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THE MANAGEMENT OF URBAN SOLID WASTE IN MEXICO: A CASE STUDY FROM AN ORGANIZATIONAL PERSPECTIVE

Gestión de residuos sólidos urbanos en México: Un caso de estudio desde la perspectiva organizacional

Gestão de resíduos sólidos urbanos no México: Um estudo de caso a partir de uma perspectiva organizacional

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ABSTRACT

The management of urban waste is a problem for any city, but recent studies have ignored the management of the entities responsible for this issue. To solve this, a case study on urban waste management with a holistic organizational analysis methodology is presented. With this methodology, a profound and systematic approach to the constitutive dimensions of and organization is achieved, which contributes to the understanding of management in complex environments. The study is made about the responsible entity of urban solid waste management, in the second biggest city of Mexico, Guadalajara, and who lives a serious problem in the field.

Keywords: Organizational analysis, urban solid waste management, case study, organizational theory, Mexico.

RESUMEN

La gestión de residuos urbanos es un problema por resolver en toda ciudad, pero los estudios recientes han soslayado la gestión de las entidades responsables en el tema. Para solventar esto, se presenta un estudio de caso sobre la gestión de residuos urbanos con una metodología holística de análisis organizacional. Con esta metodología se logra un acercamiento profundo y sistemático a las dimensiones constitutivas de una organización, lo que abona a la comprensión de la gestión en ambientes complejos. El estudio se centra en la entidad responsable del manejo de residuos urbanos, en la segunda ciudad más grande de México, Guadalajara, y que vive una problemática grave en el rubro.

Palabras Clave: *Análisis organizacional, gestión de residuos urbanos, estudio de caso, teoría de las organizaciones, México.*

RESUMO

A gestão de resíduos urbanos é um problema que deve ser resolvido em cada cidade, mas estudos recentes têm negligenciado o gerenciamento das entidades responsáveis pelo problema. Para resolver isso, é apresentado um estudo de caso sobre gerenciamento de resíduos urbanos com uma metodologia holística de análise organizacional. Com essa metodologia, é alcançada uma abordagem profunda e sistemática das dimensões constituintes de uma organização, o que contribui para a compreensão do gerenciamento em ambientes complexos. O estudo é realizado sobre a entidade responsável pela gestão de resíduos urbanos, na segunda maior cidade do México, Guadalajara, que está enfrentando um grave problema no campo.

Palavras-Chave: *Análise organizacional, gestão de resíduos urbanos, estudo de caso, teoria da organização, México.*

INTRODUCTION

The Integrated Waste Management Unit (IWMU) of the Municipality of Guadalajara (state of Jalisco, Mexico) was recently created to manage the urban solid waste programs of the city, which is the second largest in the country. However, the unit does not have the capacity to meet its goals and presents a history of poor results. Given the importance of the subject, the current situation of the IWMU, and the lack of organizational studies in urban solid waste (USW) management, this study seeks to help understand the management of these integrated waste management units. This research fills a knowledge gap on this issue and offers recommendations supported by evidence obtained with a solid methodology.

This article has six sections, including this introduction. The second section presents a literature review showing that academia has neglected USW management's organizational and administrative dimension, contrasting with the global trends and importance of the issue. The third section introduces the theoretical framework and the methodological strategy supporting the case study, which is presented in the fourth section that discusses the unit's general context and history. The fifth section presents the study's relevant results in each of the organizational dimensions of the IWMU, followed by the conclusions considering the holistic methodology and offering recommendations to the unit's administrators and also to improve the management of other units in the same situation.

LITERATURE REVIEW

The transition towards a society that generates zero waste requires changes in governments such as changes in the governance of USW (Gutberlet, 2016; Gutberlet et al., 2017), which does not replace the role of the governments' organizational capacities (Gault, 2015; López, 2011; Mendoza, 2004; Villanueva, 2011, 2013, 2014). The literature reviewed confirms the dissociation between the governance of USW and its administration and management. In addition to such a gap, a search on Jstor considering the period from 2015 to date using the keywords of this article resulted in only about twenty studies published in relevant journals.

Underdeveloped countries usually present inadequate USW management due to the distance between public administration and society (Torrente-Velásquez, Chifari, Ripa, & Giampietro, 2020; Zohoori & Ghani, 2017). Also, their USW management systems do not recognize organizational problems such as high operating costs, poorly elaborated goals (Poletto, Mori, Schneider, & Zattera, 2016), or the difficulties in monitoring and supervising the cities' performance (Kabera, Wilson, & Nishimwe, 2019). Thus, the applicability of USW management loses space in the public agenda and becomes a secondary issue (Ak & Braida, 2015). It is worth mentioning that the governmental organizations in charge of USW are more dedicated to the issue than politicians and civil society organizations (Chu, Wu, He, Zhuang, & Wang, 2019).

Another organizational problem is the insufficient coverage of services of collection and treatment of USW (Alfaia, Costa, & Campos, 2017). According to Bernache, "coverage" is an

indicator of the percentage of users served by municipal collection systems (Bernache, 2015). Insufficient services occur because the organizations that manage the USW have practices that collide with each other, which is a challenge in sustainable waste management to be addressed through staff training (Ali, Wang, Chaudhry, & Geng, 2017). Even in contexts with consolidated solid waste management systems, such as those in the European Union, gaps challenge subnational governments' administrative capacities (Scheinberg et al., 2016).

The concept of institutional path dependence indicates the options for reforming municipal solid waste management systems, even against extreme liberalization policies (Kørnøv, Hill, Busck, & Løkke, 2016). The administrative component leads to perverse effects on the service, deepening previous inequalities (Ferronato et al., 2018). We do not find uniform local administrations in all countries. Each situation requires a contingent scheme. However, the constant elements in its effectiveness are the political and financial support and a solid administrative capacity to offer the service (Wilson et al., 2017).

According to Wilson, Rodic, Scheinberg, Velis, and Alabaster (2012), understanding specific cases facilitates the success of indigenous models; reliable information on policies, governance, technologies, and the strengths of each case, enables the adoption of appropriate solutions. Differently, not having such information represents a problem for USW management, jeopardizing the achievement of more ambitious goals, such as offering infrastructure (Daskal, Ayalon, & Shechter, 2018).

