Management of urban solid waste in municipalities monitored by the 17th Cia PM Ind MAT

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Abstract

Established by 12.305/2010 law, the National Solid Waste Policy (PNRS) created mechanisms and established the general guidelines for all public and private entities responsible for solid waste management to perform their activities in an integrated and complementary way. The municipalities, due to their constitutional responsibilities, oversaw most of the expected charges. With the objective of diagnosing the current situation of urban solid waste management in the 72 municipalities located in the area of activity of the 17th Independent Military Police Company for the Environment and Traffic (17ª Cia. PM Ind MAT), the research was carried out through structured questionnaires answered by military environmental police officers and municipal managers. The results indicate that, in most of them, the actions and instruments of the PNRS are not being applied and, in some of these municipalities, final disposal of wastes, even after the legal deadlines, continues being carried out in an environmentally inadequate way.

Keywords: Environmental regulation. Inspection. Environmental police.

Introduction

The National Solid Waste Policy (PNRS), established by 12.305/2010 Law, of August 2nd, 2010, established general guidelines for the management of solid waste throughout the national territory. This law extinguished the historical normative void in Brazil concerning the subject, providing important conceptual innovations by approaching such topics as reverse logistics and social inclusion of waste pickers. In presenting its principles and objectives, the PNRS defined the adoption of sustainable consumption patterns as priorities, stimulating the reuse/recycling of residues and, especially, the environmentally adequate final disposal of tailings (BRASIL, 2010).

Fleck (2016) states that, in Brazil, solid waste management was considered to involve only the contracting of waste collection, sweeping and weeding services, disregarding the destination of the collected waste. Such an archaic and obsolete concept for a long time favoured the existence of dumping grounds and other inadequate forms of final disposal. Besides, it also contributed to lack of encouragement by the government and to the practices of selective waste collection, recycling and composting.

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Regarding dumping grounds, it is essential to emphasize this modality of final disposal of urban solid waste (USW) causes significant environmental, sanitary and social impacts. As described by Batista et al. (2010), those impacts include degradation of natural landscape, depreciation of soil quality, contamination of surface and ground water, proliferation of vectors responsible for the transmission of serious diseases; there is also the situation of waste pickers, who, without other income alternatives, end up guaranteeing their subsistence by selling recyclable materials or even feeding on waste found in those places.

This dated concept on USW management was eventually replaced by the management instruments designed by 12.305/2010 Law. It was from this legal framework that, beyond the public power, other important actors came to bear the status of co-responsibility for the management of the solid waste generated, as foreseen in art. 3 of the norm below:

"XVII - shared responsibility for the product life cycle: a set of individualised and concatenated attributions of manufacturers, importers, distributors and traders, consumers and holders of public services of urban cleaning and solid waste handling, to minimise the volume of solid residues and tailings generated as well as to reduce the impacts caused to human health and the environmental quality resulting from the product life cycle, under the terms of this Law;"(BRASIL, 2010).

Although several entities are responsible for the implementation of the PNRS, it is well known the municipalities received most of the attributions required therein. Because of its constitutional competence to "organize and provide public services [...] of local interest [...] of essential character" (BRASIL, 1988) and since 12.305/2010 Law came into force, the municipalities were held responsible for elaborating their integrated solid waste management plan (PGIRS); supporting the development of waste pickers' cooperatives; implementing measures to reduce tailings sent for final disposal; implementing systems of reverse logistics among others (BEZERRA, A.; BEZERRA, F., 2015).

To fulfil these legal obligations, the PNRS provided for the possibility of passing on budgetary resources to municipalities that elaborated their respective PGIRS, also allowing them to do so through public consortia (BRASIL, 2010). However, the law did not establish mechanisms of technical and methodological support, which, in practice, makes it impossible to draw up the plans for most of the Brazilian municipalities, thus hampering access to sources of public funding for the implementation of the management instruments established by the law (BEZERRA, A.; BEZERRA, F., 2015).

According to the Ministry of the Environment, in 2013, only 33.5% of Brazilian municipalities declared to have a PGIRS under the terms established by PNRS. Two years later, in 2015, this percentage reached 41.7% (BRASIL, 2017), confirming the difficulties faced by municipal managers, as already mentioned.

As Monterosso (2016) points out, management plans are extremely relevant for USW management in municipalities, since, besides advancing the diagnosis of the ongoing situation, they also include possible sustainable medium and long-term solutions for waste treatment and disposal of tailings.

