

DESIGN IN THE CONTEXT OF SUSTAINABLE CONSUMPTION AND PRODUCTION MATERIALS AND ENVIRONMENTAL LABELLING

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Since the 1999 international declaration on cleaner production, the world-wide community acknowledges that necessary measures to protect the environment must include better production practices and sustainable consumption (UNEP, 1999).

On the Earth Summit 2002, the Jonesburg implementation project established actions to promote the 10 Years Framework of Programmes on Sustainable Consumption and Production (10YFP), which has aimed to change the way society produces and consumes. The concept of sustainable consumption and production (SCP) (Figure 1) is defined as the usage of services and products which answer the basic needs and bring a better life quality, reducing the usage of natural resources and toxic materials, as well as the issuing of polluting and wastes over the product or services lifespan, so that not to commit the future generations' needs (UNEP, 2012).

Figure 1 – Sustainable consumption and production



Source: UNEP (2010).

The first meeting fully dedicated to the 10YFP development was held in Morocco, during the June of 2003, which resulted in the Marrakech Process, when the necessities and the regional priorities were identified, along with the Marrakech Task Force, aiming at the creation of a bond between the ones who felt interested, involving consumers, companies and the public sphere, focusing on (UNEP, 2011):

- a) cooperation with Africa;
- b) education for the sustainable consumption;
- c) sustainable life-styles;
- d) sustainable sightseeing development;
- e) sustainable buildings and civil constructions;
- f) sustainable products;
- g) sustainable public procurement.

The results of this work were presented at 19th Commission of Sustainable Development (CSD 19), which happened in New York, 2011, addressing many countries most advanced SCP experiences, and it has included methodological manuals for promoting the ideas.

More recently, the Summit on Sustainable Development, held in September 2015 in New York, defined the 17 Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development (Figure 2). This agenda also addresses the change in consumption and production patterns as the basis for economic and social development in SDG 12: ensuring sustainable production and consumption patterns (UN, 2015).

Figure 2 – 2030 Agenda



Source: UN (2015).

Through the Ministério do Meio Ambiente, Brazil releases its action Plan for Sustainable Production and Consumption (PSPC) in 2011, which has as purpose:

to foster policies, programs and sustainable consumption and production actions in the country, aiming to increase solutions for social environmental problems, along with the national policies, setting as target the elimination of misery, as well as the sustainable development and the international obligations which Brazil has taken, mainly with the Marrakech Process.

Therefore, it will also contribute to the production and consumption pattern changing, leading us to a low carbon economy, which can guarantee the sustainability of the human societies' harmonious coexistence with the Planet (BRAZIL, 2011, p. 11, our translation).

The Brazilian PSPC (<https://antigo.mma.gov.br/responsabilidade-socioambiental/producao-e-consumo-sustentavel/plano-nacional.html>) holds the following values:

- The sustainable development;
- The shared responsibility;
- The government leadership following the examples;
- The precaution;
- The prevention;
- The openness and society's participation;
- The cooperation;
- The environmental education.

Therefore, it is possible to highlight six PSPC's priorities which structure their actions (BRAZIL, 2011, p. 13):

Sustainable consumption education: To give birth and put in practice tools like researches, case studies, guides and manuals, aiming to sensitize and bring the consumer to bear for population behavior changing;

Sustainable public procurement: To boost the sustainable public procurement adoption in the public administration field, encouraging industries and companies to expand their product and sustainable services portfolio, leading them to the increase of activities which stands together with the low carbon or green economy;

Environmental agenda in public administration (EAPA): To consolidate the EAPA as reference for social environmental responsibility in the government (<http://a3p.mma.gov.br/>);

Solid waste recycling increase: To incentivize the recycling all around the country, either the consumer or the productive sector, promoting actions which walk along with the responsibility values, shared from the waste makers and the opposite logistic, as was previously established by the solid waste national policies (SWNP); and not to forget the importance of encouraging social inclusion in the recycling industry by inserting waste pickers;

Sustainable retail: To debate the retail sector view about the sustainable practices insertion in its operations and its role in the sustainable consumption promotion through actions which agree with the PSPC values;

Sustainable engineering: To induce the civil engineering sector to adopt practices that may increase the social environmental performance, since the project until the building itself, passing through insightful material selection and less harmful ways to the environment and human health.