In some cases, the adoption of cost-effective strategies makes USW management difficult due to this same lack of information (Jaunich, Levis, Decarolis, Barlaz, & Ranjithan, 2019). Thus, systems analysis becomes a well-used tool in municipal solid waste management, and these systems' organizational dimensions stand out, considering their relevance in decision-making (Klang, Vikman, & Brattebø, 2006).

International experience suggests that the USW's social and economic factors, its administration, and the organization of its managerial systems affect the performance of the waste cycle (Razavian, Khosmanesh, & Izadyar, 2016). At the same time, administrative efficiency is an attribute of a robust USW management system (Hasome, Tachio, Yokota, & Nitta, 2001). In some cases, an improvement in the processes of obtaining permission and licenses would facilitate the adoption of innovative solid waste management schemes (Saadeh, Al-Khatib, & Kontogianni, 2019). According to Yeh, Chang, and Liu (2016), organizational learning positively affects USW. Evidence shows that the challenges towards optimization in waste management necessarily refer to local organizational systems. In this sense, understanding the organizational and institutional dimensions of the administration in charge is essential (Zaman & Lehmann, 2011). Proposals for innovations in USW management include the design and improvement of organizations, whether public, private, or hybrid (public and private) institutions (Chen, Luo, Yang, Liu, & Ma, 2018).

Governments have taken administrative measures to increase recycling and reuse. Regardless of their success, the expansion of administrative and organizational best practices leads to sustainable management. Also, the rationalization of the central activities of organizations

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dedicated to waste management is a crucial element (Alves & Farina, 2018), and explaining their processes and results will help develop this theme (Gallini, 2016). In this respect, the global experience should not leave local administrations behind since they focus on management's cultural, educational, and political factors – which is a gap in the study of USW management.

The problem of urban solid waste in Guadalajara

Mexico is one of the largest waste producers in Latin America. The mass of waste generated is expected to keep growing, and the estimate is to reach 671,000 tons of USW per day by 2050 (Organización de las Naciones Unidas [ONU], 2018). Waste production is considered a public health issue worldwide, with a direct environmental impact.

According to data from the Mexican National Institute of Statistics and Geography (Inegi), the country collects 86,343 tons of garbage every day (Inegi, 2019), produced mainly in homes, buildings, streets, parks, and gardens (Semarnat, 2016). In Guadalajara, each person produces 1.2 kg of waste per day (Gobierno de Guadalajara, 2019), and the response to this environmental pressure is the responsibility of the local government. Therefore, the local public administration has to think of strategies to improve the effectiveness of the waste management programs and the organizations operating them.

According to interviews conducted for the case study presented in this article, the main organizational problems of USW in Guadalajara occur due to failures in the implementation of programs focused on waste separation, recycling, and reduction, poor management of sanitary landfills, and the lack of supervision of the licensed organizations in charge of waste management. For the interviewees, the poor results of the local government's actions to improve USW separation, recycling, and reduction have been accumulating over time.

The implementation of programs to reduce USW started in 2008, with the creation of the Mexican waste separation standard, NAE-SEMADES-007/2008, establishing the mandatory separation, classification, selective collection, and waste valorization in the state of Jalisco, Mexico (Gobierno de Jalisco, 2008). The municipality of Guadalajara adapted the USW program by requesting the population to separate waste and offering selective collection on specific days (Bernache, 2019). These measures presented poor results due to inefficiencies of the local government and the inability to oversee the work of the organization responsible for waste collection, which delivered the material without separating it.

Later, in 2010, the program *Papeleras Inteligentes* (intelligent trash cans) was started (Ortiz & Carapia, 2015), managed by the company Plastic Omnium (El Informador, 2011). However, the trash cans did not measure the level of waste and were always full of unsorted material. Also, because they were placed by the side of the light posts, people used the containers to dispose of their household waste.

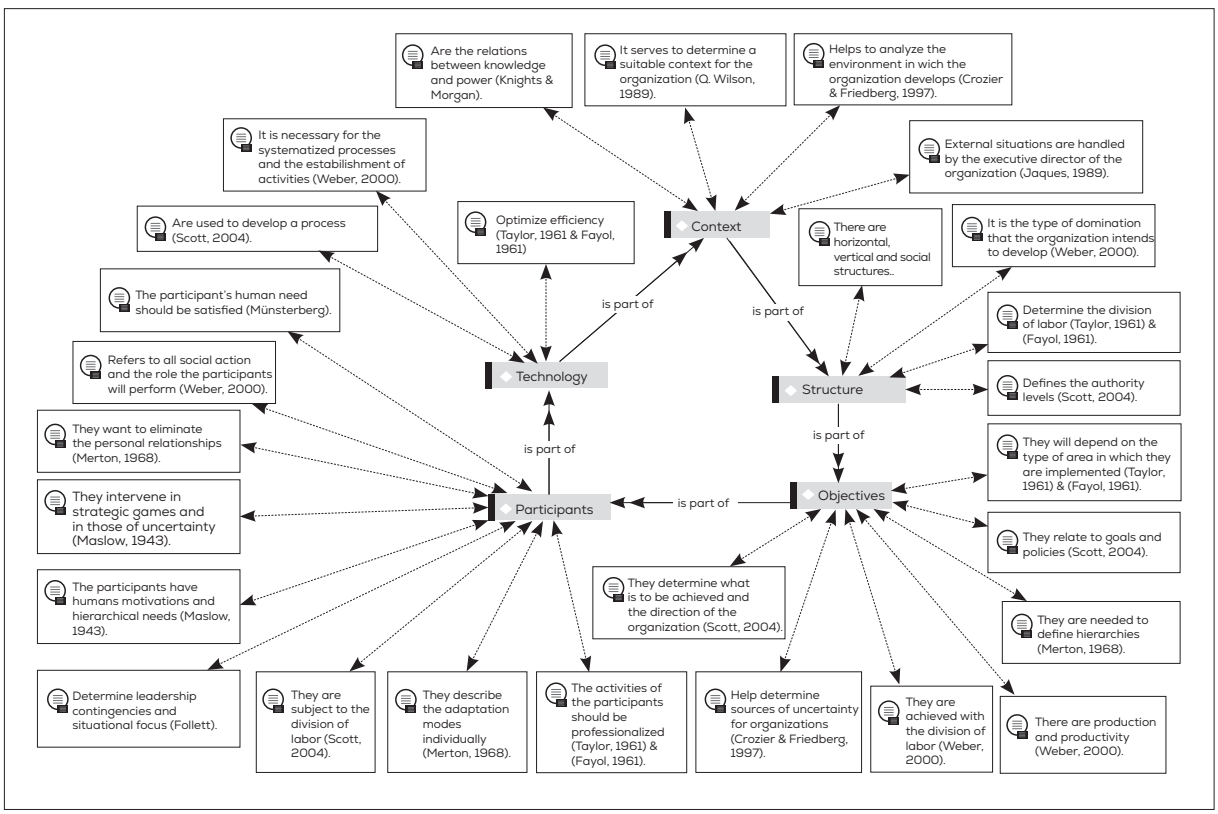
Two years after the program *Papeleras Inteligentes*, several pilot programs were carried out to promote the separation of waste in the municipality of Guadalajara (Gobierno de Guadalajara, 2011), such as programs on handling batteries, cooking oils, pots, and furniture. Another program