Despite the difficulties faced throughout the country, several actions of state agencies and the private initiative have sought to improve this scenario and to encourage the effective participation of municipalities to implement the guidelines set by the PNRS.

In Minas Gerais, the "Minas sem lixões/Minas without dumps" program, created in 2003 and managed by Fundação Estadual do Meio Ambiente/State Environmental Foundation (FEAM), is a coordinated effort of state government to integrate and foster common solutions, aiming to supporting adequacy to the norms of proper USW management defined by *Conselho Estadual de Política Ambiental* (COPAM)/State Council of Environmental Policy (BRUSCHI, 2011).

According to FEAM (2016), such efforts have not been enough to guarantee full compliance with the measures imposed by the PNRS, as demonstrated by the last situation report on the destination of USW published by the foundation and produced based on the following data:

"i. inspections carried out in 2015;

ii. data collection from 2001 to 2014, based on the Panorama Report on the destination of urban solid waste in Minas Gerais in 2014 (FEAM, 2015);

iii. collection of data obtained through the register updating in the ecological ICMS (tax on the circulation of commercial goods and services), environmental sanitation subcriterion;

iv. collection of data obtained through consultations with the SIAM in relation to the environmental regularisation of the treatment and/or final disposal systems of municipal solid residues, under the responsibility of each municipal administration inserted in the state of Minas Gerais" (FEAM, 2016).

Besides not having management plans and budget resources specifically designed for this purpose, most mining municipalities have little or no concrete action to stimulate and foster the reduction of generation, reuse, recycling and adequate treatment of waste. Likewise, the environmentally appropriate disposal of tailings is still a reality far removed from the daily lives of a considerable part of the state's population (FEAM, 2016).

In this sense, it is important to highlight there are several possibilities and methods for final waste disposal. For the purposes of analysis and discussion in this research, it will be used the definitions adopted by FEAM in Minas Gerais, which establishes that sanitary landfills and sorting and composting plants (SCP) are environmentally appropriate forms of disposal. Controlled landfills and dumping grounds are classified by FEAM as inadequate forms of final disposal.

The technical definition of landfill refers to the final disposal forms of USW that present the least possible impacts on public health and the environment. In this method, the residues are confined in limited areas and reduced to the lowest allowed volume, always covered by layers of soil after the end of each work.

Sorting and composting plants (usinas de triagem e compostagem - UTC, in Portuguese) are enterprises that separate the residues into three fractions: materials with known recycling potential, organic matter and tailings. After separation, the recyclables are reduced to the smallest possible volume and stored for further commercialization; organic matter goes through composting processes and can be reused for various purposes; tailings are disposed in trenches near the plant or in landfills.

The controlled landfills are final disposal sites that meet only the minimum standards set by FEAM, in order to reduce the impacts caused by the activity. The Foundation's understanding is that this form of final disposal, although inadequate, is still preferable to dumps.

Dumps are open places for disposal of the USW collected, without any criterion or technical care. FEAM classifies the disposal sites as dumps by assessing criteria such as the presence of waste pickers, non-compliance with the rules that set the minimum frequency of recoating and burning of waste.

In this context, the present research proposes to analyse the conditions of USW management in the municipalities that are part of 17ª Companhia de Polícia Militar Independente de Meio Ambiente e Trânsito/17th Company of the Independent Military Police of the Environment and Traffic (17ª Cia. PM Ind MAT), besides checking information provided to FEAM and the current stage of preparation of the integrated solid waste management plans in those municipalities.

Material and methods

The 17ª Cia PM Ind MAT is a unit of Military Police of Minas Gerais (PMMG), responsible for enforcing the environment legislation in the south of the state. Its mission is to watch over the environment and natural resources, protect the fauna and flora, control of logging and predatory fishing through preventive work and continuous monitoring (MINAS GERAIS, 2016).

Created in 2009, the unit serves seventy-two municipalities and operates in an area of 18,204 km^2, subdivided into eight fractions of environmental policing located in the following locations: Pouso Alegre, Extrema, Ouro Fino, São Lourenço, Itamonte, Aiuruoca, Itajubá and Paraisópolis. Together, these fractions serve about 1,200,000 (one million, two hundred thousand) inhabitants (IBGE, 2010).

