



Sustainable consumption and social innovation

**The Carouge Zéro Déchet initiative as a
social innovation in
sustainable consumption**

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Table of content

1. Introduction_____	3
2. Literature review_____	4
3. Conceptual framework and methodology_____	7
4. Analysis of the Carouge Zéro Déchet social innovating practice__	10
5. Conclusion_____	16
6. Bibliography_____	18

1. Introduction

In the past decades, the world has seen a drastic change from low-density, rural living standards to high-density urban spaces (Song et al., 2015). Especially in developed countries, the rapid urbanisation allied with the high-living standards have dramatically increased the generation of waste. It is estimated that the global solid waste volume stands around 11 billion tons per year, which creates tremendous pressure on the environment as well as additional costs for treatment (Song et al., 2015). Besides that, the increase in consumption levels has also created a high-demand for natural resources, which have been used and extracted irresponsibly, without accounting for the finite of it. The production systems are therefore operating in an unsustainable cycle: extracting natural resources to produce increasingly more goods, which are then disposed faster – due to the high demand for new products and the planned obsolescence – generating increasingly more waste.

In addition, much of the disposed waste contains certain materials and substances that cannot - or can very slowly - be decomposed by the environment, therefore posing a threat to the very system that produces it: by polluting water, air and soil, sometimes with toxic substances, how can humanity produce - or even survive?

Moreover, with finite natural resources, it is more than urgent the necessity of reusing to its maximum capacity every resource extracted. Instead of becoming waste, products and goods should be transformed and reused.

As a way to address the urgent need for a more holistic and sustainable waste management system, the idea of Zero Waste emerged. In that concept, materials and resources are used until the optimum level of consumption, in a similar way as resources are reused in nature. If reuse or repair is not possible, materials can be recycled serving as inputs, therefore suppressing the need for extraction of natural resources (Song et al., 2015). The idea is that nothing is sent to landfills or incinerators, constituting then a circular material system. Moreover, the Zero Waste philosophy encourages not only a responsible consumption but questions the very consumption itself: if materials can be reused to its optimum level and recycled, the necessity of buying new products loses ground. The philosophy aims to go beyond the overspread 3 R's (Reduce, Reuse, Recycle), promoting a much more sustainable way of dealing with inputs and resources. Through the implementation of the 5 R's (Refuse, Reduce, Reuse, Recycle, Rot)¹ (Johnson, 2019), Zero Waste also puts into question the overproduction, overconsumption, the single-use of mate-

¹ Béa Johnson relates that through the implementation of the 5 R's - and only in that order, according to her - her family was able to reduce its annual trash to a single jar since 2008.

rials and others unsustainable trends, now part of the current habits. Therefore, this concept not only reformulates the waste management system but also encourages a new mentality towards the production system.

In the present report, the initiative “Carouge Zéro Déchet” will be explored as a social innovation, which aims to reduce the incinerated waste² produced by the municipality of Carouge, Geneva by a rate of 30% in the period of three years, applying the concept and philosophy of the Zero Waste movement.

2. Literature review

The Zero Waste philosophy has transcended through a movement, the Zero Waste movement: an initiative followed by several cities, communities and organizations throughout the world that intend to reduce the amount of waste generated. The concept was coined by Paul Palmer in 1970 (Zaman, 2015), and has been used at convenience ever since.

The movement acquired significance a couple of decades ago, and it was until the late nineties that relevant literature emerged. The movement was greatly associated with cities, for the emerging cases that set a goal for sending less waste to landfills, as well as for the city's role of managing waste. This is why a considerable proportion of the existing literature focuses on policy-related aspects. However, a great deal of the movement's success is thanks to organizations of the civil society, as they take active role in raising awareness among the citizenship as well as the policy makers on the need to decrease the generation of waste. In the later aspect, little studies have emerged, for which it is found compelling to broadening the discussion about the role of the civil society in the Zero Waste movement by addressing the

² There are four types of waste incinerated in Geneva (Service de géologie, sols et déchets, 2017):

1. Urban waste (produced by neighborhood of Carouge, also called household waste, which is the one Carouge Zéro Déchet tackles) = 70.6%
2. Construction waste = 11.5%
3. Industrial waste = 9.3%
4. Sewage sludge (mud) = 8.6%

case of “Carouge Zéro Déchet” in Geneva, Switzerland. For that matter, a brief context of the existing literature in the matter will be described.