carried out in the city, also unsuccessfully, was the program for selective collection of solid household waste (Gobierno de Guadalajara, 2015). The last important municipal action was the program *Yo Lipio, Guadalajara Limpia* (I clean, Guadalajara gets clean), started in 2016. It consists of three axes: 1) dignified urban image; 2) new model of waste management; and 3) cleaning and care. Nevertheless, this program also did not present the expected results regarding USW reduction, separation, recycling, and reuse.

THEORETICAL FRAMEWORK AND METHODOLOGICAL STRATEGY OF THE ORGANIZATIONAL ANALYSIS

The theoretical framework proposed by Scott (2003) has the advantage of integrating the most relevant aspects that characterize any organization. An organization is a social structure created by individuals to achieve specific goals that can only be achieved collectively. This definition refers to the elements Scott introduced: participants, structure, context, technology, and goals. The discussion in this study led to a conceptual map (Figure 1) encompassing these elements and unfolding them towards a level of operationalization fit for the research.

Figure 1. Correlation among goals, structure, technologies, participants and context



Source: Elaborated by the authors based on the scholars mentioned in the map

This work combines the perspective of W. Richard Scott (1995, 2003) and the integrative methodological strategy that organizational analysts from Mexico and Colombia have developed, the critical path for strategic analysis of organizations (CP) (Morales, 2011; Morales & Castellanos, 2014; Quiñonez, Morales, & Ortega, 2017). Scott's model considers organizations as a whole, encompassing five elements related to each other: participants, goals, structure, technology, and institutional context. For the author, a comprehensive view of the organization is obtained when explaining the relationship of each element with the others.

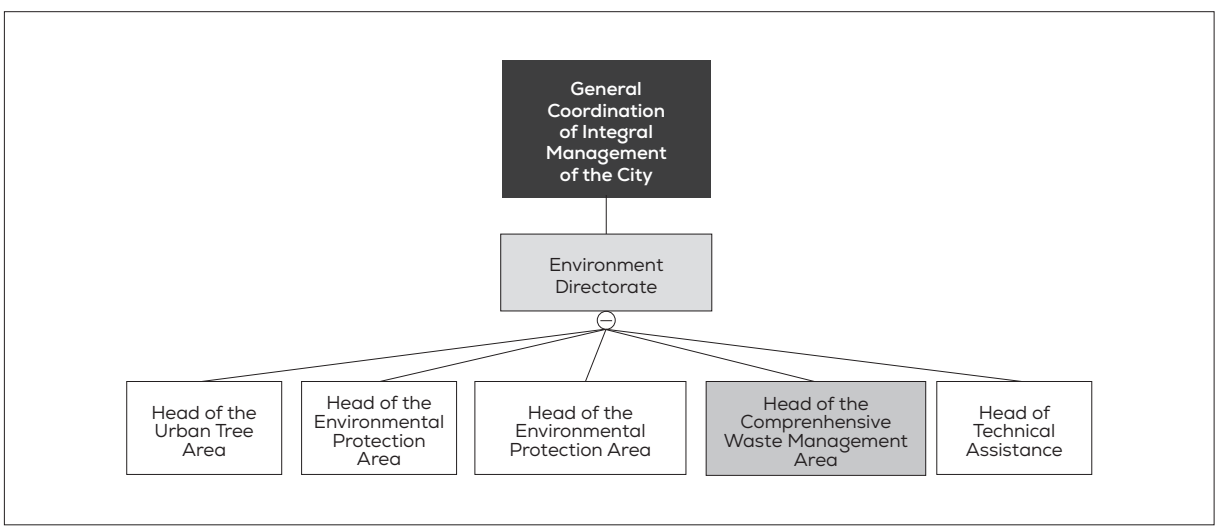
Methodological strategy

This study's methodological strategy complements the robust theoretical framework presented above. It consisted of six steps: I) delineating the theoretical contributions from Scott; II) retrieving the CP and designing the variables and indicators; III) elaborating the research instrument (interview with key participants and questionnaires – the instruments were validated through a pilot test); IV) problematization of the organization analyzed in the case study; V) application of the analysis instrument; and VI) systematization and presentation of results. The method adopted was a mixed case study, with fieldwork to collect data using semi-structured interviews.

