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THE CONTRIBUTION OF PUBLIC-PRIVATE PARTNERSHIPS TO THE WORK OF SOLID WASTE COLLECTORS IN THE MUNICIPALITY OF RIBEIRÃO PIRES (SP)

A CONTRIBUIÇÃO DAS PARCERIAS PÚBLICO PRIVADAS PARA O TRABALHO DOS CATADORES DE RESÍDUOS SÓLIDOS NO MUNICÍPIO DE RIBEIRÃO PIRES (SP)

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Abstract

The work of waste pickers within the sorting centers has contributed to environmental actions, together with the Municipalities, since they collect solid waste from Voluntary Delivery Points (VDP) scattered on the streets, educational institutions, or public departments. These are in addition to increasing the useful life of landfills, supplying the recycling industries, and reinserting solid waste in various production chains. The National Solid Waste Policy recognizes only waste pickers inserted in associations, cooperatives, or sorting centers exercising the function of collecting, selecting, and selling materials from public and private partners. The objective of the work is to analyze how public-private partnerships can contribute to the work of the collectors of a cooperative in the city of Ribeirão Pires - São Paulo. To accomplish this, we performed exploratory research with a qualitative approach. We conducted the interviews with a scrap dealer registered at the Municipality and three employees who work at the establishment, 13 collectors from the cooperative, and a Municipality's Environment Department representative. The results showed low education level, unemployment, excessive waste received from the municipal collection, turnover of people, and lack of support from public agencies to recognize the work of waste pickers. The following recommendations resulted as contributions of the work: more effective participation of the public power in promoting campaigns in the neighborhoods, sensitizing the population to participate in the selective collection, and a better valorization of the work of the collectors

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Resumo

O trabalho dos catadores nas centrais de triagens tem contribuído em ações ambientais, em conjunto com a prefeitura municipal, na medida em que recolhem os resíduos sólidos provenientes de Postos de Entrega Voluntária (PEV) espalhados pelas ruas, instituições de ensino ou departamentos públicos. Tais ações, além de aumentar a vida útil dos aterros sanitários, abastecem as indústrias recicladoras, reinserindo os resíduos sólidos em várias cadeias produtivas. A Política Nacional de Resíduos Sólidos reconhece somente os catadores de resíduos inseridos em associações, cooperativas ou centrais de triagens exercendo a função de catação, seleção e venda dos materiais oriundos de parceiros públicos e privados. Neste contexto, o objetivo do trabalho é analisar como as parcerias público - privadas podem contribuir para o trabalho dos catadores de uma cooperativa no município de Ribeirão Pires - São Paulo. Para tal, foi realizada uma pesquisa exploratória, com abordagem qualitativa e a estratégia de pesquisa foi o estudo de caso. As entrevistas foram realizadas com um sucateiro inscrito na prefeitura e 3 funcionários que trabalham no estabelecimento, 13 catadores da cooperativa e um representante da prefeitura, responsável pela Secretaria de Meio Ambiente. Os resultados apontaram baixa escolaridade, desemprego, excesso de rejeitos recebidos da coleta municipal, rotatividade de pessoas e falta de apoio dos órgãos públicos em reconhecer o trabalho dos catadores. Como contribuição do trabalho, recomenda-se a participação efetiva do poder público em promovendo campanhas nos bairros, sensibilizando a população a participar da coleta seletiva e valorizar o trabalho dos catadores.

Palavras-chave: Parceria Público Privada. Catadores. Resíduos Sólidos Urbanos. Cooperativas. Município Ribeirão Pires.

Introduction

As economic activities, selective collection and recycling of Urban Solid Waste (USW) have been developing in recent decades, providing income generation to workers without access to the labor market, opening new business markets for the manufacturing industry while simultaneously bringing an appeal to socio-environmental sustainability (MANDELLI, 2017). Therefore, it is possible to identify elements capable of explaining the economic potential of USW as a sustainable regional development factor, transforming the problem of MSW generation into an opportunity for new business.