To get an overall context on this, “A comprehensive review of the development of zero waste management: lessons learned and guidelines” by Atiq Uz Zaman (2015), was used for a starting point, as Zaman exposes the typology, scope, geographical location and key research aspects of existing Zero Waste literature since 1997 until 2015. Subsequently, more recent articles were consulted (from 2015 to 2018) to build on Zaman’s guidelines. It must be noted that in the last couple of years, considerable literature has been added to the subject. This does not mean however, that the field is fertile, still having wide aspects undiscussed and undiscovered, highlighting the need to build on the discussion of social practices that shape and determine the success (or failure) of a social initiative of this nature.

According to Zaman (2015), the majority of articles, reports and conference proceedings consulted, tackle mostly policy-related aspects, from regulatory policy to waste management and Zero Waste treatment. Zero Waste studies address several cycle processes, from extraction of resources to evaluation of waste management performance. However, they vary in

scope, extent and significance. The same remains constant in other revised articles (see bibliography), with an increment in number of articles addressing evaluation tools³. Little literature however, was found on a social practice perspective and to what extent it is relevant to the Zero Waste movement.

A considerable proportion of consulted literature departs from a given case study, a lot of times building on well-known cases, like Adelaide, San Francisco and Stockholm Zero Waste city programmes (Zaman, 2015; Taherzadeh et al. 2016) . Though Switzerland is mentioned in several studies, there were few articles found that specifically focused on a city in Switzerland (one article found about Zurich), less itself on Carouge in the canton of Geneva. As Carouge Zéro Déchet takes place in this municipality, it is aimed to contribute to the discussion about the Zero Waste movement in Switzerland and in particular in the municipality of Carouge.

From analysing Zaman’s article, more recent literature (Song et al., 2015; Gomes, Ghesla et al., 2018; Taherzade and Richards, 2016) and other researches about the Zero Waste movement in general; it can be concluded that despite the fact that Zero Waste has been introduced and has been in practice for the last few decades, the concept is yet in development. The

³ As contrary to a remark made by Zaman (p.16) who noted a lack of studies addressing evaluation tools.

concept is used and practiced in the various resource extraction, production and waste management fields (Zaman, 2015). However, multidisciplinary researches have used the concepts and its terminology according to each scope, having not yet come to a unified or single notion of Zero Waste.

Previous studies showed that sustainable consumption and behaviour patterns which lead to waste reduction are seldom socially oriented and exposed to peer pressure, and is thus dependent on individual attitudes (Cecere et al., 2014). Social practices is thus a fundamental approach to build on for better apprehending the Zero Waste targets, as social interaction can determine the change of habits of a given individual, group or community. Further on, the last statement will be analysed, by framing the shift of paradigms of consumer behaviour in the social practice perspective.

Currently, the cities that have developed Zero Waste goals, usually target Zero Waste landfills. Studies on how to transform existing systems into Zero Waste systems are very important, as a diversion of 100% from the landfills is not possible, even with the Zero Waste strategies taken place. Many lessons from these studies are to be learned from key stakeholders, namely scholars, policy makers, activists and the citizenship. A limited number of studies, however, address existing over-consumption trends, trends, barriers, and the needs

for sustainable behaviour to achieve Zero Waste objectives. This highlights the need for further the discussion on social changes, particularly in practices, which will be henceforth addressed.

Recognizing that social practices are deeply embedded in every community, group and in each of their member's daily lives, it is to be analysed in what way Carouge Zero Dechet (referenced as CZD further on) is influencing the Carouge inhabitants' practices and what could be taken into consideration for incrementally influencing the inhabitants' behaviour. Therefore, the present report will address the following research question: "To what extent does Carouge Zero Déchet intervene in the social practices of the Carouge inhabitants?".

Acknowledging that the Zero Waste movement is a relatively recent movement, and thus there is still a large discussion to debate on, it is aimed to contribute to a further discussion in social practices within this social innovation initiative.

3. Conceptual framework and methodology

The research question will be addressed by using the social practice theory. This forms a useful conceptual framework because it enables us to understand the different elements that play in the social innovation of CZD and to investigate how it attempts to convince the residents to integrate Zero Waste practices in their everyday lives. Firstly, the diverse practice theories will be explained and afterwards it will be elaborated on the research methods and the incorporation of the theory in it (Warde, 2014).