CASE STUDY: INTEGRATED WASTE MANAGEMENT UNIT IN GUADALAJARA

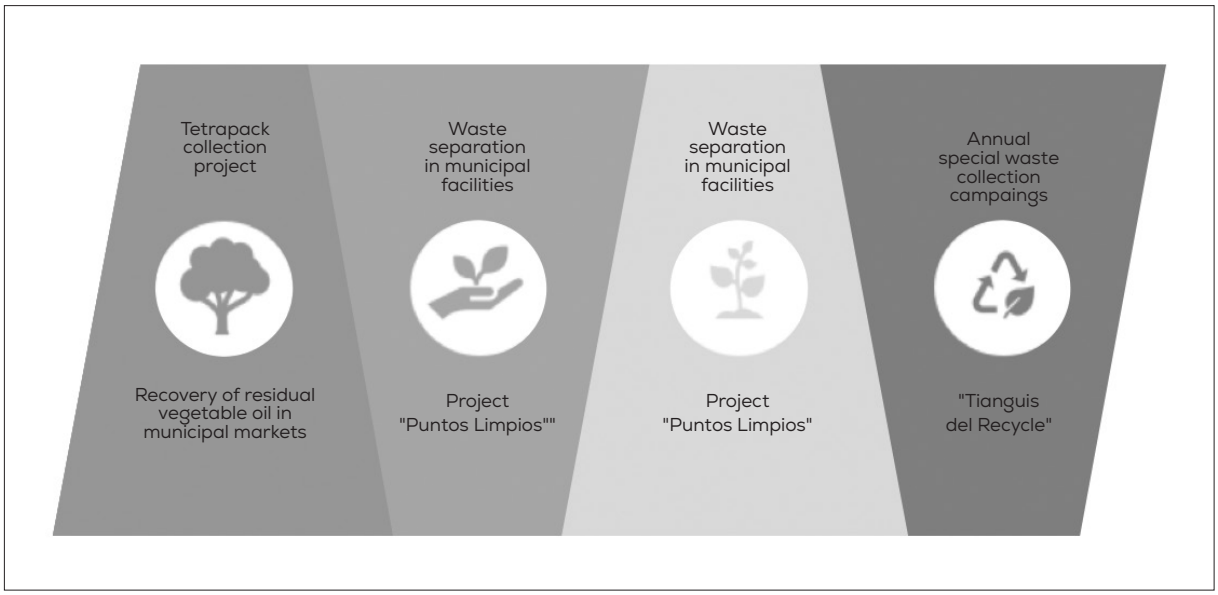
The General Coordination of the Municipality Integrated Management is in charge of the Municipality' Environmental Office, which is responsible for the departments of urban forests, environmental protection, climate change, technical support, and integrated waste management, the latter being the object of the study. Figure 2 presents the organization chart.

Figure 2. Organization chart of the General Coordination of the Municipality Integrated Management



Source: Elaborated by the authors based on data from the government of Guadalajara (Gobierno de Guadalajara, 2018).

Figure 3. Actividades que realiza la Unidad de Gestión Integral de Residuos en la ciudad de Guadalajara



Source: elaborated by the authors based on the interview with the person responsible for the IWMU.

The main activity of the Integrated Waste Management Unit (IWMU) is to design policies to reduce the amount of urban solid waste (USW) disposed of in landfills. This activity is carried out through programs such as Puntos Limpios (waste collection points), glass collection, Tianguis del Recycle, among others (Figure 3).

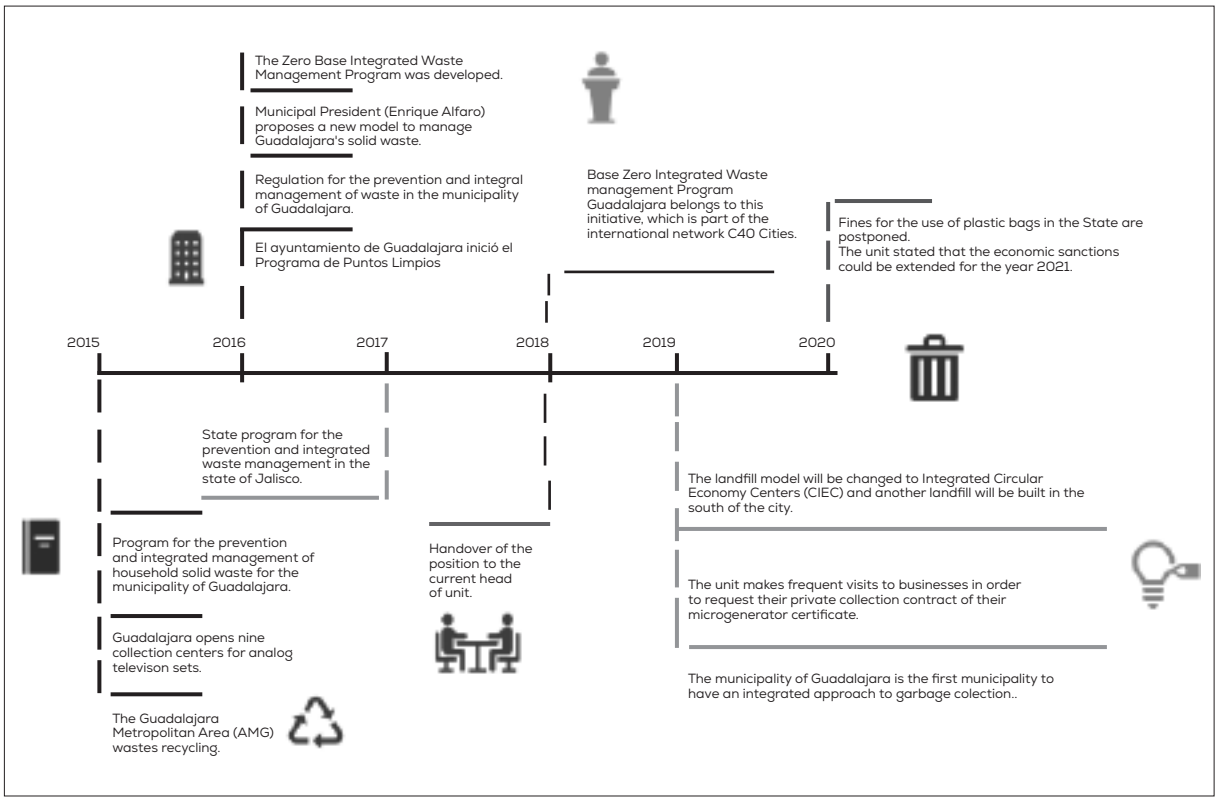
The IWMU is located in the facilities of the Municipality's Environmental Office (Av. Miguel Hidalgo 426 in Guadalajara, Jalisco, Mexico).