Public policies must encourage reuse and recycling, providing the socio-economic inclusion of collectors who gather USW and scrap. For Nunesmaia (2002), to provide opportunities and conditions for the activities performed by the collectors, the implementation and development of selective collection programs and sorting centers should be organized by the municipality. Encouraging the creation and development of associations and cooperatives of waste pickers is one of the relevant points of the National Solid Waste Policy – NSWP (BRASIL, 2010).

In Brazil, in 2002, the Ministry of Labor and Employment recognized the work of collectors; however, in the NSWP (2010), it was limited only to those who regularly work in associations, cooperatives, or sorting centers, exercising the function of collection, selection, and sale of materials from public and private partners.

The question that guided this research is: How can public-private partnerships (PPP) contribute to the work of collectors in a cooperative in the municipality of Ribeirão Pires, São Paulo? For this co-participation, Law No. 11,079/2004, on Public-Private Partnerships, establishes rules for bidding and hiring public and private members within the scope of the Powers of the Union, States, Federal District, and Municipalities (BRASIL, 2004). This article aims to analyze how public-private partnerships can contribute to the work of collectors in a cooperative in the city of Ribeirão Pires - São Paulo.

The municipality of Ribeirão Pires is located 40 km from the city of São Paulo, has an area of 99 km² and in 2020 has an estimated population of around 124,159 people. Ribeirão Pires borders Rio Grande da Serra, Mauá, Santo André, Suzano, and Ferraz de Vasconcelos (IBGE, 2021).

Theoretical Reference

Selective Collection of Solid Waste (SW)

The National Solid Waste Policy (NSWP) defines solid waste as material, substance, object, or discarded goods resulting from human activities in society, whose destination is in technically or economically unfeasible solutions given the best available technology. MSW results from the population's domestic and commercial activity and its composition varies from population to population, depending on the socio-economic situation and the living conditions and habits of each one. Tailings are defined as solid residues that after exhausting all treatment and recovery possibilities through available and economically viable technological processes, do not present any other possibility than environmentally adequate disposal (NSWP, 2010).

According to Fecine and Moraes (2015), the first selective collection programs aimed at recycling solid waste emerged in Brazil in 1985, in the city of Niterói-RJ, as an innovation to reduce the generation of solid waste. However, since implementation, selective collection of USW has contributed very little to the amount of waste recovered.

For Bringhenti and Gunther (2011), implementing of the selective collection of solid waste requires the involvement of citizens and the government, as the lack of dissemination of results and the discredit regarding the actions are some factors that make it difficult to participate in selective collection.

For Conke and Nascimento (2018), the process of separating solid waste and selective collection has gained notoriety when it comes to urban sustainability. Besen et al. (2014) explain that the process should be part of the routine attitude of citizens and not as a program with a beginning, middle, and end.

However, one of the biggest problems found in urbanized cities has been the lack of appropriate places for the disposal, storage, and separation of solid waste, far from urban areas, and that does not contaminate the soil.

Ribeiro et al. (2014) emphasize that the control of inadequate disposal of USW is an environmental challenge to public policies in Brazil, and to try to reverse this situation, selective collection and recycling emerge as environmental and socio-economic measures.

When the selective collection of solid waste is organized and structured through partnerships, whether public or private, they can generate social, economic, and environmental benefits, in addition to encouraging poverty reduction through the work of collectors in cooperatives. For this, there is Law No. 11,079/04, which provides provisions for the formation of partnerships between the government and private companies, which can benefit and contribute to the formation of collectors' cooperatives, called the law on public-private partnerships.

According to Law No. 11,079/04, Article 2 - in the sponsored and competitive modality, the granting authority will implement the concession of services or public works, through bidding, to the legal entity or consortium of companies, with capacity for performance, account and risk, and a specified period. For the administrative modality, in the service provision contract, the Public Administration must be the direct or indirect user, even involving the execution of the work or the supply and installation of goods (Brasil, 2004).

