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**A sustainable territorial challenge: the irreversible impressions on waste and residue management from functional community workshops**

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## **A sustainable territorial challenge: the irreversible impressions on waste and residue management from functional community workshops**

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**Abstract:** The goal of this article is to present a special thought on the strategy of capacitation workshops, as the means for self-awareness and decision making on waste, having a different perspective towards the subject. That way, the research that generated the present document, was established from the research-in-action, generating knowledge and new experiences by ways of physically meeting the waste collectors from the city of Matinhos – Paraná, which was made possible through ANCRESMAT and AMAGEM associations. We dove deep in the sustainable development bibliography, in recent researches that stand for education as the essential means for awareness in regards of the environmental issues experienced during current days. The workshops allowed us to notice that there are special ways to enter those land spaces, interact, and thus, transform actual lives, through an enhanced look to waste and its potential.

**Keywords:** recycled waste; sustainable territories; community workshops; waste and residue management; Matinhos/PR Brazil; recyclable waste in Brazil.

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## 1 Introduction

The matter associated to waste in Brazil, as a whole, is addressed by The National Solid Residue Policy, as a result of the Federal Law 12.305/2010 (Zago et al., 2018). The aforementioned law establishes that inhabitants must make the proper storage of waste in their homes, so to make it possible the collect of that waste, making it mandatory the

correct separation collect at their address, in the towns where the selective collect process is established (Zago et al., 2018).

Starting from the Federal law aforementioned, the union's states laws are based on the Federal law to reinforce actions, having the main objective to fully establish the management of waste, in addition to the implementation of the law in all towns within the respective state. In the state of Santa Catarina, for instance, Law 14.675 established the use of state's Environmental State Code, reversed by Law 16342/2014. By doing so, the solid waste management is addressed on the situations that cause environmental degradation.

With that in mind, it's very important the creation of a mobilising process of awareness about the necessity to change the notion that general waste serves no purpose anymore. We now know that a lot of that waste can increase their presence in the world, if they're creatively and properly recycled or reused. They're powerful material that, if well reused, can even result in new income for those in need.

From this perspective, it is important to encourage awareness about the need to eradicate the impression that residues are waste. We now know that much of this waste can have a longer lifetime usage and permanence in our environment as they are creatively reused. They are powerful materials that, when well reused, can even generate income to those who need it.

The narrative of the activities presented in this article aim to debate about the urgent need to reverse the impression that general waste is useless, taking as measure the amplitude feasibility view from the workshops standpoint. By doing so, the collection of data and the case study led to this research having an exploration emphasis, by which the data presented herein comes from the three workshops that took place at the 'ANCRESMAT and AMAGEM' Waste Collectors Associations, in the city of Matinhos-PR. The research was performed between the months of April and September of 2019.

This study design was made from the research of applied nature, having as the main objective, problem solving in the reality environment of the researchers. This action research coming from a real problem/situation aims practical results, being able to contribute as much as for a real improvement of the situation, as also, generating changes in the context in which it lies. In regards of theory fetching references for this study, it was done via bibliographical research [Gil, (2017), p.25; Zago et al., (2018), p.3].

Promotion of practices and investigations are considered, having the workshops characterisation and the possibility of supply maximisation, moving towards the development of the sustainability culture and the income generation perspective with the use of waste. On the other hand, we have noticed that in order for that to happen, it is necessary an increase of actions and government policies that aim the feasibility of the concept of sustainable development in our country.

We believe that research is one of the ways to change that culture.

## **2 The sustainable development perspective in the recycling context**

The sustainable development is a widely spread concept, however, it is not well comprehended and, therefore, not well applied in Brazil (Ribeiro, 2001). Since that concept functions on the perspective of alignment and fairness between the

environmental, economic and social matters, it is necessary a very wide understanding for its practical and effective enforcement (Hüller et al., 2017).

As a general analysis, there is a great interest on the matter of the sustainability concept. Its applicability relies a lot on the given strategies related to its field of action, for example engineering, economy, business and ecology, where each specific science sees and understands it with more or less excitement, according to each part of this equation (Chichilnisky, 1996).