History of the integrated waste management unit

According to the person responsible for the unit, the IWMU was established at the end of 2015. Documents of the organization state its purpose of: "… developing programs, projects, and studies that contribute to reducing, reusing, recycling and offering correct disposal of the USW of the Guadalajara Metropolitan Area, in collaboration with other public and private institutions" (Gobierno de Guadalajara, 2018, p. 69, our translation).

Figure 4 shows the timeline with the IWMU's milestones. There is a mismatch between the creation date according to the institution's owner and its official documents (the documents stated the establishment in 2016). In 2017, the Programa Estatal para la Prevención y Gestión Integral de Residuos del Estado de Jalisco (program for integrated waste prevention and management of the state of Jalisco) was created. In 2018, the municipality of Guadalajara joined the Programa de Gestión Integral de Residuos Base Cero (a zero-based integrated waste management program) under the responsibility of the IWMU.

Figure 4. Timeline



Source: Elaborated by the authors based on research data

Exhibit 1 describes the most important events and changes regarding the management of the IWMU from 2015 to 2018.

Exhibit 1. Description of the important events and changes that influenced the IWMU

Period	Description of the change
2015	In that year, 585 tons of garbage were accumulated per day, composed solely of plastics. This amount corresponded to 10% of the total USW generated per day in Guadalajara Metropolitan Area. Using waste separation and recycling, the global mass of waste in the sanitary landfills would reduce, and the recyclable waste would valorize as raw material. As this process did not occur in the state of Jalisco, the recyclable waste went to landfills as garbage (Informador, 2015).
2016	For the second time and due to the same irregularity, Guadalajara's official sanitary landfill (called Los Laureles) operated by the company CAABSA EAGLE, was partially closed by the State Attorney for Environmental Protection. Despite this background, the mayor Enrique Alfaro Ramírez, decided to grant the operation of the household garbage collection service in Guadalajara and the administration of Los Laureles to CAABSA EAGLE for another 15 years (Meléndez, 2016). In this period, there was a setback in this area with a reported increase in solid waste generated daily per inhabitant (Respetable, 2016).
2017	The lack of coordination by municipal and state authorities to define a public policy regarding waste separation in the Guadalajara Metropolitan Area has affected the city, after years of negligence and lack of political will (Indigo, 2017).
2018	The company CAABSA EAGLE and the Government of Guadalajara were accused of irregularities. Roberto Delgadillo denounced that the local government (Ramirez administration) sold land to CAABSA EAGLE at a price lower than its value. It was located in Gobernador Curiel and Avenida 18 de Marzo; the company intended to use the property as a waste transfer station. However, the inhabitants in that area would be put at environmental risk (Respetable E. , 2018).

Source: Elaborated by the authors based on data collected from newspapers.

The administration of Mayor Enrique Alfaro Ramirez ended in 2017, and his successor Ismael del Toro Castro continued the waste management policies without making fundamental changes to the program and the management unit. This continuity may be explained by the friendship between the current and the former mayors (Ramirez is the current governor of Jalisco), who belong to the same political party.

RESULTS OF THE STUDY ON THE INTEGRATED WASTE MANAGEMENT UNIT

The results are presented below based on the elements characterizing the organizations (goals, structure, participants, technology, and context) discussed in this article. They are organized according to the type of participant.

Organizational goals

From the perspective of the participants who worked in the organization's top positions, an interviewee declared: "Consolidating an integrated waste management model that minimizes the environmental impacts caused by urban solid waste, optimizes its management economically, and responds to the needs of citizens with sustainability and order criteria" (Marín, 2020, our translation).

In addition, the same interviewee indicated particular goals: building a culture of operating according to the law, increasing storage capacity, reducing waste taken to sanitary landfills, reintegrating the waste into the circular economy value chain, increasing the citizens' co-responsibility regarding waste generation and management, and adopting a culture of order and productivity when handling waste.

Because of the responsibility inherent to the position, the interviewee in charge of the studied IWMU had clear goals guiding her leadership role. She reported three of them: 1) creating a pleasant work environment; 2) promoting team integration; and 3) considering each participant contribution valuable. It is possible to say that her daily activities were guided toward these goals, showing behavior of simple selection (Simon, 1976). The interviewee observed these goals throughout the activities at the IWMU, and she defined them herself (no manual or guidelines established these goals formally).

The general goal found in the organization's manual (Government of Guadalajara, 2018, p. 69) states what the Integrated Waste Management Area must do: "… developing programs, projects, and studies that contribute to reducing, reusing, recycling and offering correct disposal of the USW of the Guadalajara Metropolitan Area, in collaboration with other public and private institutions." It is the organization's only manual, available on Guadalajara's local government website. The interviewees demonstrated to be unaware of the available manual. Some of them actually declared not having such a document with the organization's guidelines.

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The person in charge of the Citizen Outreach Department mentioned that "this administration is creating the manuals to standardize the processes for the future." The interviewee working in the position of process support mentioned a goal of "strengthening planning and management of actions, campaigns, and strategies that promote the culture of caring for the environment, the co-responsibility of citizens with the surrounding environment, and waste valorization of 15% by 2021" (Jaramillo, 2020).

The research clearly demonstrates the absence of a relationship among general goals, administration units, and the personnel in leading positions. Even though the interviewees declared to have received training, none were aware of the IWMU's goals, objectives, and policies.