Mays and Scutchfield (2010) state that forming public partnerships depends on the variety of organizations available in a given community and on the capacity and willingness of each organization to contribute to activities, whether material, economic, or voluntary.

For Aguiar (1999), partnerships are key factors in the success of the programs, and in addition to being an efficient way to reduce costs, they can provide financial resources, equipment, various materials, and labor for the implementation of programs of selective collection.

However, when there is an understanding between the public authorities and the population's awareness of the importance of separating solid waste sent to selective collection collectors' cooperatives, PPPs provide a fundamental role in creating cooperatives.

Through PPPs it is possible to establish several types of partnerships among which the following stand out: Public Power x Companies x Cooperatives; Public Power x Companies x Residents, and Civil Society x Association x Cooperative.

Cooperative of Selective Collection Collectors

Cooperatives, according to Article 4 of Law No. 5,764/71, are partnerships of persons, with their own form and legal nature, of a civil nature, not subject to bankruptcy, incorporated to provide services to members.

For the Brazilian Micro and Small Business Support Service (BMSBSS), there is a difference between association and cooperative. While the association unites in favor of social objectives, that is, to promote social assistance, education, culture, political representation, the defense of class interests, and philanthropy, the cooperative has an economic objective to enable the productive business of associates in the market, and its constitution requires at least twenty people (BMSBSS, 2017).

Recyclable material collectors are people with low qualifications, self-employed, or organized in associations/cooperatives that make their living on the commercialization of solid waste (VARELA; ASSAD, 2015). According to Pereira and Teixeira (2011), these collectors are the basis of the entire productive chain of recycling industries, inserted precariously, work in inhumane conditions, and without the slightest access to their rights. Conversely, these industries keep the big profits from this process and use the Social and Environmental Responsibility discourse to mask three major central problems: the reduction in consumption; change in production patterns; disposal, and obsolescence; and put an end to the exploitation of the work of individuals marginalized by society and public authorities (LAYRARGUES, 2002; LEAL et al., 2015).

When examining the laws and decrees (Laws: 5,764/71; 8,666/93; 11,445/07; 12,375/10; 12,305/10; 7,535/17 and Decrees: 5,940/06; 7,404/10, and 7,405/10), on rights of cooperatives and associations of waste pickers, we identified that public policies developed at the local or national level aimed at waste pickers organized in cooperatives or associations, leaving out the majority of waste pickers in the country who are disorganized and working individually on the streets or in dumps, going unnoticed by public bodies, as highlighted by Pereira and Teixeira (2011).

The growth of the materials recycling industry in Brazil, in addition to economic motivation and environmental benefits, has been the result of the work of collectors, as they are the base of the business pyramid that is strongly fed both by formal collection (cooperative and association) and by informal collection (scavengers/homeless people).

Methodological procedures

To answer the research question and achieve the presented objective, we conducted exploratory research (VERGARA, 2010) with a qualitative approach (MARTINS; THEÓPHILO, 2009) and a case study research strategy (YIN, 2015).

The main object of study was the collectors who work in the cooperative and sell solid waste from the collection of Voluntary Delivery Points (VDPs) collected by the city of Ribeirão Pires.

The spatial dimension was the Municipality of Ribeirão Pires, located 40 km from São Paulo, which has an area of 99 km² with an estimated population in 2020 of around 124,159 inhabitants (IBGE, 2021). The city has several attractions for people of all ages, such as fishing grounds, farms, viewpoints, parks, churches, handicraft fairs, and events that take place throughout the year (PREFEITURA MUNICIPAL DE RIBEIRÃO PIRES).

Regarding data collection procedures, we obtained secondary data through a literature review. We sought theoretical bases on the subject and the sources of information consulted were the Scopus, Web of Science, Academic Google, electronic journals, federal, state, and municipal electronic addresses, legislation, in addition to theses and dissertations.

In addition, we performed documentary research, based on the survey of information on the legislation associated with the subject, in particular the public-private partnership law, the National Solid Waste Plan, municipal laws, as well as information on the rights of cooperatives and associations of selective collection collectors.