That way, even in current days, it is possible to note that the concepts of sustainable development and sustainability provide different interpretations and actions. With that said, writers Dovers and Handmer (1992) state that sustainability is capable of generating a human system, natural or mixed, that may adapt or also resist to the endogenous or exogenous change for some time. Whereas sustainable development means intentional change that improves the current situation, depending on the respective population needs.

Enterprises, on the other hand, need to contribute with that sustainability since it involves environmental, economic and social balance. From a business standpoint, it is necessary for enterprises to provide the technology and financial skills to make the sustainable development possible (Elkington, 2001). With all these facts in mind, the writers discuss yet, the importance of expanding and incorporating these concepts adopting a family and personal analysis, so that the environmental awareness process can be well accepted and get the real engagement of the general public.

According to Elkington (2001), the sustainable development has a definitive real reach for sustainability, since real researches point out that the sustainability understanding factor with its real use in human life and its comprehension goes a lot further than plain related facts to the environment preservation.

In this scenario, it can be understood that the environmental sustainability would be the economic activities dematerialisation.

Therefore, it is necessary to let go of the idea of environmental sustainability focused solely on natural resources preservation, for not considering the economic matter, which moves our current society, the path will demand a lot more effort to get to the desired sustainability scenario.

So, it is possible to define sustainability into three different points of interest: interest on the current generation perspective, economic sustainability direction; interest on the search for equality; and the interest involved in the building process with future generations of people that will take it to a broader environmental sustainability.

It is noted, then, that the issue related to the solid waste production in Brazil has a very close relation to the concept of environmental sustainability, especially in regards of recycling. Following that argument, waste collectors' role is of high importance in this process, that through the recycling process they are a part of, they play a major social role, generating income and decreasing the environmental impact effects that such waste would cause if they were simply disposed out in the environment (Hüller et al., 2010).

Taking all that into account, such actions must be taken seriously by all players, especially by institutions and the reinforcement of government policies aimed at this area and the proper qualification of those involved through initiatives aiming the environmental awareness and education.

Based on these facts, it is expected that the belief that waste is useless in our environment, is finally surpassed. However, it is necessary to be reminded of the urgent necessity of also overcoming other obstacles to stimulate the perception around the environment and its wholeness, as we will address now.

### **3 The importance of a broader and self-conscious analysis toward the environment concept**

As a whole, the perception about the environment is changing. We have observed the process of debunking the conception that the environment is directed only and solely as something regarding nature in its physical form: trees, rivers, parks and natural sources. Being so, the understanding that the environment is a place where an individual is inserted and also interacts with, reinforces the idea that human beings need to establish a sustainable way of development, so that the human race won't collapse (Santos, 2008a).

Researches have shown the influence media and communication channels have on the environment, and as the higher level of education the individual possesses, the greater the interest in obtaining more knowledge and awareness regarding environmental issues. Knowing that, the population in medium and larger cities are quite more informed and interested in the subject, increasing their education, and by doing so, they get more involved in opportunities related to how the society can help owning a bigger responsibility with sustainable development (Santos, 2008b).

We also noted the tendency of material goods consumption in the world, which calls out for a gradual change, not by factors associated with the 'environment awareness', but for the quality of life that implies in healthier habits. That lifestyle results in less harm for the environment (Dullius, 2020).

However, we believe that the intellectual evolution, in addition to a conceptual evolution is necessary, focusing on the means to perceive the environment. Only through that awareness, the population will realise that the matters related to recycling, for instance, go together with the concept of environmental sustainability.

However, we believe this intellectual evolution is necessary whilst going hand in hand with conceptual evolution, towards our general perception of the environment. This is possible when we separate and discard our waste correctly or reuse it, as only with this habit we will be able to bring the population's awareness closer to the relation between recycling and the environmental sustainability.

Following that path, besides the population awareness towards a higher perception of the environment, government leaders comprehension is also necessary to work on public policies and measures to support the recycling initiative.

### **4 Government policies related to the waste collectors, the social inclusion and the environmental sustainability**

Looking at the current context of Brazil's public policies, it is noted that the waste collector's status is one of the most discussed about, especially in the social productive inclusion category. Therefore, it has turned out to be an analytical strategy in order to be able to understand the obstacles that separate the public policies conceptions from their practical execution (Lima, 2018).