According to IBGE (2010), 72% of these municipalities have an urban population of less than 10,000 inhabitants. They are, therefore, small municipalities, mostly deprived of servers with adequate technical training for the preparation of the PGIRS and for monitoring the implementation of other instruments indicated in the PNRS (MONTEROSSO, 2016). In Figure 1, the area of operation of the unit is shown below:

Figure 1. Map of the area of operation of the 17ª Cia PM Ind MAT

Source: Operational Employment Section - 17ª Cia PM Ind MAT (2017)

In this scenario, the research began by collecting the information available for public consultation on the website of "Minas without dumps" program (http://www.feam.br/minas-sem-lixoes). The document Diagnóstico de Consórcios Intermunicipais para a Gestão de Resíduos Sólidos Urbanos em Minas Gerais/Diagnosis of Intermunicipal Consortia for the Management of Urban Solid Waste in Minas Gerais, published by FEAM, in 2014, containing data collected up to June of that

year, was consulted as well as the USW Management Overview in the State of Minas Gerais in 2015, published in 2016, containing the data collected until the end of the previous year.

From this universe, data were extracted from the sample corresponding to the area of operation of the 17ª Cia. PM Ind MAT, which reaches 72 municipalities that compose the Unit. Then, during the months of April and May 2017, the field survey was carried out through the Unit's environmental policing fraction commanders, who answered structured questionnaires about solid waste management in the municipalities of their districts, via Google forms ©.

To that end, military police officers visited the final disposal sites of the USW, when located in their same municipality, and interviewed municipal public managers directly responsible for managing the issue in each city.

Field survey data were compiled at Microsoft Excel® software and, then, processed by the same software. Through those data, a comparison between the information provided by FEAM and those provided by the military environmental officers regarding the final disposal of tailings was conducted, considering the on-site evaluation of the methods used by the municipalities. In addition, we also evaluated the responses of the public managers interviewed in relation to the actions of reduction, recycling and correct disposal of waste fostered by the municipal public power, considering only the positive or negative response regarding the subject, without analysing the efficiency and effectiveness of initiatives identified in the affirmative cases.

Results and discussion

One important point to be mentioned is that this research allowed for greater fidelity of the data collected, since the on-site visits carried out by the environmental police enabled better interaction between the interviewer and the municipal manager responsible for the information provided. In addition, the research also collected and compiled information, hitherto unknown, on the municipalities that send their waste to other states of the federation.

The analysis of the information was subdivided into the following topics: reduction of generation, recycling and proper disposal of waste; integrated solid waste management plans; disposal of waste and public consortia, observing the objectives set by the PNRS.

Reduction of generation, recycling and proper disposal of waste

Law n. 12.305 of 2010 recognized the technical distinction between waste and tailings, conceptualizing waste as residues that cannot possibly be treated or reused and tailings as materials resulting from human activities and which, although having been disposed, can still be recycled or reused under various forms and means (BRASIL, 2010).

For this reason, all actors involved in USW management should keep in mind that the final disposal of tailings, even when done in an environmentally appropriate way, should be perceived as an extreme measure, taking all available means for non-generation and reuse of the residues. The information produced on it during the field survey considered the answers presented by the public managers interviewed and are structured in Table 1, as follows:

Table 1. Public power actions on generation, recycling and disposal of USW

Questions asked	Yes	Freq.	No	Freq.
Are there selective collection programs in operation in the municipality?	26	36.1%	46	63.9%
Are there recycling actions/projects supported/fostered by the government?	28	38.9%	44	61.1%
Are there education/awareness programs for the urban population about the correct destination of the waste generated?	28	38.9%	44	61.1%
Are there educational programs, fostered by the government, aimed to reducing waste generation?	20	27.8%	52	72.2 %

Source: Elaborated by the authors (2017).

In the sample surveyed, most municipalities do not have perennial and effective actions aimed to reducing, reusing and recycling the generated USW. In 61.1% of the cases, the municipality does not independently separate and forward waste for recycling, nor does it support or foster independent initiatives by waste pickers' cooperatives or private companies that seek to do so.

In addition, 63.9% of the cities do not maintain selective collection programs in operation and 61.1% do not adopt educational and population awareness actions to adequately separate the domestic and commercial waste generated.

This number rises to 72.2% when it comes to municipalities that do not adopt any educational program designed to raise awareness of the need to reduce USW generation, avoiding wasted resources and ensuring a reduction in the volume of tailings to be discarded.