To conduct the primary data collection, we used three instruments, which involved semi-structured questions validated by previous research studies (GUARDABASSIO, 2018; MANDELLI, 2017; PUECH, DE REZENDE and RIBEIRO; 2009), adapted to the reality of the case under study. In the data collection, we utilized interview scripts for collectors of cooperatives, scrap dealers, and representatives of the city hall.

The validated and adapted questions for data collection aimed to investigate and understand the method of the collectors who work in the cooperative work, their characterization, the collectors'

knowledge about Selective Collection Programs, as well as their interest and opinion about the advantages and the disadvantages of participating in the program.

We conducted the interviews with a scrap dealer registered with the city hall and three employees who work at the establishment, 13 collectors from the cooperative, and a representative from the city hall, responsible for the Department of Environment.

The data collection, through the answered questions, went deeper into the way of organizing the collectors in cooperatives, the economic conditions to maintain themselves, the form of management, the care with safety and health, the characterization of the participants, the knowledge, interest, and opinions about the advantages³ and disadvantages of participating in selective collection programs in the Municipality, as well as the partnerships established between the government and private companies to strengthen the group.

Results and discussions

Characterization of the Cooperative and Scrap Metal - Organizational and Economic Variables

We analyzed the administrative organizations of the two groups in which the collectors work with collecting and sorting USW. Cooperpires is a Cooperative of Recycled Material and is the only one in the city, with twenty workers and the scrap trade Ribpel Industrial Scrap Metal, with twelve employees. As for the time of existence, the legalized scrap dealer has been in business for ten years, while the cooperative has been in business for fourteen years (Table 1).

Table 1: Characterization of organizations in the municipality of Ribeirão Pires.

Administrative organization	Legal Status	Lifetime D/ M/ Y	Type of support	Contributors		Partnerships	Investments Last 12 months	Equipment Type	Location of headquarters	Monthly income R\$
				I	A					
Cooperpires	Legal	14 Y	Administrative Professional Qualification Legal Assistance Organization and integration for work	15	20	Partnerships Public-Private	Roof extension	Balance 2 Press Fork-lift baler Belt Computer	Space provided by the city	300,00 a 400,00
Ribpel Industrial Scrap Metal	Legal	10 Y	Administrative Qualification Professional Legal Assistance	01	12	NO	Infrastructure and vehicle	Balance 2 Press Fork-lift Baler Computer	Rented	1.225,00 a 2.800,00

Source: the authors

The type of support, professional qualification, legal and administrative assistance, support in the organization, and integration of work to start the cooperative were scored as important. For the scrap trade, administrative support and legal assistance were provided through Ellos accounting and professional qualification through courses, reflecting a significant increase in the number of workers in relation to the length of service.

Table 2 represents the results of the synthesized interviews, in the view of the collectors who work in the cooperative in the municipality of Ribeirão Pires.

Table 2: Interviews with collectors from the Cooperative of Ribeirão Pires

QUESTIONS	VARIABLE	IMPORTANT POINTS
As for education	Social	Incomplete primary education predominates, only the vice president studying psychology and the secretariat studying logistics stood out.
	Social	All responded that they reside with their family.
As for the family bond	Social	Only one responded receiving Bolsa Family aid.
Do you receive any other social benefits?	Social	More than half had reasons for unemployment; only 3 retirees work to supplement their income and help the family.
As for the reason for being a waste picker	Social	They worked as: street cleaner at the city hall; aux. cleaning services in private companies; Mason Helper; stamping operator, and aux. of production.
What are the main current difficulties?	Insertion variables in the municipality's Selective Collection Program (SCP)	Lack of material to collect; lack of municipal support, excess of abandoned dogs, and USW mixed with organic waste.
Do you use any personal protective equipment?	Occupational safety and health preservation variables	All equipment, as well as machinery, are received through partnerships with public and private authorities.
Do you usually take vaccines to avoid damage to health?	Occupational safety and health preservation variables	All scavengers who come to work in the cooperative are sent to the health post to regularize their vaccinations.
In the last 6 months, were there any work accidents during collection?	Occupational safety and health preservation variables	Yes, only one scavenger had cuts on his hands from shards of glass in the USW triage on the conveyor.
Are you aware of Law No. 12,305/10 – on solid waste?	Legislation variable	Through courses, only newcomers who do not have the knowledge are informed about the law and, for the most part, have only heard about it.
Would you know what the advantages and disadvantages are of participating in the Selective Collection in the Municipality?	Insertion Variables in the SCP Program	Advantages: extra income and environmental cleanliness. Having the city hall as a partner, having physical space and equipment to work.
If I had the opportunity, I would change jobs.	Insertion Variables in the SCP Program	Yes, I would trade it for a job with a fixed salary. Only the founders of the cooperative said they would stay until the end.