The work of waste collectors in the Brazilian context is very significant and there are some public policies directed to the low-income population currently. However, it is important to note that those policies are normally associated and directed to the unions and associations, which is very similar to the ways other countries' governments treat the situation (Rabossi, 2011).

The origin of legal standards and parameters for the waste collectors category was structured and placed on the streets or landfills, and also the so called 'dump grounds'. The unions and associations are ways found to make this activity legal, with a touch of social inclusion and citizenship. Such requirement has become mandatory so that this workers' union could apply for the support programs sponsored by national and international non-governmental organisations, as well as government policies (Lima, 2018).

According to Carenzo and Míguez (2010) the social inclusion of waste collectors was made official when there was the conversion of waste collector workers in uprooting and vulnerability situations working for public enterprises as well as other associations.

The waste collectors that work alone are not exempt from the idea of exclusion, uprooting and absence of options. That is the case of waste collectors on the streets and 'dump grounds'. On the other hand of this trend, the collectors that work in groups, through institutions, unions and associations have the opposite outcome than the individual workers (Lima, 2018).

It is accurate to say that the collective work of the waste collectors is based on cooperation, compassion and equality of rights. To the collectors, in general, it is possible to understand that the economic outcome is achieved as well as the adoption of requirements to respect 'nature' in an equal and supportive way.

In general, laws enforced on the organisations and institutions must be based on the standard processes of informal practices, keeping in mind that the job categories are then recognised and approved by the State. Therefore, the legal framework represented by the National Policies of Solid Waste (PNRS in Portuguese), would help in this scenario, starting from the law of the collectors' activities in different venues such as dump grounds, landfills, unions and associations.

Currently, those professionals that work with recycled materials in Brazil have an essential role on the solid waste management chain, their work is very much in place. That is an attribute they already carried before the establishment of solid waste management public policies. Taking that into account, we understand they already did develop a very important environmental work before those policies (Carenzo and Míguez, 2010).

The environmental work they perform adds a lot to the return of materials to the recycling process, generating energy and raw materials savings, all aiming the prevention of material return to local dump grounds and landfills (Carenzo and Míguez, 2010).

Recognition on the reusable and recyclable solid waste matter is essential for the waste collectors. It is an economic asset that has social value. Such materials are income sources that help the reusable and recyclable waste collectors, as they are part of the shared actions chain for the lifecycle of goods.

The inclusion of recycled material collectors in the solid waste management process in local towns, makes it possible for the implementation and selective collect, joined by the cooperative institutions and also individual citizens with low income. Whereas the exclusion of the recycled material collectors is defined as a great problem, for it shadows the visibility of this important social segment (Lima, 2018).

On the other hand, it is known that material collectors, as a whole, are inserted in this process in order to get work, however, they are often removed from it due to the poor working conditions they are subjected to. That way, mostly often, the collectors are placed in a side economy position, which in turn, is usually determined by the poor working conditions it offers.

A social imbalance is seen because of the frequent waste build-up, because on one side an individual will dispose waste because one consumes it, and on the other side one will only consume it because the individual collects the waste for their own survival. That is seen because of the consumption disorder, which means, this disorder excludes people, according to the capitalism rationale (Mendes, 2019).

That way, money goes around in society in several ways, from coins all the way up to credit cards, making the capacity of coming up with goods today very high, that reality being one of financial intelligence ways to sell goods, and that will generate more waste (Santos, 2008b).

In general, the waste fetched by the collectors, is able to grant them as little as pennies. This is a reality of many Brazilians that live off of collecting recyclable materials, making a living of what the general public discards. In the eyes of the government, collectors bring benefits, since they help keep cities clean, decrease the volume of waste at local dump grounds, they are a cheaper labour, they also help prevent floods and pollution caused by the accumulation of trash, but such incentives are still not compatible with the appreciation the waste collectors' work should have (Mendes, 2019).

Collectors, in general, are placed at the margin of society, and as they face the need to find work, they see on the waste opportunity, a possibility for a faster income. That generally forces them, to work for someone who will provide them with a waste kart and will pay them pennies for all the waste collected around town (Gonçalves, 2006).