Even in the cases of positive responses, when questioned about which are the selective collection programs and actions to promote education and population awareness on the subject, the practical examples cited by the interviewees were limited to indicate the existence of isolated actions of leaflet distribution, occasional funding of logistic resources for associations of waste pickers and educational activities carried out exclusively in the school environment.

Comparing the data collected in the present research with the results of the CICLOSOFT 2016 survey, conducted by the Corporate Commitment for Recycling /Compromisso Empresarial para Reciclagem (CEMPRE), a discrepancy is observed. The CICLOSOFT survey indicates that only 1,055 (18%) Brazilian municipalities maintained selective collection programs active in 2014/2015.

Of this number, 14 municipalities belong to the sample surveyed, representing 53.5% of the urban population served by the 17ª Cia PM Ind MAT, less than the total of 26 municipalities that responded positively to the question asked by environmental policing fraction commanders about the existence of selective collection programs.

Considering that, according to CEMPRE (2016), the methodology of the CICLOSOFT survey consists of data collection through forwarding a questionnaire to the City Halls and making technical visits. As the method used in this study, we noticed the perceptions on the theme differ according to the interviewee's point of view and circumstantial interests.

These results demonstrate the deficiencies of government in fulfilling its obligations to the PNRS. In most of the municipalities studied, the motivations for this scenario are similar and, according to FEAM (2016), encompass the reduced availability of vehicles and workers for the selective collection; the lack of awareness and collaboration of the population; the lack of resources and the training of the workforce, all of which are ultimately linked to poor management and inadequate communication.

Integrated solid waste management plans (PGIRS)

The state of Minas Gerais, through the Normative Deliberation (DN) COPAM 170/2011, established deadlines for the municipalities to register their PGIRS in FEAM. The deadlines were defined according to the population range of the municipalities, being:

I. urban population greater than 50,000 inhabitants: from 07/30/2012 to 09/26/2012;
II. urban population between 20,000 and 50,000 inhabitants: from 07/30/2013 to 09/26/2013;
III. urban population of less than 20,000 inhabitants: from 07/30/2014 to 09/26/2014 (COPAM, 2011).

Even after having the expiring deadlines established, in its last yearly scenario of destination of USW, FEAM (2016) reports that only 146 out of the 853 municipalities of the state were registered in the PGIRS, what corresponds to 17% of all municipalities. From these, 146 registered, 98 (11.5%) were considered effective and 48 (5.60%) still had matters to be settled.

This lack of technical instruments assigned to the proper management of residues is repeated, although in a lower percentage, in the municipalities of the sample surveyed, observing that only 27 (37.5%) of them have PGIRS, an essential condition for accessing public resources intended to implement the PNRS, as discussed above.

Of these 27 municipalities, only 9 (12.5%) reported having sent their plans for registration and validation by FEAM. Other 10 (13.9%) said they did not send them and 8 (11.1%) municipalities do not know whether the plans were sent, demonstrating the difficulties and obstacles in the public administration due to the periodic substitutions of the servers responsible for the management of various topics.

The lack of the PGIRS and the lack of technical knowledge prevent access to important financial resources annually allocated in the public budgets of Federal Government and the Government of the State of Minas Gerais. Those resources could be applied by the municipalities in several actions of implementation of the PNRS, such as the Ecological ICMS.

This information indicates how recurring is the discontinuity of the actions taken by the government for proper management of the solid waste generated in each municipality. There is no sequence of activities, nor transfer of information and knowledge between the government teams when alternating.

Moreover, in many cases, the managers chosen for topics with relevant technical specificities, such as USW management, do not have knowledge and experience enough to properly manage their offices, acting much more as political and electoral agents than as managers.