Source: the authors

Respondents stated that before being pickers, they had professions such as street cleaners at city hall, cleaning assistants in private companies, bricklayer assistants, stamping operators, and production assistants. They reported that since they were unemployed, without professional qualifications, and at an advanced age, they chose to work as scavengers.

However, when asked, “If I had the opportunity, would I change jobs?” The answer was unanimous among the collectors with less time in the cooperative and with low education, “Yes, I would change”. According to the members, the monthly withdrawal has been very low due to the work they perform. Only the founders of the cooperative who helped to materialize and strengthen this class of workers answered, “I wouldn’t change”. This tells us that the working conditions of collectors in relation to compensation have not been practiced in accordance with the guidelines of the law.

Issues related to the health of collectors are addressed by Federal Law No. 8,080/90, as the objectives of epidemiological and sanitary surveillance, promoting health protection, and being

responsible for the inspection and control of the conditions of equipment that represent a risk to the health of these workers. Thus, the care applied by collectors was analyzed to guarantee the safety of these workers, based on three questions, referring to the use of personal protective equipment (PPE), vaccines to prevent diseases, and the occurrence of accidents.

Given the responses and observation in the place, all collectors who work in the sorting of solid waste wear gloves, glasses, boots, masks, and aprons. As for the awareness of disease prevention through vaccination, all collectors, when they are hired to work in any area of the cooperative, are directed to take the vaccines. In the incidence of an accident in the last six months, the collectors reported only minor accidents, however, not for lack of PPE, but lack of attention, such as cuts on the hands caused by shards of glass in the screening of USW on the conveyor.

Concerning knowing about the solid waste law, only newcomers have heard of it. For those who have more time in the cooperative, through courses and lectures, they receive information and training for work, given by private institutions.

When entering the city's Selective Collection Program, for the analysis of the variables, we observed the difficulties presented by the collectors, the interests, the knowledge of the prerequisites, the advantages and disadvantages of participating in the program, and the training for inclusion and training of collectors.

For Cooperpires, even participating in a Selective Collection Program in the Municipality, one difficulty currently faced is the lack of selected material at the generating source, as, on pre-established days and times for collection, other middlemen pass by and collect solid waste, leaving only useless materials.

Demajorovic and Besen (2007) state that partnerships between municipal governments and waste picker cooperatives face several problems in carrying out selective collection, such as the increased interest of various actors in recyclables, expressed in the increase of waste pickers working on the streets, and private companies are also interested in collecting and marketing these materials.

Regarding the selective collection done by municipal trucks, there are other discontents, due to solid waste coming mixed with organic waste and, sometimes, with waste from health services. Consequently, the percentage of waste becomes large, as illustrated in Figure 1.

Figure 1: Tailings to be removed from Cooperpires



Source: the authors

The cooperative reported that, when they did the door-to-door collection, organized by groups of collectors, the materials pre-selected by the residents had better quality, which generally guaranteed the use of the materials to be recycled, as there was direct contact with the residents. In general, it is still difficult to expand and raise awareness of selective collection by the government.

Other difficulties observed during data collection affecting the work of Cooperpires cooperative members are related to physical space, equipment, and distribution of tasks are the excess of animals abandoned by residents mixed with the materials to be sorted. According to the president and secretary of the cooperative, the city has already been notified several times.