In the context of the sustainable production and consumption, it is important to highlight that the environmental labelling has become one important too, as

its attribution allows the favorable assignment to environment, adopted during the products manufacturing, as well as better usages of the feedstock, the dangerous substances, the surface finishing and products building, likewise end-life strategies. This is clearly understood and applicable for the sustainable public procurement (UNOPS, 2009).

It is possible to see a demand increasing for quantified and qualified environmental information, based on scientific knowledge, which can be used as reference for the environmental performance of products and services. In this regard, environmental labels have become important tools for the sustainable public procurement (BIDERMAN et al., 2008; UNEP, 2011, 2012; UTTAM; ROOS, 2015; ZACKRISSON et al., 2008). They can be used as information to make the sustainable public hiring decision easier, for defining the specifications or, directly, as a requirement for the products (UNEP, 2012).

Biderman et al. (2008) state the requirement of environmental labels in the public bidding in some countries. However, it is still considered legal to specify that the product fulfils the standards set for a specific labelling system: “the environmental label can, thus, be used as a proof of the specification execution, nonetheless it may be possible to present another kind of execution about the standards fulfilling” (BIDERMAN et al., 2008, p. 64, our translation).

The Statute 9.178, published in October 23rd, 2017, disposes of standards fulfilling establishment, practices and guidelines for sustainable hiring made by the federal public administration, autarchic and foundational, and by the reliant state companies (BRAZIL, 2017, our translation). Sustainable standards and practices are defined in its 4th article:

I – low impact upon natural resources, like fauna, flora, air, soil and water;

II – preference for materials, technologies and local feedstock;

III – better efficiency in the natural resources as water and energy;

IV – larger job creation, preferably with local manufacturing;

V – longer useful life and lower maintenance cost of assets and work;

VI – usage of innovation, which aims to reduce the pressure upon the natural resources;

VII – natural resources sustainable roots used in assets, work and services;

VIII – usage of logging and nonlogging forest products, which come from sustainable forest management or reforestation.

The 8th article defines the “requirement proofs shown in public notice can be made through a certificate issued or acknowledged by one public or official

institution or through any way previously defined in the public notice itself” (BRAZIL, 2017, our translation).

From this perspective, sustainable labels aim to awaken and sensitize consumers and manufacturers about the comprehension over the sustainability of a product that receives the environmental labelling, the procedures of acquisition, use and waste of the natural resources in a permanent and balanced way and, finally, that they influence the behavior of consumers, manufacturers and public representatives.

CONSUMERS' PERCEPTION

The consumer's comprehension and environmental label adoption start to get important, although there is still lack of knowledge by the public side about the valuation and protocol parameters to the environmental labelling process.

The consumer behavior also contributes to the sustainable production and consumption, as far as the last user recognizes the product environmental quality.

For that matter, the environmental labels act as brands because they add value to their product, allowing a reliable interaction between consumers and companies. The brand is the graphic symbol that represents a company and its products, as an emotional value instrument for fast communication with the client. These brands show and represent emotional values to the client, who notices them, determining either the clients' behavior, approach and appropriation, or distance and denial. Yet, the client's behavior is a complex study field and it is reasoned by a huge theoretical basis (RESENDE, 2013).

Human perception is built by a couple of values and physiological, psychological and cultural factors, which give a notion about the environment that surrounds us. The stimulus coming from the outer world is organized according to each person's standard. This way, as far as our life experience increases, along with it, increases the perception over the world around us (PEREIRA et al., 2004).

So, the world around us can be considered a stimulus supplier, which induces an answer mechanism, structured by sensations (input), perception, process (cognition), action and result (output) (BONAPACE, 2000).