However, there are those who benefit from these workers' hard labour, especially factories and manufacturers, for it is not necessary to establish any work relationship ties with the collectors, since the hiring process is made through intermediate agents. Therefore, the waste collectors have little economic perspective, since they have a very low power of negotiation with the intermediate agents (Gonçalves, 2006). In addition, when there is an increase of price paid by the industry, which more often than not, is not extended and paid in full to the collectors, whereas when prices go down, collectors get the full impact. When the distance between the scraper and the buyer is longer, material pricing often gets lower, and as a result, cost is deducted from the earnings collectors make (Mendes, 2019).

Industries take advantage of the waste collectors who undergo the aforementioned conditions to obtain the means for their families and their own survival. Institutions play a major role in this scenario, when the waste collectors look for organisations, institutions or cooperative organisations, they can provide a better work and living condition to those individual collectors who, being unemployed, lacking an academic degree, having no professional records are therefore, not considered in the labour market (Gonçalves, 2006). The inclusion of waste collectors in those institutions, associations or cooperative associations, and therefore into the labour market, assure to a certain extent, their social well-being. In this scenario, the enactment 7.405/10 establishes the For-Collectors Program, that supports the waste collectors, provides them with a better working condition, in addition to a social and economic reality a lot closer to a steadier life.

## **5 Program for-collectors**

The For-Collectors Program was established by the Federal Enactment 7.404/2010, having its main goal on legally implement the National Policy for Solid Waste, along with Enactment 7.405/2010 that established the For-Collectors Program aiming to unite

Federal Government's actions directed to the collectors of recycled and reusable material. It was redirected to the support and aid of the collectors production chain organisation.

Aiming to improve the recycling and waste collectors working conditions; expand the opportunities for social and economic inclusion; and enable the expansion on the selective collect of solid waste, reusables and recycled materials made possible by the action of this labour segment. Execution and tracking of the For-Collectors Program, including the social and economic inclusion of the waste collectors is headed by CIISC.

Considering this scenario, the program also gathers actions comprehending qualification, education, technical consulting, social enterprises, support, researches and studies about the lifecycle of goods. The qualification and social inclusion workshops are very common and provide the opportunity to raise awareness from the population and those involved with the environment and sustainability cause.

## **6 Successful study cases on the environmental sustainability initiatives through workshops**

Most of the workshops about recycled materials available in Brazilian towns are used as an educational form of 'garbage' reuse and transformation into products that will get a second chance to still exist. The main goal is to make the engaged population aware of the environment cause, so that all participants can understand the importance of this process and make it easy to see how valuable that waste is. Taking this important point of discussion into consideration, the workshops need to develop an Environmental Education system for all ages, in an integration form, with low cost (Medeiros and Coleta Seletiva, 2015). In addition, according to the author, that initiative can be carried out to schools, or right in local communities and interested families.

These are suggested measures that, through educational methods, go against the extreme consumerism of the current society, making it a conscious invitation to look at the serious harms we are causing, if we so continue to act this way, towards the environment. With that in mind, it is possible to foresee the implantation of an Environment Educational system that can bring awareness and interest to students in order to protect and take good care of the environment they live in.

A great support that schools have been providing is the workshops of plastic PET bottles, providing ideas and knowledge around the environment preservation, recycling process, the pollution impact, attention to our planet, among other related subjects. Such initiatives cause awareness and thought on students, even those who do not know or discuss the subject in their family households or did not have the opportunity yet to think about the subject. The school environment is the ideal place to spread those ideas and attitudes.

Looking at this scenario, it is possible to identify that if the environmental problems are caused by human intervention, it is necessary, through interactive and ideology ways, to pass on the idea of the need that each individual has to become a co-responsible agent for everyone's quality of life (Dias, 2004). Looking at this new thought in regards of society's waste management, it is clear to see that it is possible to remediate one of these waste management issues, by the method of its selection and reuse, making it possible to move forward on the matter of the environmental sustainability.

In accordance to Dias (2004), the Environmental Education's objective is gaining social support, equality and the respect towards the diversity through democratic ways, so

that all of the efforts made can actually generate positive outcomes through continuous initiatives. Still through these arguments, the measures chosen to develop the Environmental Education initiative are limited, when it is necessary to be effective as soon as possible, when taking little isolated actions, narrowed down to small groups, they are not sufficient to serve the respective community since such actions are meant to be a collective and collaborative action.