The person in charge of the Technical Department declared that the goal was to create policies to reduce waste in sanitary landfills, establish guidelines for compliance with environmental regulations, and promote environmental care among citizens. The person in charge of Process Support maintains that the goals of the organization are the development of the municipality's organic waste management and treatment strategy, optimize the USW separation and valorization, control the waste taken to the municipal landfill, disseminate the culture of recycling, strengthening and updating municipal regulations, and integrate neighborhood projects to the Zero-Base Integrated Waste Management Program. The person in charge of the Citizen Outreach Department did not respond to the interviews and questionnaires. This shows the fragmentation and displacement of the IWMU's goals and objectives.

Based on the information gathered during the research, the IWMU current products and goals are: 1) separate waste; 2) collect 500 tons of glass; 3) conduct educational programs; 4) collect 100 tons of waste in the *Puntos Limpios*; 5) Separate and collect 3 tons of waste in government offices; 6) collect 500 tons at the Tianguis del Recycle (recycling fairs); 7) collect 50 tons of tetrapak; 8) collect 5 tons of waste in public events; 9) collect 5 tons of cooking oil; and 10) collect 3,500 tons of trees. All participants agree to comply with them, but they do not agree on how to do it. There is evidence of an "individual adaptation of ritualism" since the same goals from the past administration continue to be applied, and innovation lies in the method used (Merton, 2013), which leads us to problematize the power within the IWMU.

Distribution of power in the integrated waste management unit

This case study adopted the concept of power developed by Crozier and Friedberg (1990), where the inequality relations around the control of the sources of uncertainty indicate the correlation of forces in the organizations.

The first source of uncertainty refers to regulations, represented by two mechanisms: budget control and the absence of operating manuals. Regarding the budget allocated to the IWMU, participants pointed out that every decision was restricted to the available resources, leading them to adapt to contingent variations and consequent uncertainty, annoyance, and dissatisfaction.

As for the absence of operating manuals, the IWMU did not formally assign responsibilities, rights, and processes. These elements arise from the context and the top management's interpretation of the documents *Código Urbano* (urban norms) and *Manual de Organización*

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(organization manual) of the General Coordination of the Municipality Integrated Management – the higher hierarchical entity. The unwritten rules of the Mexican bureaucracies were applied since the previous administration (from the same political party) engaged in implicit agreements that left no room for a redesign. In addition, the operational staff was part of the previous mayor's personnel (the former mayor Ramirez is currently the governor of the State of Jalisco), while the strategic leadership was formed of personnel appointed by the new local government.

The second source of uncertainties refers to technical expertise. The current leadership is trained in environmental issues but does not have expertise in urban waste management, demanding continuous support to lead the program's operation. On the other hand, the personnel remaining from the previous administration have managerial experience in the field, which causes conflict between what the leadership wants to do and what is actually done. This leads to the third source of uncertainty detected, the control of the external environment: the current governor of Jalisco (former mayor of Guadalajara) has political control over a large part of the municipality's top management. Thus, managers that were not appointed by the current mayor and remained from the previous administration depend on the former mayor's influence to manage relationships with key entities for the fulfillment of goals such as the Congress of the State of Jalisco or the State of Jalisco's secretariats of finance or public works.

The consequence of such strategic dynamics is a deep ambiguity in the USW management and policies definition. On the one hand, the interviewee from the Technical Department indicates "Adherence to current municipal, state, and national regulations on environmental issues, based on four main pillars: 1) a culture of operating according to the law; 2) increasing storage capacity; 3) reducing waste taken to sanitary landfills; and 4) productivity when handling waste" (Ramírez, 2020). On the other hand, the interviewees from the Department of Law and Order define the policy and management of USW as "carrying out each of the activities according to the benefit of the citizens of Guadalajara based on the IWMU goals" (Luna, 2020), and "reducing the waste generated in the municipality and the environmental damages caused by poor waste disposal" (Zúñiga, 2020). These ambiguities occur concerning other aspects of goals and policies since there is no unanimity about definitions. Another inconsistency found in the research instruments was that most participants named their positions differently from what was observed in the organization's chart. It is worth mentioning that the person responsible for the IWMU was the one that named the positions.

An aspect that stands out is the absence of problems derived from the control of information among the members of the IWMU. However, ambiguity and uncertainty regarding goals, objectives, and power distribution within the unit have a perverse effect on the organizational structure.

Structure

The unit performs its functions through an adhocratic structure and presents severe design problems (Mintzberg, 1988). It is a small organization, with eighteen employees operating the programs and support tasks and separated into administrative personnel and process personnel.