The theory is often used to examine sustainable consumption (see i.a. Sahakian & Bertho, 2018; Sahakian & Wilhite, 2014). Research on consumption is heavily influenced by the 'cultural turn' which moved the concepts of culture, symbols and meaning into the centre of many social studies after the 1970s. According to Warde (2014) theories of practice provide an alternative approach by contesting the focus on 'the expressive individual' (Warde, 2014, p. 282), while Reckwitz (2002) does not comply with this practice turn and places social practice theory still in cultural theories because it explains actions by using collective symbolic and cognitive structures. These structures enable people to interpret and give meaning to reality on the basis of shared knowledge and to behave in a corresponding way. Social practices could

appear as a tautology since practices are social. However, within cultural theories, it is an important fact because here social practice theory has to be separated from culturalist mentalism, textualism and inter-subjectivism, as it places the social in practices and not in the human mind, discourse or interaction.

Practice can be defined as "a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge" (Reckwitz, 2002, p. 249). The most important aspect here is that all the elements are interconnected and it is thus impossible to reduce the existence of the practice to only one of them. Moreover, it is rather a pattern, so it can be accomplished in different actual acts by individuals who are also the carriers of different, but not necessarily coherent, practices (Reckwitz, 2002, p. 250).

The theory originates in the work of social theorists such as Bourdieu (1979). In "La distinction critique sociale du jugement", he uses the concept 'habitus'. The habitus is a set of internalized dispositions that shapes what people think and how they act. Their practices are thus structured by the 'habitus' since they want to act according to their dispositions. However, these dispo-

sitions are in fact the internalized social structures around these practices: the 'habitus' is thus, in a way, also structured by practices. Hence, people often act rather predictable, i.e. conventional. As Reckwitz (2002) already cited in his definition, (a lot of) practices are actually habits or routines. Social practice theorists give this as a central role in consumers behaviour, in contrast with individual choice models which emphasize rational decision-making (Warde, 2014). In the routine process of practices lies the tendency to reproduce it without much reflection or conscious awareness, but it has also the capacity to innovate (Warde, 2005).

To achieve sustainable consumption, it is thus necessary to change this routine behaviour. To be able to do so, it is important to take into account all the aspects of this practice (Sahakian & Wilhite, 2014). Shove and Pantzar (2005) use materials, meanings and forms of competence as the three main elements to investigate the practice of Nordic Walking. For them, the material aspect is essential, while Warde (2014, p. 294) states that viewing "equipment as facilitating habits and procedures might be less contentious". He argues that social practice theorists should pay more attention to the creation of norms, standards and institutions, as they lie behind the normalisation of practices (Warde, 2014).

In their research on food consumption in

Switzerland, Godin and Sahakian (2018) focus more on the socially constructed guidelines or prescriptions around this topic. In other research, Sahakian and Bertho (2018) study the emotional dimension of the social practice model with the concept of 'teleoaffective structures' of Schatzki (1996). He elaborates on his theory of practices in his book "Social Practices: A Wittgensteinian Approach to Human Activity and the Social" and describes it as a nexus of actions consisting of both doings and sayings, which are organized by practical understandings, rules, and 'teleoaffective structures'. He explains these structures as "a range of normativized and hierarchically ordered ends, projects, and tasks, to varying degrees allied with normativized emotions and even moods" (Schatzki, 2002, p. 80). They are features of a practice that enables it to be socially shared and one of these features are emotions. Sahakian and Bertho (2018) found that they can be a strong stimulus for change.

In the case of CZD, the association tries to diminish the waste of Carouge by encouraging more sustainable consumption, among others. The individual is not approached as a central actor but instead, explore waste management as a social practice and investigate in which pillars this organisation intervenes to change the practice. The more the habit is incorporated into these pillars, the more difficult it is to change it (Sahakian & Wilhite, 2014). In our research, the

conceptual framework will consist of three dimensions. The first one is the sociocultural dimension which includes social norms, rules and policies that produce shared understanding and expectations on what are 'good' practices (Sahakian & Bertho, 2018; Warde, 2014). Secondly, the material dimension contains all objects and infrastructures that facilitate (or even define) social practices (Shove & Pantzar, 2005). The teleoaffective structures are the third dimension, which are used in the present report in a broad sense, referring to competencies, beliefs and emotions, therefore encompassing the knowledge, the skills, the emotions and the beliefs that are needed for or linked with the practice (Sahakian, 2018; Schatzki, 1996).