Therefore, the learning process through workshops is essential, because through educational classes about disposable materials and recyclable goods, the workshops can be assessed to manufacture several other products using recyclable materials (Oliveira and Silva, 2018). According to the aforementioned authors, a great portion of the workshops assessed by students can promote the manufacturing of overstuffed cushion pouffe, making use of plastic PET bottles and tyres, as well as recycled paper to recreate, recycle and reuse those materials.

Thus, we believe in the great potential of recycled goods for generating income through the manufacturing of useful products, having the workshops as a starting reference and also having the recycling, reutilising and decreasing of volume if necessary, as their main founding principles for the Environmental Education initiative.

This is a way of acting that provokes reality change, since through the Environment Education, the education professional can work on an integration: humans and environment, making people aware that the human being is nature itself and not just a part of it. So, the understanding of the environment student or the oriented individual in the corresponding workshop about the selected garbage cannot be focused only on the theory that waste is completely useless and therefore, harms nature as a whole, but above that, that waste can be reintroduced in this process, being also an income trigger agent and social inclusion factor, an essential criteria for the environmental sustainability initiative (Oliveira and Silva, 2018). Having such perspectives as the principle adopted in this study, let us discuss next, the experience obtained with the workshops in Matinhos – Paraná.

### *6.1 Workshops at ANCRESMAT and AMAGEM associations*

There is a specific and very successful study case that, deserves a significant credit due to its importance in this process, which happened through workshops at the Solid Waste Collectors and Pickers Association of Matinhos (ANCRESMAT). For those events, collectors from Matinhos' Environmental Agents Association (AMAGEM) and ANCRESMAT attended, having a local craftswoman as the lead workshop agent.

This particular experience presented us with the expansion of ideas, proactiveness of the attendees, as well as their interest on the opportunity to learn and also teach about environmental matters. It comprised of all its interactive forms, ranging from the understanding of materials' importance to the environment, all the way up to the supply and the sharing of food during coffee breaks and intermissions. There was a feeling of belonging to the location where the workshop was held, for the placement of the selected material, tables where meals were served and all the space around blended in with the attendees' routine, behaviours, attitudes, values and views of the world.

Considering the above, the workshops provided ANCRESMAT with a new view for the use of the facility where they worked and had meals, when the symbolism of the new reality could be observed, especially when analysing the choices made by the attendees. Among the final result of things, it was possible to see that there was a contagious union

established amongst everyone, when they could realise how powerful they are as people as well as their combined feelings when they knew they were giving someone a gift. There was a grandmother who manufactured a fish to her grandson, claiming that her grandson loves fish, whereas another person decided to make a dog for their partner, another made a rabbit's head and thought they would not make the entire body, and yet another person felt challenged to make a doll with a lot of difficulty, requiring the assistance of the local instructor. The feeling of helpfulness and cooperation involved in this workshop process was explicit. This gives a significant support for the collectors to achieve their autonomy on their decision-making process. Actions to extend discarded materials' life enabled them to rediscover talents and enhanced opportunities to regain therapeutical habits, as well as providing the possibility to use their free time to work on craftsmanship activities.

Another workshop was entitled: *The Umbrella Project: cushions, aprons and handbags*. The idea to use discarded umbrellas' fabric is directly related to the economic, environmental and social sustainability issues. Looking at the economic side, the manufacturing costs for the storms shelter vary according to its various models, lifespan and raw materials. On the environmental side, impacts occur, above all, for the inappropriate disposal and the different types of materials used to make the object. On the social side, the umbrella is used by all those who are on the streets during rainy days and do not want to get wet or have their belongings wet and soaked in water.

Ideas were discussed and the main goal was to encourage, explore and support the waste collectors. They came across with this same type and other types of waste during the collect action with little or almost no economic value. As an example, most of umbrellas' handles are made of a hard-plastic type of material that is difficult to commercially negotiate. A wooden clothes hanger set was manufactured using scraps of medium density fibreboards (MDF) coming from experiments of mould and parts used by the design undergraduates from UTFPR University.