Final disposal of public rejects and consortia

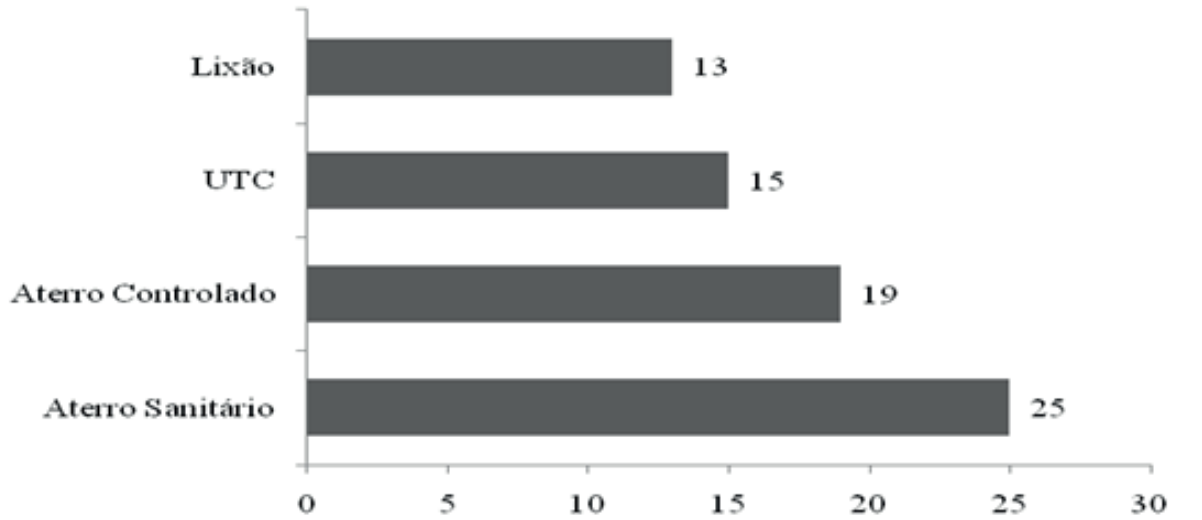
The PNRS set a four-year period for all municipalities to carry out the final disposal of the wastes in an environmentally appropriate manner. According to the regulation, August 2nd, 2014 was the deadline for dumps and other improper forms of disposal to be decommissioned. Besides, the law establishes that after the deadline materials that could be reused, recycled or treated by economically viable technologies (such as recyclable or organic waste) could no longer be sent to the final disposal (BRASIL, 2010).

Even so, there are still several locations where the disposal is carried out in an irregular and environmentally inadequate way. Proposing the extension of the deadlines set by PNRS, the draft bill n. 2.289/2015 continues in process in the National Congress until this date, compromising the bases and principles established with great difficulty when the law was approved (BRASIL, 2015).

Although the PNRS only determines the final disposal of residues, the absence of selective collection programs and waste treatment and recycling actions in most of the municipalities surveyed indicates that when it comes to this issue, we are, in fact, facing the final disposal of all USWs collected by the municipality, which is why this research will refer to the disposal of USW in this topic.

In order to classify and interpret the data collected, the final USW disposal practices utilized by the municipalities were determined according to the definition used by FEAM in Minas Gerais. Based on these criteria, the field research produced the following data, exposed in Graphic 1, as follows:

Graphic 1. Final disposal of USW by the municipalities of the sample.



Source: Elaborated by the authors (2017).

The studied municipalities that dispose their USW in an environmentally adequate manner correspond to 56% in total, distributed among sanitary landfills (35%) and sorting and composting plants (21%). The other ones are equal to 44% and they conduct the final disposal in improper conditions, which are harmful to the environment and public health.

In total, 40 municipalities dispose their USW properly. Of these, 29 (72.5%) do so through public consortia, a mutual support mechanism adopted by PNRS as a viable alternative to minimizing the difficulties faced by small municipalities in USW management (FEAM, 2014).

In the field of USW management, this has been shown as a viable alternative in view of the potential gain of technical sustainability of this type of solution, especially for smaller municipalities. For this reason, the national and state solid waste management policies seek through tax benefits and easy access to budgetary resources to stimulate the creation of these consortia.

The data produced indicate that in the area of activity of the 17ª Cia PM Ind MAT this has been the option chosen by most municipalities committed to comply with the recommendations of the PNRS, ensuring the final disposal of the USW occurs under technical and financial conditions that are compatible with the local reality.

The association through alliances to fix common problems reduces operational costs and guarantees qualified technicians for the management of the activities established in PNRS. Such measure needs to be expanded and refined to achieve all the management rules and mechanisms established by the law.

Therefore, unlike the other mechanisms proposed by PNRS, when it comes to the final disposal of USW, most of the cities surveyed adopt sustainable and environmentally adequate practices. In this sense, the research also proposed to compare its own results with the last state-wide panorama released by FEAM. In order to do so, Table 2 presents the data compared, as follows:

Table 2. Comparison of the information available on final disposal of USW.