Motorized cars for selective collection - Coletortec, donated by the company Tecscan, to complete the collection in the city center, are broken and awaiting public-private partnerships to begin maintenance (Figure 2). The members reported that the equipment has been out of service for over a year, which makes collection even more difficult, in turn causing loss of material.

Figure 2: Motorized cars for selective collection



Source: the authors

In this case, as it involves a commercial relationship of equipment donation between a private company and the government, both benefits and responsibilities were shared. However, the parties involved do not always comply with the agreements, leaving the cooperative without achieving its objectives.

The collector and tax advisor informed us that after regulating Law No. 4,768/04, authorizing the institution of a Fluorescent Lamp Collection Program, its storage, transport, and destination, councilor Eduardo Nogueira visited the cooperative and delivered the first batch of light bulbs collected in stores. However, fluorescent lamps until the day of data collection remained without a clear destination at Cooperpires (Figure 3).

Figure 3: Fluorescent lamps collected in stores



Source: the authors

Among the advantages of participating in the municipality's selective collection program, presented by the cooperatives, are the materials sent by public and private institutions, destined for the selected Recyclables Voluntary Delivery Point. As for the disadvantages, the greatest concern is with the change in the administrative management of city halls, which, for the most part, interfere in the management and obtaining funds and/or benefits.

In the formation of cooperatives, public and private partners, such as the GEA Institute, the Braskem company, and Tetra Pak, training consists of the inclusion of waste pickers in groups, with

courses and lectures focused on work. Additional operating costs benefits include the physical space provided without rent costs, water, and electricity, with all the infrastructure donated by private companies and city hall supplying the trucks with drivers, helpers, and fuel, given to conduct door-to-door collection.

Legislation Variables

The questions applied to city hall representatives were aimed at raising a social and political nature about the laws presented and whether they were being complied with to favor the work of collectors in the cooperative. Table 3 presents a summary of the main aspects addressed in the interview conducted with the representative of the municipality of Ribeirão Pires.

Table 3: Interview with the representative of the city of Ribeirão Pires

QUESTIONS	IMPORTANT POINTS
Has the Municipality carried out the Urban Solid Waste Management?	Yes, the entire management process is guided by the Municipal Plan for Integrated Solid Waste Management
In relation to Domestic Solid Waste (DSW); Oils; Waste from Health Services (WHS); Construction and Demolition Waste (CDW); Waste of Electronic Equipment, Open Markets; storm drains Sweeping and Pruning, what is the destination and/or treatment?	Only some Domestic Solid Waste is sent to Cooperpires, the rest of the waste is destined for treatment at the company LARA.
Are there VDPs around the city? Where are they arranged?	Yes, they are spread out in the city center, and during festive seasons larger collectors are available for better storage
Who carries out selective collection in the public sector, neighborhoods, and schools?	They are carried out by the cooperative's collectors in the public sectors, neighborhoods, and schools using trucks.
What is the frequency of collection of waste in the door-to-door system and in the VDP's?	In partnership with Cooperpires, they are collected every day, in the morning and the afternoon.
Is every municipality covered by selective collection? If not, what percentage of neighborhoods are served?	Yes, together with Cooperpires, there is a schedule with neighborhood maps.
Are there partnerships for selective collection? Which?	Yes, an agreement with the State of São Paulo for the donation of trucks and with Cooperpires for the collection of waste.
How and who carries out the environmental awareness campaign among residents? When?	The Department of Education carries out awareness projects on the importance of preserving natural resources and the environment.
Are there cooperatives involved in sorting and processing waste? Which?	Yes, only Cooperpires (Recycled Material Cooperative)
Does the municipality dispose of its solid waste to other municipalities? Which? What cost?	Yes, urban solid waste is sent for treatment in the municipality of Mauá, as well as waste from Cooperpires' sorting.
What is the participation of the City Council in socio-environmental issues and in relation to the importance of selective collection carried out by the pickers?	In 2014, councilor Eduardo Nogueira filed a petition on the disposal of fluorescent lamps and batteries, questioning the City Hall's obligation in this process and what it practices ensuring the effectiveness of the National Solid Waste Policy.