**Figure 1** Products manufactured from The Umbrella Project: cushions, aprons and handbags (see online version for colours)



*Source:* The authors (2019)

Other social elements that played a big role during this session were the attendance of their family members, the connection and their life stories that were also part of the manufacturing process of their handicraft pieces. Art, eating and conversation make up for the main satisfaction factors revealed by this workshop's attendees. The products manufactured and originated from this workshop are displayed on Figure 1.

We would like to point out about another workshop held at AMAGEM. We believe it is of high importance due to the fact that this association, despite their 20 years of operation in Matinhos, had never had the means to host a training session workshop. We had the opportunity to have a waste collector from Matinhos itself, as the workshop host, who contributed significantly with her handicraft skills, sharing her knowledge to those involved about art objects manufacturing. Alongside with other local craft artists, she has her work displayed at the reserved hall from the Culture Bureau, showing her work using the material found in trash bins around town. In addition to that, nature has provided her with other types of material, such as: hay, vines, seashells and seeds - all being part of her manufacturing process. We can perceive that waste collectors can earn their living through the processing of recyclable waste along with their craftsmanship.

That is an example that gets us thinking about the relations between the society of consumption and allocation of nature resources, for they go against the waste collection methods. However, in order for people to be respected in their activity and be able to find the means for survival, PNRS set as their goal to shut down waste landfills, places prohibited by law in Brazil. That action has enabled a significant increase of waste collectors on the streets of several cities in the country, since the collectors do not have proper professional qualification and, therefore, are not seen as trained and qualified workers to fulfil the criteria demanded by the work market. They are also very distant from educational institutions where they would be able to obtain such skills and competencies at universities or schools. That way, they are left off wondering around towns and at times excluded from society.

In the light of these events, we understand it is necessary to give voice to the waste collectors, and coming from that point of view, we decided to take on the leadership of the workshop agent on this proposal. She then, chose to work using the African doll Abayomi. This doll carries a historical context that takes us back to the colonisation times in Brazil (1500–1800), when the Portuguese traded African slaves to work in the newly discovered land of Brazil. The African families travelled for months aboard crowded ships, known as the Negro ships, until the trip reached its final destination. The mothers of those families used to tear up their dresses to make dolls in an attempt to entertain their children.

And powered by all these indicators we can safely state that the workshops showed, provoked, and provided a lot of exchange and knowledge. Following the guidelines given by the workshop agent as well as the material provided, those who attended were able to make choices on colours and fabrics for the dolls' clothes. Firstly, the body with the head was started by giving it a knot. Following that, the two next knots resulted on the legs, and the final two knots gave the connection to the body of the doll. At least two little dolls were made by each participant. There were those who enjoyed the activity so much that they decided to make many more. All dolls were placed inside a cardboard box and recognised by the attendees and researchers, as they can be seen in Figure 2.

**Figure 2** Abayomi dolls manufactured by recycled materials collectors (see online version for colours)



*Source:* The authors (2019)

There was another extension workshop that discussed about knowledge and skills entitled ‘Manufacturing of cement vases using discarded fabrics’, which happened in two phases at ANCRESMAT. The first phase comprised of the manufacturing of vases and the second phase addressed the growing of flowers.

The main goal of this workshop was to supply the institution with vases, so that they could grow unconventional edible plants (PANC’s). Those are native and seasonal plants and they will grow in selected parts of the country. They can feature some menus; healing of diseases and they can also decorate the area where the waste collectors sort out the materials.

**Figure 3** Manufacturing of vases and growing of unconventional edible plants workshop (PANC’s) (see online version for colours)



*Source:* The authors (2019)

The participants used discarded towels and fabrics that were dampened and submerged in liquid cement. They filled the moulds then, which were spread out on top of plastic canvas, taking the shape of a vase (Figure 3).

This was a Social Environmental Education initiative in which drew the university closer to the association of recycled material collectors and pickers, both essential institutions for the sustainability of our planet. The collectors, while they are working on the collecting and picking of the recyclable materials, are regular citizens that live and protect the environment through their work and have a very broad idea of how important their work and those materials are to the environment.

The reuse of wasted materials expresses a meaningful contribution in order to achieve the goal of the sustainable development of our planet. The vases will occupy very little room in households or work environments, they can decorate the environment and are definitely ornament objects. They can be made of different heights, geometric shapes and sizes.