To answer the research question, a qualitative research will be conducted. The intention is to carry out a case study as in "an in-depth study of a single unit (a relatively bounded phenomenon) where the scholar's aim is to elucidate features of a larger class of similar phenomena" (Gerring, 2004, p. 341) and this by searching for covariation, for instance, within this unit over time or between different units. However, considering the limited time frame, the focus will be in one case, namely "Carouge Zéro Déchet" (2019b), trying to draw lessons from this Zero Waste project to other waste management innovations. To examine this case, primary sources, as their website, are used. Isabelle Vetterli, one of

the authors of the present report, is also the project manager and has thus access to further (internal) information. Working with an internal source has its benefits but also its dangers, hence, throughout the report, it was fully taken into consideration the importance of maintaining a critical attitude. Other sources that are used include news media and the canton territory department. Numerical data were extracted from Eurostat.

4. Analysis of the Carouge Zéro Déchet social innovating practice

As mentioned before in the report, CZD project aims at reducing by 30% the amount of waste sent to incineration. Carouge, as a municipality with more than 22'000 citizens (Ville de Carouge, 2019), is a pioneer city willing to implement new social norms in order to change people's behaviour towards their waste generation and their recycling habits. In the following paragraphs, the actions of CZD referring to the conceptual framework chosen - the social practices approach, will be described and analysed. The analysis will engage with the three dimensions mentioned in the previous section - the sociocultural, teleoffective and material dimensions. Quoting Sahakian and Wilhite (2014), "a change in any of these three pillars can shift a habit and indeed influence our overall dispositions". By linking the CZD initiative with a social practices analysis, bearing in mind the aforementioned quote, the authors hope to answer the research question of the present report: "to what extent does Carouge Zéro Déchet intervene in the social practices of the Carouge inhabitants?".

As previously mentioned, the **sociocultural dimension** defines the regulations or prescriptions, social norms and conventions that pushes or hinders people to act in a way or another (Sahakian & Bertho, 2018; Warde, 2014). Although CZD does

not directly engage and focus on governmental regulations and norms, the municipality of Carouge in Geneva follows the ensuing regulations:

Since 1990, taxes on plastic bags have been implemented by many Swiss municipalities and awareness campaigns on segregation have helped to increase recycling of paper, glass, plastic bottles, aluminium, organic, battery, electronics, etc. (Wong Sak Hoi, 2016). This habit is widely implemented and has become a norm. The mentioned prescription greatly helps to decrease the incinerated waste and puts Switzerland as one of the top best recyclers in the world (Wong Sak Hoi, 2016). However, the country is also one of the top 3 European biggest waste producers with about 730 kg per inhabitant per year (Eurostat, 2016) due to its prosperity and purchasing power (Radio Télévision Suisse, 2016).

Regulations and strategies vary according to different cantons and Geneva remains the last Swiss canton without taxes on waste bags (Touré, 2018). Consequently, there is not any direct monetary incentive for household to decrease their waste. However, with a recycling rate of 47% - compared to the national threshold of 50% - Geneva has found a strategy. Indeed, since 1999, the waste management political agenda is to decrease the incinerated waste through sensitizing campaigns and using annual taxes to cover waste mana-

gement expenses (installation and maintenance of recycling points, door-to-door pick-up truck, incineration cost, etc.). In order to keep on decreasing the incinerated waste and prevent the canton to be subject to tax on the plastic bags, the canton launched in 2016 a wide distribution to every households of the “P’tite Poubelle Verte” (Cour des comptes, 2018). The measure facilitated and increased the segregation of organic waste, representing one third of the incinerated waste (La P’tite Poubelle Verte, 2018).

Proceeding to another dimension, the **teleoaffective structures** are competencies, know-how, beliefs and emotions which influence people reactions to their behavior (Sahakian, 2018; Schatzki 1996). CZD does an extensive work engaging with the teleoaffective structures. Some of the actions regarding this work are described below.

