities that approved their plans in 2011 were classified as non-compliant. It should be emphasised that the first PLANSAB was developed between February 2009 and May 2010, resulting in 2013 in the creation of the new PLANSAB, which is currently the instrument that guides public policies, goals and strategies for the sanitation sector, which has a 20-year planning perspective (2014 to 2033), considering that the municipalities that are in conformity, that is, were successful in elaborating the PMSB, the PLANSAB may have been used as a reference and influenced this result, where the plans recently elaborated were better developed.

It is also worth mentioning the decrees in which the deadlines given to municipalities for the preparation of MBSP are conditional on their access to funds, as shown in Chart 3. We believe that these decrees also influenced the years of elaboration of the MBSP.

Chart 3 – Compilation of decrees with the deadlines for approval of the MBSP

Decrees	Decree deadlines for municipalities to approve the MBSP
Decree No. 7.217, of 21 June 2010	From the financial period of 2014
Decree No. 8,211, of 21 March 2014	December 2015
Decree No. 8,629, of 30 December 2015	December 2017
Decree No. 9,254, of 29 December 2017	December 2019
Decree No. 10,203, of 22 January 2020	December 2022

Source: by the Author (2021)

Decree No. 7.217/2010, regulates Law No. 11.445/2007, which establishes national guidelines for basic sanitation, and sets out other provisions, and article 26, § 2º, is where occurred these changes in deadlines that were imposed by the decrees mentioned in Chart 3, in which they mention the existence of a sanitation plan as a condition for access to federal budget resources.

The development of a sanitation plan is a municipal responsibility, but the Ministry of Cities is responsible for supervising this plan when the municipality has a population of over 50,000 inhabitants; and FUNASA when the population is under 50,000 inhabitants. This is a complexity factor, due to the diversity of management of the sanitation plans, since FUNASA focuses on public health and, the Ministry of Cities, in addition to public health, focuses on urban development (FUNASA, 2018).

Therefore, in addition to developing the MBSP, the titular municipalities, especially the small ones, need to understand and emerge in this condition, starting to consider the applicability of the MBSP effectively. Since, although national and state guidelines must be followed, there are intrinsic factors to the management in small municipalities that cannot be ignored. This is because it generates a difference in meeting demands and in achieving public policies that make a difference in the quality of life of the population, being that the other plans (such as the master plan, water resources plans and solid waste plans) can contribute in this journey to complement the MBSP. In other words, “the law alone is not enough to guarantee the Plan’s sustainability. An articulation of

all spheres is necessary, in the sense of constituting instruments of permanent technical support to the municipalities” (Galvão Júnior, 2013, p. 15).

In this manner, the MBSP, at first, may seem static but it is a document that should be executed in a 20-year timeframe, seeking to achieve the objectives through goals based on the programmes described in the document. What makes it of utmost importance is that the municipalities maintain and/or create an active Municipal Sanitation Council, not only to help create the municipal sanitation policy but also to monitor the execution of the MBSP, as well as to assist in the quest for financial support.

In this sense, the municipal management should deeply comprehend the importance of this context, turning the monitoring and evaluation of MBSP into part of the municipal administration routine, considering: which instances it mobilizes, whether from the direct or indirect administration; who, from the political and technical staff, participates in the process and which procedures and conducts will be applied; as well as the results of the process; and finally, how it is publicized.

4 CONCLUSIONS

The MBSP is a strategic management instrument for municipalities provided by the prefectures. It was noted that the MBSPs that were satisfactorily included were documents of more recent development, compared to the others, and possibly used the PLANSAB (2013) as a reference to develop their documents. As for the MBSPs that contemplated the minimum content moderately, it was recommended that they be reviewed; and for the municipalities that contemplated a small part of it, it was recommended that the plan be remade. The success or unsuccess of the contents addressed in the municipal sanitation plans correlated to how explicit the law is about the compulsory nature of the items that must be included in the MBSP.

As for the analytical tool in which 23 municipalities participated, it made possible a simplified analysis focused on the presence (or not) of the minimum content in the MBSP. In this sense, it is recommended that this be a primary tool

to be used and to serve as a basis for conducting detailed analyses regarding the quality of content in the MBSP.

This work generated, from the results, subsidies for the pursuit of improvements in the planning of basic sanitation services, and if the MBSPs are reviewed considering the tool applied, it is estimated that the MBSPs will be clearer and more objective.

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