The spread and sharing of knowledge can turn a recyclable material sorting space into workshops of leisure and art. ANCRESMAT is established in a neighbourhood where people live and work using recyclable materials. It is situated in an area where it is part of a preservation site, with reminiscent vegetation of the Atlantic forest.

Some inhabitants from the area came to attend the workshop and felt immediately familiar with the space where they have lived for more than 25 years. Many stories were told by the people around the vases, one of which how the space originally looked like, in the past, when very few people lived in the area, thus showing the feeling of belonging the people felt for the space.

## **7 Final considerations**

Recycling main attribute is the reuse of waste, that is, this is an activity in which materials that are considered to be garbage or materials placed in a garbage bin are then sorted and processed in order to obtain their raw material to manufacture whole new products.

Processed materials obtained at recycling enterprises have a higher cost than the original raw material, giving logistics the main job to economically analyse the shipping and storage of such products, resulting on the decrease of environmental harm.

Logistics helps to establish the waste flow, resources and discarded goods, whether it is for the end of its lifecycle or for its reuse, be it in or out of its original manufacturing chain, then helping minimise the environmental impacts. Therefore, the logistics system is a corporate tool that aims to provide the technique on how to do it properly, providing the incentive of sustainability for the manufacturing chain.

The immersion on this investigative action needs the help of a set of techniques that can make course training sessions possible, such as workshop agents, physical spaces, chat sessions, food, engagement and others. The training workshop methodology proved to be a successful way to observe and interact with the recyclable material collectors' lives. It provided us with a systemic view of the individual and group relation that, in addition to previous knowledge of the participants, manufactured another type of craft with other recyclable materials, for instance.

Through the workshop sessions, the main objective is a challenge to all attendees. It is necessary to eliminate the idea that wastes generated by people are useless, unusable, and

impossible to be recovered. We could show that waste is not the end, but the rebirth of other opportunities, an attitude that we should all urgently uphold and stand for.

The workshops were able to create an atmosphere of connections between people's emotional lives and the stories they told. Participants expressed their feelings, memories, situations they remembered from past experiences that brought them all together and the feeling of belonging to the place finally arose.

The workshops caused, provoked and awakened a lot of exchange of knowledge and experience. Participants were able to make choices, chat and they felt as the main agents on the action of turning waste into products that can have their lifecycle extended. However, there is much of that to be done still in regards of sustainable local development. We understand the real need of amplifying the reach of ideas such as these, especially towards the care and attention to those involved, in this case the waste collectors and pickers, since they are the main agents in the development of an inclusive and sustainable system, through their work, as well as their feeling of belonging and opportunity to excel.

Therefore, we understand local schools' role as they contribute with the spreading of the idea that trash can be reused, by establishing the selective collect, especially because schools hold the largest volume of waste, such as: paper and disposable packaging. Schools must get students to engage in the environment initiative, bringing awareness around this subject through creative activities so that students can get involved in the matter by making banners, taking part on theatre plays, trash recycling workshops, among other initiatives. Environmental Education can be inserted in schools' programs, in order to get students talking about it, so that they can raise awareness on this important issue through waste recycling and their reuse.

From this point on, we understand the schools' role as they cooperate in the awareness of population against inadequate disposal of waste. The school is essential in behavioural change and must act towards mobilising students in favour of the environment, through activities and learning the adequate separation of waste and residues before discarding, and even through creative initiatives of reusing urban waste. This can be done via creative workshops for waste recycling and reuse, putting up educational banners, theatre plays, amongst other possibilities. The implementation of Environmental Education can be done within schools, looking to increase the awareness of their role in the environment, through consumption and waste management awareness, as well as recycling and reuse of materials.

The public policies for the recyclable waste collectors must take into consideration the guarantee of their working conditions and a dignified living standard for these workers. After all, these men and women are the responsible for the mitigation of pressure on those natural resource materials, since they are the ones who keep those materials from becoming useless trash, providing raw materials to the manufacturing business, which in turn decreases waste of materials and energy.

Following that analysis, it is necessary to pass other different policies for the recyclable material collectors, in conjunction with the Solid Waste National Policy Department, with special attention in regards of education, so that these men and women can have their rights assured.

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