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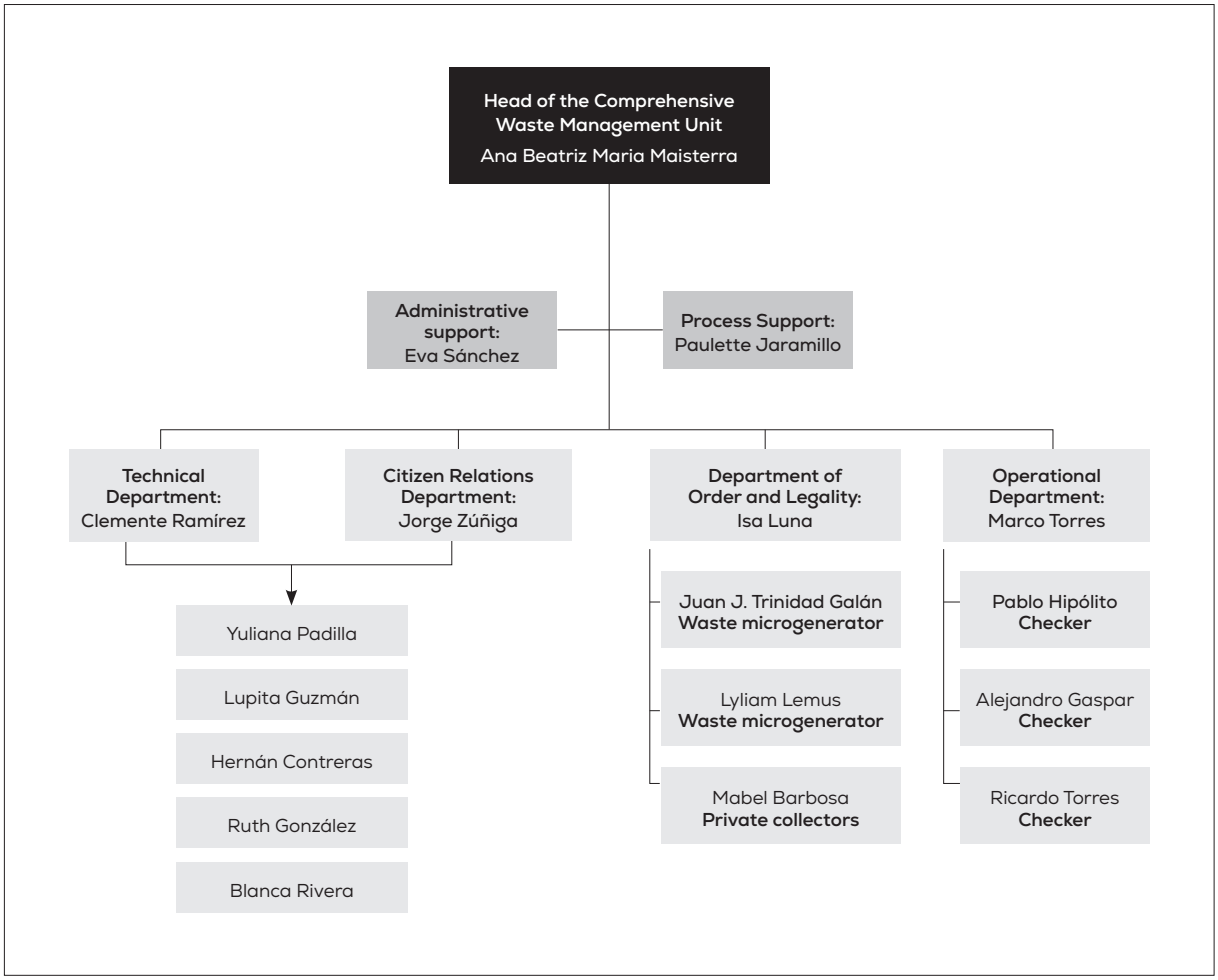
The first group carries out tasks considered central to the organization's goal. The second performs support, implementation, and operational tasks.

Figure 5. Hierarchical levels of the Integrated Waste Management Unit



Source: Elaborated by the authors based on data collected from the person responsible for the IWMU

Figure 5 presents the unit's official organization chart. There is concern about the overlapping of competencies between the Technical Department and the Citizen Outreach Department over operational personnel. The unit counts on four departments: Technical, Citizen Outreach, Law and Order, and Operations, which are in charge of young controllers and technicians overseeing waste micro-generators, most of them between 24 and 35 years old. The IWMU adopt intense and direct monitoring as a coordination mechanism. This strategy is explained by the absence of operational manuals and bureaucracy politicization (resulting in the centralization of decisions at the strategic leadership group). The degree of proximity to the Weberian bureaucracy model (Weber, 2000) is low, in agreement with the study results presented in Exhibit 2.

Exhibit 2. Analysis of characteristics of bureaucracy – Weber (2000)

Characteristics of bureaucracy	Value	Reasons
Everything in the organization is governed by rules and regulations	Low	All standards and regulations refer to the unit's external management with waste generators, but no evidence was shown, nor was there any mention of any standard or regulation that guides the IWMU internally.
Communication is very formal. Every decision is made in writing, as established in the organization's norms	Medium	There is two-way communication; external issues to the unit are verified through official documents, with the consent and approval of the unit's top management. When documents, personnel, and tools are requested from other areas, two-way communication is confirmed. Among the participants, the news of the municipality is communicated by email and other electronic means such as WhatsApp. Direct communication with the person in charge of each project is common, so they inform their subordinates.
The work (activities and tasks) is divided to achieve the goals	Medium	The work is divided when several people are contributing to the activity and when this procedure is recognized as valuable to offer the best solutions.
Hierarchy of positions and different levels of positions	High	The IWMU is a vertical organization, and the power is clearly exercised. All processes are taken to the analysis of the head of the organization and leaders of departments
Guidelines standardize procedures and activities	Low	There are no operating manuals to instruct how to carry out activities and procedures. Manuals are under construction.
People are chosen for positions according to their abilities, skills, and particular training	High	The head of the unit, and the leaders of departments, are environmental engineers.
The position assigned reflects the activity performed	Medium	The name of each job position can identify the activities performed by the staff. The score was low because the participants did not name their position exactly as formally designated in the organization chart.

Source: Elaborated by the author based on interviews

The structure of the IWMU responds to the institutionalization of decision-making as a regular process for participants (Hodgson, 1997). The set of possible options is restricted to those inherited from the previous administration. For the participants, the decisions have been refined when observing the performance of the adopted routines (Hodgson, 2006; Hodgson & Knudsen, 2004). Thus, they adopt the logic of maintaining what has been done regardless of the relevant goals.

Participants

The IWMU participants' motivation is a challenge. The routine of tasks, the politicization of the administration, and the gap between official goals and the goals declared by the bureaucrats overshadow the leadership role, leading to poor coordination and group cohesion. During a field visit, it was possible to observe a difference in attitudes of employees with more time in the organization. The head of the IWMU mentioned a desire to motivate the staff, but political

commitments and regulations do not give her the power to work in this direction. In the six interviews, the participants indicated their motivation, determination, and commitment to carry out their work but stressed that it would be beneficial to have a manual with procedures to establish the activities clearly.

The physical environment affects the participants, who think the workspace is inadequate. They work in a warehouse adapted to an office, harming the organizational climate and, more importantly, communication.

Tables 1 and 2 show the formal and informal cross-impact matrices. The formal indicates the expected relationships based on the applicable norms, while the informal is based on the participant's perception. The divergence in these two matrices accounts for the weight of leadership and cohesion. The strategic leadership is farther from the operational base than expected, giving rise to the emergence of informal groups that, according to the evidence, reinforce the presence of ritualism, low motivation, displacement of goals and objectives, and high politicization.