Source: the authors

In the municipality of Ribeirão Pires, USW Management is guided by the Municipal Plan for Integrated Solid Waste Management, which meets the National Solid Waste Policy. To implement

the selective collection door-to-door, the Government of the State of São Paulo provides two trunk trucks for the provision of services for collectors with the city hall.

According to Conke and Nascimento (2018), the separation process begins in the post-consumption of the solid waste generated, is placed in front of homes, businesses, public places, or Voluntary Delivery Points (VDPs) scattered around the city center. Thus, the Department of the Environment (DE), together with Cooperpires, maintains a selective collection schedule with addresses in all the city's neighborhoods, in which USW is collected daily and sent to a sorting shed, where the material is separated, pressed, and sold by the members. The municipality also forwards its USW for treatment in the municipality of Mauá, as well as waste from the Cooperpires screening. The Department of Education executes awareness projects on the importance of preserving natural resources and the environment.

Organizational Variables, Insertion Variables in the Selective Collection Program in the Municipality and Legislation Variables

To analyze the organization of the collectors' cooperative, the organizational variable presented the form of legal organization in general. For the variables of inclusion in the Selective Collection Program, we analyzed training for inclusion and training of collectors and Public-Private Partnerships. Table 4 summarizes the main results of the interview conducted with those responsible for the cooperative.

Table 4: Interview with responsible people for the cooperative of Ribeirão Pires

QUESTIONS	VARIABLES	IMPORTANT POINTS
What is the founding date of the cooperative?	Organizational variables	2004/09/13
What is the average length of stay for each member?	Organizational variables	12 months
How are new members admitted?	Organizational variables	Through the curriculum, interview, indication, and presentation of the functioning of a cooperative.
Does the cooperative have partnerships? Which are they?	Insertion variables in the municipality's Selective Collection Program	Yes. Braskem company, SABESP, SENAI, city hall, private and public schools.
Is there a rotation of people in different roles? (Career path)	Organizational variables	Yes, depending on skill and experience.
How is the process for the election of the board carried out and how often?	Organizational variables	The process is done through meetings with all members. Before the period was every four years, today it is two and two.
How much material is processed?	Organizational variables	From 15 to 20 tons per month
What are the expectations with the enactment of Law 12,305/2010 (PNRS)	Legislation variable	Only the secretariat and the tax advisor are aware, while the president has only heard that it is solid waste.
Is there social inclusion of families and waste pickers in the city's social programs?	Insertion variables in the municipality's Selective Collection Program	No
One of the biggest problems in densely urbanized cities is the lack of proper places for solid waste disposal. How has the collection been carried out by collectors in the neighborhoods?	Insertion variables in the municipality's Selective Collection Program	Door-to-door collection with trucks donated to the cooperative.
What is the municipality's investment in door-to-door selective collection and VDP's?	Insertion variables in the municipality's Selective Collection Program	Partnership in providing the truck, fuel, and driver to help with the collection. Disclosure with flyers.
Are there barriers faced by collectors and cooperatives in relation to selective collection in the municipality?	Insertion variables in the municipality's Selective Collection Program	Lack of recognition for their work, unresolved problems, poor quality USWs (material mixed with organic and infectious waste). There is little use of what is left over, most are rejects. Equipment that needs maintenance and awaits sponsorship or partnerships.

Source: the authors

As reported by the tax advisor, Cooperpires was founded on 13/09/2004 through a partnership between the city hall and the GEA Institute. At the time, they advertised, through the city's

newspaper, looking for people who had already worked as garbage collectors or collectors and who would like to participate in a course to form a selective collection cooperative. Thus began the first activities.