One of the strongest beliefs that CZD tries to change is the one in which recycling solves it all. Indeed, it is commonly considered that, if people segregate their waste, they are already doing their part for the environment. However, as mentioned in the beginning of the report, the Zero Waste concept brings the waste perception beyond recycling. The point is to decrease the waste production at its source in order to reduce the energy needed in its processing: segregation, transportation, water, electricity,

etc. As a consequence of this belief, people do not put in question their consumption habits and tend to throw the stone to the others who should better recycle.

Another challenge is to change the perception of valorisation. Valorisation means that, when the waste is burnt, the heat produced is turned into electricity. However, the residual “dust”, called clinker, from the incineration remains. The clinker is composed of heavy metals harmful to the environment, therefore needing to be stored in stable and damp-proof geological areas in a way to prevent leakages to the soil and groundwaters. In Geneva, by 2020 the landfill will reach its maximum capacity and in 2017, 46% of the Geneva clinker had to be sent to Bern and Vaud landfills (Service de géologie, sols et déchets, 2017). Nevertheless, most people strongly believe that burning waste creates electricity and heat, which in turn contributes to the belief that change in behavior is unnecessary and recycling is enough.

In a way to engage with those beliefs and reshape them, CZD brings awareness through workshops, meetings and conferences, exposing the failures in the present system and showing why it is extremely necessary to go beyond the recycling culture (those actions are explained in more detail on the next section).

Besides, the very first challenge CZD

tackles is teaching people on how to buy bulk products while trying to change their feelings of being embarrassed and marginalized on doing so. The above mentioned conferences spread existing information and helps the audience to locate the existing tangible tools (containers, textile bags, etc.) by providing a list of facilities where they can be found and bought. The next step is then fulfilled by the coaching: accompanying people with their tools by showing them pragmatically how to do it and what to say to the shopkeeper in order to get its croissant directly served in the textile bag instead of the paper bag, for instance. The coaching goes beyond telling: it shows and experiments the changes together.

To foster and encourage people to buy with less packaging, Carouge Zéro Déchet distributed to shops and restaurants a sticker to be placed on their front door to inform their clients that they are welcomed to bring their own containers (see Figure 1). The strategy is extremely useful and effective since many people have shown their intentions to come with their own container but expressed discomfort or shyness when doing so: they face the barriers of going against social norms. Indeed, as it is not common to ask for having their cheese or meat directly put in their own container, the sticker shows that it is accepted and recognised as a good social practice even though not everyone does it. The actions described above work not only on changing the consumers' perceptions and feelings,

but also on providing the necessary tools for making that change - therefore, they are actions that effectively and extensively engage with the teleoaffective and material dimensions.

Figure 1 Sticker displayed on shops' front door



Source: Zero Waste Switzerland (2018).

Finally, barriers such as (1) cost, (2) time consuming, effort and (3) resignation are beliefs and emotions hindering the change of habits. One very important point to consider is that, when buying in bulk from independent shops, the cost of groceries increases. Even though consumers are sensitive to sustainable consumption, many evoke their price sensitive and choose the cheapest over the social and environmental sustainable products: a gap between expectations and perceptions for sustainable products, the so-called value-action gap (Biswas, 2017).

Most importantly, bulk stores are not on

people's way home and do not offer all the necessities at one single location - thus, it is time consuming and an inconvenience hard to overcome. Therefore, , given the limitations CZD faces concerning those challenges, the engagement with big supermarkets, such as Migros and Coop, presents as essential when trying to address those three barriers - hence, recommendations are given in the conclusion part of the report.

Some believe it is anyway too late to undertake any actions to prevent the planet from becoming hostile to human beings. Consequently, they are resigned and do not invest effort in changing their habits and to get out of their comfort zone (observations made by the CZD team based on participants' feedback to the events organized in 2018 by CZD).

As mentioned before, the **material dimension** englobes the infrastructures, tools and objects that facilitate the behavioural practices (Shove & Pantzar, 2005).

In Carouge, two main systems of provision already exist to decrease the incinerated waste. The first one is the "Eco-Point": various recuperation locations are installed to collect the segregated waste. Secondly, the municipality makes rounds in the city to collect door-to-door the organic but also the incinerated waste (Ville de Carouge, 2018). These infrastructures are used based on the citizens' goodwill. In other words, there are not any monetary incentives to segre-

gate. The reasons why people are bringing their waste to the "Eco-Point" is that they have been sensitized and taught that their waste, if segregated, can be reused.