Municipality	Data FEAM 2016	Research Data	Location of disposal / final disposal
Aiuruoca	Dumps	UTC	Seritinga
Alagoa	Controlled landfill	UTC	
Albertina	Dumps	Sanitary landfill	Andradas
Baependi	Controlled landfill	Controlled landfill	
Bocaina de Minas	Sanitary landfill	UTC	
Bom Repouso	Dumps	Dumps	
Borda da Mata	Controlled landfill	Sanitary landfill	Pouso Alegre
Brasópolis	Sanitary landfill	Sanitary landfill	Itajubá
Bueno Brandão	Controlled landfill	Controlled landfill	
Cachoeira de Minas	Sanitary landfill	Sanitary landfill	Itajubá
Camanducaia	Sanitary landfill	Sanitary landfill	Pouso Alegre
Cambuí	Controlled landfill	Controlled landfill	
Careaçu	Out of the state	Sanitary landfill	Pouso Alegre
Carmo de Minas	Dumps	Dumps	
Carvalhos	Out of the state	UTC	
Caxambu	Dumps	Controlled landfill	
Conceição das Pedras	Controlled landfill	Controlled landfill	
Conceição dos Ouros	Controlled landfill	Sanitary landfill	Pouso Alegre
Congonhal	Controlled landfill	Sanitary landfill	Pouso Alegre
Consolação	Controlled landfill	Controlled landfill	
Cordislândia	Controlled landfill	Dumping ground	
Córrego do Bom Jesus	UTC	Sanitary landfill	Pouso Alegre
Cristina	Controlled landfill	Controlled landfill	
Cruzília	Out of the state	Sanitary landfill	
Delfim Moreira	Sanitary landfill	Sanitary landfill	Itajubá
Dom Viçoso	Controlled landfill	Controlled landfill	
Espírito Santo do Dourado	Controlled landfill	Controlled landfill	
Estiva	Dumps	Dumps	
Extrema	Sanitary landfill	Sanitary landfill	
Gonçalves	UTC	UTC	Paraisópolis
Heliodora	Dumps	Dumps	
Inconfidentes	Dumps	Dumps	

Municipality	Data FEAM 2016	Research Data	Location of disposal / final disposal
Itajubá	Sanitary landfill	Sanitary landfill	Itajubá
Itamonte	Sanitary Landfill + UTC	UTC	
Itanhandu	UTC	Controlled landfill	
Itapeva	Controlled landfill	UTC	Pouso Alegre
Jacutinga	Dumps	Dumps	
Liberdade	Controlled landfill	UTC	
Maria da Fé	Sanitary landfill	Sanitary landfill	Itajubá
Marmelópolis	Sanitary landfill	Sanitary landfill	Itajubá
Minduri	Out of the state	Controlled landfill	
Monte Sião	Dumps	Controlled landfill	
Munhoz	Controlled landfill	Controlled landfill	
Natércia	Dumps	UTC	Pouso Alegre
Ouro Fino	Dumps	Controlled landfill	
Paraisópolis	UTC	UTC	Paraisópolis
Passa Quatro	Out of the state	Sanitary landfill	Cachoeira Paulista / SP
Passa Vinte	Out of the state	Sanitary landfill	
Pedralva	UTC	UTC	
Piranguçu	Sanitary landfill	Sanitary landfill	Itajubá
Piranguinho	Sanitary landfill	Sanitary landfill	Itajubá
Pouso Alegre	Sanitary landfill	Sanitary landfill	Pouso Alegre
Pouso Alto	Dumps	Dumps	
Santa Rita do Sapucaí	Controlled landfill	Sanitary landfill	Itajubá
São Gonçalo do Sapucaí	Dumps	Dumps	
São João da Mata	Dumps	Dumps	
São José do Alegre	Sanitary landfill	Sanitary landfill	Itajubá
São Lourenço	Dumps	Dumps	
São Sebastião da Bela Vista	Controlled landfill	Sanitary landfill	Pouso Alegre
São Sebastião do Rio Verde	UTC	Controlled landfill	
Sapucaí Mirim	Out of the state	Sanitary landfill	Tremembé/SP
Senador Amaral	Dumps	Dumps	
Senador José Bento	Controlled landfill	Controlled landfill	
Seritinga	Dumps	UTC	Seritinga
Serranos	Controlled landfill	UTC	Seritinga
Silvianópolis	UTC	UTC	
Soledade de Minas	Controlled landfill	Controlled landfill	
Tocos do Mogi	Dumps	Sanitary landfill	Pouso Alegre
Toledo	Controlled landfill	Controlled landfill	
Turvolândia	UTC	UTC	
Virgínia	Controlled landfill	Dumps	
Wenceslau Brás	Sanitary landfill	Sanitary landfill	Itajubá

Source: Elaborated by the authors with information from FEAM (2016).