The perceptive process can be broken into two different parts: I) sensation, physiological mechanism by where the sensory organs register and share the external stimulus, and II) interpretation, which allows the organization and the giving of a meaning to these stimuli. The person has total responsibility over

the perceptive process. They do it in three different levels: a) selected attention or preperception, if there is the interest of this one person in acquiring that one product, they begin to easily realize all that is related to that one product; b) selected distortion, where the person realizes only the qualities of the object; c) selected retention, process in which information of desired objects is held in memory because of some other information (SERRANO, 2000).

By realizing the environment external stimulus, emotions are activated through chemical neuronal substances which dig into some specific brainly parts. The emotions are responsible for the perception changing, either behavioral or of thoughts parameter (NORMAN, 2008).

According to Norman (2008), the human behavior results of brainly structures made by three levels: the visceral level, which quickly judges; behavioral level, which refers to the action control; reflexive level, which is related to reasoning and comprehension, being linked to the contemplative brain area. All of the levels act simultaneously when the people who are looking for the product are in the choice process. To sum up, everything the person does has an affective and a cognitive component together (RESENDE, 2013).

The emotional branding (a marketing concept which refers to the value added to one's product/service) refers to the creation of a relationship between a brand and its consumers, adding values to the product thus far, established by the reliableness present in this relationship. The shopping made by essential needs, then, start to be made by one's desire, reaffirming positive shopping experiences. For that matter, those brands are directly linked to emotions, and these emotions are linked to human judgement, for being the result of emotional responses (RESENDE, 2013).

In this perspective, to Kotler et al. (2010), the consumer's behavior must be approached widely by understanding the cultural, social and psychological factors. Then, the so called "marketing 3.0" has been absorbing social and cultural values and the products start to have spiritual importance (philosophical experiences), aside from functional and emotional (RESENDE, 2013). In the 2000s, the marketing focuses on the differences and develop itself from concepts such as authenticity, co-creation and collaborative processes, as well as social and environmental responsibilities.

Thereof, the environmental labelling can be considered a marketing item, once it creates a new value for the product, in other words, refers to the products developed according to the environmental necessities and it differs from others. Consequently, the brand printed in the product can create bigger competition

and the companies may look for being different in the market. At the same time, shares with the consumers, basing their decisions, and contribute to the promotion of the government and companies' environmental actions (SILVA, 2014).

The European Union's concern for promoting the sustainability standards that are an important part of its Ecolabel can be clearly seen, and it can be noticed in its social media, leading the consumer to use the label and interact with the product acquired, but also with the labelling, which adds an even bigger value to this product. This virtual space allows the user to have their questions answered, share their satisfactions and dissatisfactions with the labelling system, and also to ludically learn about a product life-cycle evaluation process (RESENDE, 2013).

Notwithstanding, researches about decision taking by consumers show that themselves prefer to acquire products which have already been acquired. That is, they prefer what they are sure about, moved by a "satisfactory decision" (SIMON, 1965). Although that might be a cognitive shortcut, its disadvantage is that the consumer does not realize the variety of options which could be better (GOLEMAN, 2009).

This phenomenon is explained from the "cognitive inertia" concept, which is a cognitive version of the lesser effort phenomena (MEDINA, 2008). Goleman (2009) calls cognitive inertia the tendency of the human brain of searching the lesser effort of making a decision. According to Voltolini (2010), this concept explains why the consumers usually repeat their last shopping choice, for feeling safe and satisfied because the brand did not provide any negative experience.

To exemplify, researches that have been made by the nongovernmental organization Instituto Akatu (AKATU, 2018) show the panorama of Brazil's conscious consumption. In 2018, 1090 people from all around the country were interviewed, men and women of all social classes over 16 years old. The research evaluated 13 different behaviors, all of them related to the sustainability aspect in their routine. The first of them questioned: "carefully reads the label before buying any product".