In the case of the pilot project, multiple elements related to the material dimension have been put in place to facilitate the change in behaviour and teach people how to decrease their waste production. These elements are: 2-hour workshops, café-demonstrations, conferences from celebrities and experts, and a family coaching program (Carouge Zéro Déchet, 2019a).

1. Workshops are given to a maximum of 60 participants on the topics of food & drinks and hygiene, cleaning, beauty. They consist of two main parts: (1) a raise of awareness of the quantity of waste produced in Switzerland and in Carouge, its impact on our planet, society and health and the showcase of examples to prove that it is possible to achieve a decrease of up to 30%; (2) An exhibition of the various existing materials used to replace single-use materials. Participants discover, for instance, how to substitute cellophane with bee wraps (a piece of fabric imbued with beeswax and used to wrap sandwiches, cheese and cover bowls without lid). The exhibition is done by groups of four to five people and is facilitated by a member of the association Zero Waste in order to present, answer questions

and foster knowledge exchange among the participants.

The first part mainly engages with the “teleoaffective dimension” while the second showcases practical materials to facilitate the change in behaviour - therefore engaging with the “material dimension”.

2. The café-demonstration are informal meetings held every month in a café in Carouge without registration needed. The concept of the meeting is showcase how to do a product by yourself. It is not only an opportunity for the small craftsmen-women to explain how they do a product and to sell them, but also a way for the citizens to see and learn how easy it is to produce daily used products by themselves.

The café-demonstrations foster the sense of community and belonging in the initiative, engaging with the participants feelings, while also providing them with tools for the change in behaviour.

3. Conferences are organized to inspire and inform citizens on new knowledge. It is a way to keep the population well-informed about the impact of their consumption. The conferences can be either given by a celebrity in the Zero Waste domain or by an expert. For instance, in the celebrity conference, Jérémie Pichon, the author of

“La Famille Presque Zéro Déchet” is invited. The author does conferences to raise awareness and practically explains how his family of four managed to reach the generation of only a jar of incinerated waste in a year. To further teach people on how to adopt Zero Waste habits and bring home what he explained to the audience, he sells his two books for adults and children. The second type of conference is expert based: scientists or professors come to scientifically explain how consumption has today a noticeable impact on the surroundings and on the natural environment. This type of conferences favours interactions and the expert offers the service to analyse the participants’ products. Indeed, in the registration process to the conference, participants are invited to bring in the products they use daily, so that the expert make an analysis and inform the audience on the dangerousness of the (miss)use of such products.

At the same time the raise of awareness acts on the “teleoaffective dimension”, the sold books are tools that can be used to foster a change in behaviours - therefore also engaging with the “material dimension”.

4. The one-to-one coaching programme is an initiative put in place to offer households, shops, restaurants, the

public administration, private companies, schools and associations to receive one-to-one assistance on how to decrease waste production. The households represent the main and first target in the pilot project, as the Zero Waste association believes that change relies in consumers' behaviour. Once this step is accomplished, the other 6 actors will receive coaching. The first step in the strategy is to change individual behaviour with a family coaching programme which has the aim to train family members for 6 months to change their habits with the objective of decreasing at least 30% of their waste generation. To do so, various material elements are implemented with the help of a coach and partially financed by the municipality:

- an individual coach (volunteers who are members of the association and had personally already decreased by 30% their own waste) is assigned to each family;
- a starting kit composed of the main tools (cotton bags, vinegar, hard soap, luffa sponge (a vegetal sponge), baking soda, etc.) (see Figure 2);
- an action guide with new changes to adopt step-by-step;
- the follow up of their weekly waste weight on an excel sheet
- three main meetings (beginning, mid-term and ending) to gather the participants around a networking evening to

share their progress and experience;

- a WhatsApp and Facebook group where they can simply and quickly share best practices and hints and finally
- one-off events such as the visit of alternative shops where bulk products can be bought, visit of the incineration factory, “Les Cheneviers”, to see the life-cycle of waste and the amount the canton of Geneva produces and finally DIY activities based on the time of the year (for instance how to wrap gifts without paper at Christmas time).