Table 1. Formal cross-impact matrix

Participant	(Head)	(PS)	(TD)	(COD)	(DLO)	Total
(Head)		3	2	1	0	6
(SP)	3		0	0	0	3
(DT)	2	0		0	0	2
(DVC)	1	0	0		0	1
(DOL)	0	0	0	0		0
Participant	6	3	2	1	0	Total

Source: Elaborated by the authors, based on regulations

Table 2. Informal cross-impact matrix

Participant	(Head)	(PS)	(TD)	(COD)	(DLO)	Total
(Head)		0	1	1	0	2
(SP)	0		0	0	0	0
(DT)	1	0		3	0	4
(DVC)	1	0	3		0	4
(DOL)	0	0	0	0		0
Participant	2	0	4	4	0	Total

Source: Elaborated by the authors, based on interviews

Technology

Technology is the dominant force in the organizations' structure. It implies knowledge applied to decision-making (Child, 1972; Hanappi & Scholz-Waeckerle, 2015; Nelson & Winter, 1982; Scott, 2003). These technologies can be understood as central tasks (Wilson, 1989). They are those requiring more time from participants and are considered more interesting. The central tasks of the IWMU are shown in Exhibit 3.

Exhibit 3. Central tasks of the Integrated Waste Management Unit

Participant	Central tasks
Head of the Unit	Design and implementation of public policies focused on the management of USW
Technical support B Process Support	Environmental Education Program Logistics and support in recreational activities for society Development of projects with continuous improvement of the production process to reduce waste
Manager of projects' technical control Technical Department	Evaluation, monitoring, diagnoses, and technical studies of waste generation and composition: trash cans, *Puntos Limpios*, tetrapak, glass, *Tianguis del Recycle*, oil, public events, annual Christmas tree collection campaign, waste separation in public offices. Determining points to place containers that facilitate waste collection Management of events or activities in which the IWMU may be present. Prepare information sheets and reports, updated with the information of each project.
Assistant C Citizen Outreach Department	Dissemination of *Puntos Limpios* Environmental education Zero-waste public events
Leader of Department Department of Law and Order	Control of the IWMU's concentrated information and generation of indicators Completing the matrix with indicators of results Taking the procedures to the online environment Optimization of procedures Response to requests for transparency Releasing opinions on *Puntos Limpios* with containers to collect separated waste. Preparation of updated information sheets and reports on the opinions released about Puntos Limpios in real estate developments; standards applied to private collectors; operators Culture of operating according to the law

Source: Elaborated by the authors based on interviews

Participants consider secondary tasks to (1) strengthen and update the municipal regulations on integrated waste management; (2) apply a dissemination strategy to educate on waste separation and management; (3) integrate neighborhood projects as an area of activity of the *Programa de Gestión Integral de Residuos Base Cero*; (4) promote campaigns to collect hazardous waste, preventing this material from reaching sanitary landfill; (5) release opinions on solicitations from waste microgenerator and *Puntos Limpios* (waste collection points); and (6) promote zero-waste public events and waste separation in public offices.

The different importance given to the tasks suggests, based on Wilson, two dimensions: benefits and results. Benefits correspond to whether the task is materially observable. The task results imply that the participants are sure that their activities contribute to the stated goals. Table 3 shows the results of this evaluation.

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Table 3. Tasks according to income and results

Tasks	Benefits	Results
Central tasks		
(1)	+	-
(2)	+	-
(3)	+	-
(4)	-	-
(5)	-	
Secondary tasks		
(1)	-	-
(2)	+	-
(3)	+	-
(4)	-	-
(5)	+	+
(6)	-	-

Source: Elaborated by the authors based on interviews

This situation explains the difficulties inherent to the management of the IWMU. The organization's tasks are recognized, but it is not clear whether these tasks contribute to achieving the goals and objectives.

Context

The strategic context of the organization is relatively stable. The institution's regulatory entities are the General Coordination of the Municipality Integrated Management and the Municipality's Environmental Office. The interviewees also recognized the political influence of Jalisco's state government, considering it another regulatory entity. However, they do not identify any other instance responsible for the issue since the organization's relevant authority is the legal mandate.

The municipality's administrative units provide supplies for the IWMU operation, adopting the logic of budgeted compensation or in-kind allocations. Participants also identified private companies as suppliers since the unit outsources the service of collecting and transporting USW to these enterprises. The most dynamic relationships are concentrated with clients. The clients are waste microgenerators, commercial and service establishments, and the citizens of Guadalajara.

CONCLUSION

The Integrated Waste Management Unit (IWMU) is affected by low institutionalization, reflected in aspects such as the lack of operation manuals, budget, and human resources. This condition jeopardizes the organization's performance largely because of the politicization of the administration, ambiguity of goals, and low routinization of processes, among others.

The formalization of decision-making requires determining written codes applied to the activity. This measure forces the organization to adopt clearer goals, leading to less politicized operational and leadership positions.

It is essential to establish plans with objectives and goals for each department leader within the unit, including deadlines and adequate resources. This procedure allows measuring the efficiency of the personnel, and each participant understands their role and individual impact on the organization's performance, reducing the moral hazard to the city.

It is noteworthy that the unit's efficiency depends on the availability of financial resources, human capital, government interest to connect the effects of public policies on USW with other instances of public administration, and the correct and efficient design – on the part of the unit – of USW policies. However, the unit must first count on the basic elements so it can operate efficiently with the available resources.

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AUTHOR'S CONTRIBUTION

Jessica Alejandra Toledo and Carlos Emigdio Quintero Castellanos worked on the conceptualization and theoretical-methodological approach. The theoretical review was conducted by Jessica Alejandra Toledo and Carlos Emigdio Quintero Castellanos. Data collection was coordinated by Jessica Alejandra Toledo and Carlos Emigdio Quintero Castellanos. Data analysis was performed by Jessica Alejandra Toledo and Carlos Emigdio Quintero Castellanos. Jessica Alejandra Toledo Cervantes and Carlos Emigdio Quintero Castellanos worked together in the writing and final revision of the manuscript.