According to data provided by FEAM, in 2015, only 23 (32%) of the 72 municipalities in the area of coverage of the 17ª Cia PM Ind MAT disposed of their USW properly. The other municipalities disposed of the waste in dumps and controlled landfills or sent them out of the state, providing no information regarding the method of disposition employed in those cases.

This research showed this panorama has changed over time and, currently, 40 (56%) municipalities of the sample dispose of their USW in an environmentally correct way. However, it is important to highlight the improvement of the final disposal methods, when not adopted jointly with the other instruments of the PNRS, contributes little to the advances regarding the treatment of USW. The research shows that is the case in most municipalities evaluated, which do not promote or stimulate any initiatives to reduce generation or to foster recycling and reuse.

In this sense, the research also indicated that 59.8% of the urban population in the area of operation of the 17ª Cia PM Ind MAT is served by final disposal methods environmentally adequate for the USW generated. The data show a situation very similar to the one identified in the rest of the state of Minas Gerais, where, according to FEAM (2016), 57.7% of people living in urban centres are served in the same way.

Conclusion

This study aimed to analysing the conditions of USW management in the municipalities that are part of the region served by the 17ª Cia PM Ind MAT as well as verifying the accuracy of the information provided to FEAM and the current stage in the preparation of integrated solid waste management plans in these municipalities.

Despite the improvement identified in the final disposal methods, it is necessary to recognise the PNRS forecast on the subject has not been minimally met, since in order to dispose of tailings only in an environmentally adequate manner, the municipality must have a good solid waste management system, including selective collection and treatment of organic waste, sending the smallest volume to the sanitary landfill.

Furthermore, measures of social inclusion and promotion of citizenship through fostering of cooperatives of recyclable waste pickers are practices that are not applied or are of limited continuity in the municipalities surveyed, in which most of the managers indicated there were no recycling actions or projects supported or fostered by the public power.

In the study, it was also verified the data provided by the state of Minas Gerais do not coincide entirely with the situational reality observed in the municipalities of the sample surveyed. As it turned out, there were three reasons for this discrepancy: a) the frame time since the last survey carried out by FEAM, the last public consultation available refers to the information collected in 2015; b) misinformation provided by public entities; c) divergences on interpretation from the municipal body and environmental police regarding the effectiveness and efficiency of the actions implemented to comply with the principles of PNRS.

Finally, it is pointed out this reality indicates the theme is not treated with the priority it deserves. In addition, there is little chance the situation will improve in the near future, since education and population awareness programs are practically non-existent in the municipalities of the sample. The reversal of this scenario will necessarily depend on the effective involvement of the various entities and bodies responsible for the efficiency of the processes and the effectiveness of USW management.

Gestão de resíduos sólidos urbanos nos municípios componentes da 17ª Cia PM Ind MAT

Resumo

Instituída por meio da Lei n. 12.305/2010, a Política Nacional de Resíduos Sólidos (PNRS) criou mecanismos e estabeleceu as diretrizes gerais para que todos os entes, públicos e privados, responsáveis pela gestão de resíduos sólidos desempenhassem suas atividades de maneira integrada e complementar. Aos municípios, em razão de suas atribuições constitucionais, coube a maior parte dos encargos previstos. Com o objetivo de diagnosticar a situação atual da gestão de resíduos sólidos urbanos (RSU) nos 72 municípios situados na área de atuação da 17ª Companhia de Polícia Militar Independente de Meio Ambiente e Trânsito (Cia PM Ind MAT), a pesquisa foi realizada por meio de questionários estruturados respondidos por policiais militares de meio ambiente em conjunto com gestores municipais. Os resultados indicam que, na maior parte deles, as ações e os instrumentos da PNRS não estão sendo aplicados e, em uma parte desses municípios, a disposição final dos rejeitos, mesmo depois de exauridos os prazos legais, continua sendo realizada de maneira ambientalmente inadequada.

Palavras-chave: Regularização ambiental. Fiscalização. Polícia de Meio Ambiente.

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