Once again, CZD extensively engages with the “material dimension” while also promoting the sense of community, bringing different actors and tools together towards

Figure 2 Starting kit to Zero Waste practices



Source: picture by Vetterli, I. (October, 2018).

the goal of reducing waste. The perception and the feeling of the participants are influenced, as the act of reshaping the current behaviours gains different and stronger meanings - all encompassed by the “teleoaffective dimension”.

5. A communication campaign was created to showcase and facilitate habit changes, also aiming at inspiring people who are not yet sensitized to the concept. To do so, CZD capitalizes on the existing public signage, having also created a signage on the garbage truck. In addition, the initiative has a website tailored to Carouge, in which can be found a list of events, products, shops and action guides. Besides, CZD is active on social media (Facebook and Instagram) and regularly composes articles in the municipality newspaper (“Vivre Carouge”), which is sent out to all households and companies in the municipality. The strategy is to inform everyone that a change is undergo and to normalise the concept of Zero Waste by having a positive and inspiring speech.

5. Conclusion

Drawing back to the research question “to what extent does Carouge Zéro Déchet intervene in the social practices of the Carouge inhabitants?”, after the literature review on social practices and the in-depth analysis of the chosen social innovation, it is possible to clearly see that CZD does an extensive work on the “material” and “teleoaffective” dimensions. According to Sahakian and Wilhite (2014), a change in more than one dimension is enough to foster a discussion of the habits, likely leading to its dissolution, therefore leading to the conclusion that CZD effectively intervenes in the practices of its participants. However, it is extremely important to notice the relevance of integrating the private sector - mainly Migros, Coop, Lidl, etc. - on the initiative, instead of focusing solely on consumers’ behaviour. The authors, therefore, deeply recommend that CZD incorporates to the initiative a front to deal with engaging and pressing such big corporatives. A high level of awareness on the consumers’ side can rapidly lose its ground if the main purchasing sources insist on the unnecessary use of plastics and packagings - specially singel-use and non-recyclable ones - leaving consumers without much choice. Here, an effective policy would involve a government tax or a ban on wasteful, environmentally damaging and unnecessary packaging. For that, CZD needs to proceed with an engagement on the governance level - which would allow the initiative to also

perform on the “sociocultural dimension”, pressuring for policy changes.

Besides, as part of proposed recommendations, CZD could also perform a central role if engaging with social initiatives that promote and investigate new forms of packaging - given that elimination of all packages are not realistic for a near future. Those initiatives could focus on how to design packaging and products that uses few resources and are easy to recycle or upcycle⁴ when they are not useful anymore. Aligning the philosophy of Zero Waste while also providing alternatives to the most necessary packaging could be an approach extremely effective when engaging with government and big corporations. In that way, CZD would create pressure while also giving realistic and sustainable alternatives. The authors found the work of CZD extremely efficient when raising awareness and promoting/presenting alternatives, extensively engaging and reshaping the “teleo-affective” and “material” dimensions on the consumers’ side. However, as mentioned before, some of the alternatives concerning the “material dimension” are not well spreaded through Geneva city and/or have an increased cost on products, which can hinder the change on behaviours. As a solution, the alternatives above-mentioned could also fill the so mentioned gap.

To conclude, after the extensive analysis, the Zero Waste concept is indeed a holistic approach to waste management from the sustainable consumption perspective, as also mentioned in by Song et al. (2015). It includes eating healthier, diminishing the use of resources, decreasing the air, the soil and the water pollution, increasing social interactions, adopting a minimalism routine by detaching oneself to materials and asking oneself “do I really need it?”. In other words, it favours a non-materialistic economy by buying less but better, and the increase of human interactions rather than possession-based economy. Once people can see, understand and accept all the unsustainable links in the system in which the society evolves; understand what good quality products englobe and why they are more expensive; understand the interlinkages between supporting local producers to decrease unemployment and secure citizens’ revenue, the world might start to reach a sustainable consumption. Of course, this change in paradigm must englobe society as a whole - not leaving all the responsibility on the consumers’ shoulders.

⁴ Upcycle is to recycle (something) in such a way that the resulting product is of a higher value than the original item : to create an object of greater value from (a discarded object of lesser value). (Merriam Webster Dictionary, 2018)

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