Since the formation of Cooperpires, of the collectors who started, only twelve remain, three of which have already died and the rest, that is, eight collectors are new hires. As part of the hiring process, those responsible for the administrative part review the applicant's resume or through an interview explain how a cooperative works. New members are considered in training for a maximum of one year, so the rotation of tasks is established according to the skill and time of experience and as they acquire knowledge, there is a career plan and referral to professional courses.

Cooperpires maintains important partnerships with the Braskem company, SABESP, SENAI, the city hall, and private and public schools. Thus, in partnership with the city hall, door-to-door collection is performed with trucks donated to the cooperative, as well as dissemination through pamphlets. Currently, the processed amount of material is around 20 tons per month.

With respect to Law 12,305/10, only the secretariat and the tax advisor are aware, while the president only heard that it is solid waste and, as for Law 11,079/04, they were unable to answer what it is about.

In socio-environmental issues and in relation to the importance of selective collection done by collectors, councilors participated in the creation of the law for the disposal of fluorescent lamps and batteries and the law obliging Hypermarkets and Supermarkets to implement points for the voluntary delivery of Polyethylene terephthalate bottles.

However, some barriers faced by collectors are: the lack of recognition of the work in relation to compensation by the city hall, which depends on the renewal of the service contract, fluorescent lamps and batteries left in the cooperative and which remain until today with no destination for buyers, the USW arriving from trucks, through public collection, has been of poor quality (material mixed with organic and infectious waste) and little waste is used from what is left over, most of it is rejected, in addition to equipment that needs maintenance and awaiting sponsorship or partnerships.

Final Considerations

The USW has become a public problem in Brazil and around the world, and as solution measures, the National Solid Waste Policy brings together guidelines, principles, objectives, instruments, goals, and actions. However, one of the main actors for the integrated management of USW are the collectors who work and in cooperatives. These associates have developed integrated management that involves collecting, sorting, storing, and marketing to scrap dealers or recycling industries, in addition to preserving the environment.

The research question defined for this study was "How can public-private partnerships (PPP) contribute to the work of collectors in a cooperative in the municipality of Ribeirão Pires, São Paulo?". In this sense, we concluded that partnerships between private companies and public sectors might be a solution in the case, favoring the work of selective collection of solid waste and the organization of groups of collectors, who work on the streets, in associations or cooperatives.

Another contribution identified on the partnerships between the government and private companies is the integration of collectors in the municipality of Ribeirão Pires, with the association of a group to work in the cooperative. The role of the public sector was to map the individuals involved and provide an adequate space to start the first works. The private sector collaborated with donations through investments in equipment and infrastructure of screening units, besides professional training.

Such actions, in addition to provide the strength of the workforce of collectors, encouraged the network with other cooperatives in different cities, as well as increased productivity and income. Thus, with the contracting of services through public bidding, with private companies, it became easier to share the costs of acquiring equipment and structuring sheds, so that collectors organize the work of collecting and sorting solid waste.

The partnership between the Urban Services department and the GEA Institute in the municipality of Ribeirão Pires allowed the training of the collectors to start the first activities of the Ribeirão Pires Recyclable Material Collectors Work Cooperative (Cooperpires). Another partnership occurred through the Brazil/Canada Project, carried out by the University of Victoria (Canada) and the Santo André Foundation (São Paulo), to improve the working conditions of cooperative members. In addition, the cooperative acquired a new warehouse through federal resources from the Growth Acceleration Program (GAP). With the agreement between the State

Secretary for the Environment and the Municipal Environment Secretary of Ribeirão Pires, the cooperative received vehicles to support door-to-door selective collection in the municipality.

Finally, there are several models of public-private partnerships that can be easily applied as cooperative models to contribute to the generation of new initiatives. With the incentive for the creation, benefit and improvement of cooperatives, the public sector and companies play an important role in carrying out actions for the correct disposal of urban solid waste.

As a limitation of this study, it is noteworthy that the conclusions obtained raised from a case study, therefore they cannot be generalized. However, the results present reflections for understanding how public-private partnerships happen in practice and impact the work of USW collectors. As future works, we suggest similar research in different contexts of the public-private partnership, enabling comparative studies.

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