For a matter of analysis, four levels of conscience were set (indifferent, beginners, engaged and conscious), from the behaviors and the declarations presented by themselves, which were "always adopt" or "have done" in the last six months. Comparing with previous researches (Figure 3), made in 2006, 2010 and 2012, there were decreasing of the conscious consumers segment (conscious and engaged), corresponding to 24% of the total in 2018. About the less conscious, there was an increase in the numbers of beginners comparing to 2010 and 2012,

being 38% of the total in 2018, while the rates of the indifferent kept stable, representing 38% of the total in 2018.

Figure 3 – Akatu research 2018: consumers conscience level



Source: Adapted from Akatu (2018).

In comparison to the less conscious consumers (beginners and indifferent – 76%), the more conscious consumers (conscious and engaged – 24%) are represented by an older and most female-centered group, which held better economic and educational qualification.

About the habit of reading labels, consumers who do it are placed in the segment of the engaged and present a group impact. However, there was a retreatment about this habit: in 2012 there were 69% of the consumers and in 2018 it turned down to 53%.

The research showed that Brazilians desire more the way of sustainability than the consumerism. Among the ten greatest desires, seven follows the way of sustainability, led by a healthy life focused on fresh and nutritive feeding.

Although 68% say they have already heard about sustainability, 61% of the interviewed do not know how to say what a “sustainable product” would be. Nevertheless, 39% of those who have any knowledge about what it would be, indicate that the main barrier for its consumption is the products price, followed by doubts about the quality (AKATU, 2018).

The cognitive inertia also shows that is here. According to the Instituto Akatu’s research (AKATU, 2018), to 60% of the interviewed, the bigger barrier for the conscious consumption is about the necessity of a specific kind of effort, in which are included: changing in the one and the family’s habits, cost, and requirement to obtain more information about the social and environmental questions, along with the difficulty of finding it in the market. In second place,

for 37% of the people, this barrier would be linked to distrust (in the government, the companies and in the communities). To the indifferent, handover pleasures and the costs are the major barrier. The beginners find it difficult to change habits and in the lack of confidence. The engaged miss more information. About the conscious, deployed and with major financial availability, the barriers are about questions like where to find, where to save and how to discard.

In conclusion, the research highlights the importance of emotional factors: “70% of the interviewed feel more motivated by the emotional factors” (AKATU, p. 46-47, our translation). The adoption of sustainable practices would bring benefits described as “emotional triggers”, all preferred over the “concrete triggers” (Figure 4).

Figure 4 – Akatu research 2018: trigger for the adoption of sustainable practices



Source: Akatu (2018).

These data show the behavior change in a society that has been paying attention and appreciating environmental aspects.

According with Ottman (2012), this phenomenon is set as tendency and has been widespread by influencers. Sustainability aspects linked to the manufacture and social respect have been taken in consideration by the people at the moment of the decision of buying. Besides that, new technologies have been allowing that those environmental actions adopted by companies cause lower impact over the cost and price of products. Thereof, the companies that adopted those actions notice their brand acquiring more value, putting in practice policies based in a “green marketing” (TAVARES, 2014).

A research developed by Gomes and Casagrande Junior (2017) walks along with this tendency. The study has shown that the companies are looking for-

ward to adapting themselves to this new demand for products less harmful to the environment.

The following chapters look forward to discuss the several aspects linked to this tendency. There will be discussed factors which are referred to the productive scenario related to the environment topics, which were based in the critics established so far, and that concern the changes linked to the necessities of re-thinking the linear way of traditional economy in the industry processes. Then, the concept of Circular Economy comes into play, which, even though it has its origins in past decades, it fits nowadays, in opposition to the “getting-using-wasting” model, and is characterized as a restorative and regenerating model, whose goal is to keep products, components and materials in their highest usefulness and value for an infinite period of time.

This discussion is also about the environmental labelling, its typology and public policies to putting it to work, as well as its importance to face inaccurate information, sometimes fake, which are presented by some companies, under the greenwashing. It is also discussed the effectiveness of the environmental labelling application, for instance, the acknowledgment by the general public about the Ecolabel of energy efficiency and the difficulties observed for adopting the environmental label by the companies.

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