

3R'S FROM CITIZENS POINT OF VIEW AND THEIR PROPOSAL FROM A CASE-STUDY

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The first step of the presented research activity, which took place in the Province of Trento during springtime 2011, was based on focus groups with citizens sensitive to the environmental issue and on interviews with no sensitive ones. The aim was to study a change of behaviors to implement concrete actions to reduce the quantity of the produced waste. The second step of the research that began in autumn 2011, was structured as a workshop with the aim of identifying possible actions for reducing the waste produced by the citizens. The final proposal, presented to the provincial administration and to the company in charge for the waste collection, was the construction of a permanent reuse center. This center could constitute the preliminary step before the material collection centers, where citizens can dispose of their recyclable waste. The paper presents results and reflections on the process of mutual learning, which involved participants and organizers of the workshop

Keywords: municipal solid waste, recycling, consumption, reduction, citizen behavior.

1. Introduction

The globalization and rapid industrial development of urban cities has conducted to notable modifications on air quality. Environmental and social questions have been raised on air pollution. Among them, the particulate matter

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(PM) may be the air pollutant that has the most commonly known environmental global effects. In the last two decades concerns on particulate matter concentration values in urban areas led to a number of researches on this type of pollutant [1,2,3,4,5]. According to Amato et al., [6] the atmospheric particulate matter (PM) is a complex mixture of components arising from a number of emission sources (anthropogenic, but also natural) and atmospheric processes (secondary PM) which have a variable diameter in the range 0.01 μm - 100 μm . The differences and amount of PM is mainly influenced by complex interactions of the source characteristics with the geography, season and short-term meteorology of the site.

The waste management and specially the waste production and reduction is today a subject on the carpet and the most discussed one at all levels. All the people want to contribute to the discussions and decisions [7,8,9,10,11]. The PM production from waste management and other sources and its health effect are subjects widely studied and discussed [12,13,14,15,16,17].

Before the industrial mass production, goods had different circulation. Their value was determined by possibility of use and for this reason they were constantly repaired and reused being also put again into circulation for new uses. Moreover production was not far from the trade of use; thus the competences to build/repair and put goods into circulation were available within a short distance, except for luxury goods and objects that claimed exclusive competences. Everything was related to territory.

Therefore waste was especially food waste and objects characterized by a relatively simple biodegradability, whereas non-biodegradable objects were reused one way or another.

One of the changes caused by the industrial mass production is that citizens in general buy (they do not produce) never checking the whole process; they do not exchange almost ever in horizontal relationship in which goods are at the center. Citizens are first of all consumers and thus they consume, in the etymological sense of the term, matter and energy [18].

The particular ways of production and circulation of goods [19] cause that citizens buy large consumer goods generating a big quantity of packaging waste: to buy one kg of bananas at the supermarket, for example, involves the purchase both of a polystyrene container and a plastic wrap. Moreover nowadays, citizens are provided with a set of apparatuses, such as phones, computers, air conditioners, which become a second nature [20]. Citizens appreciate their function, while they are active, but they are not able to know the productive processes, long and complex, or the required materials. In order to live the present as consumers, citizens got away from the concept of rural world and from the limitation of the native territory.

The production system is represented as a straight process [21] starting from resources to wastes, passing through industrial transformation and trade. Wastes

are the residues that are not useful anymore; they are things of the past and for this reason they remind what is finished, died. Wastes represent all that nobody wants to see anymore, and must be buried or must disappear from the view.

Today citizens have realized that wastes are complex, polluting the environment, and hard to be managed: for this reason *selective collection (SC)* has been invented/implemented. In this way it is possible to recover some materials and/or save/generate energy. Anyway SC does not achieve a perfect circularity of goods that not always can be recovered [22,23,24,25,26,27,28,29, 30,31,32].

SC is a kind of creative “problem solving”, which leaves the reality like it is. Production and distributive system adapt themselves, but they do not really change their structure. That allows the market keeping on working as before, driven by the fashion system, planned obsolescence, etc. At the same time there are not significant changes among consumers.

Taking into account all the above concepts, in this paper the methodology and the results of a research project aimed to answer to the following questions are presented:

- Can citizens make contribution to waste reduction, changing their own behaviors?
- Which are the conditions to do that?
- Are there significant behavior differences between citizens sensitive to the environmental issue and those not directly committed to associations and pressure groups?

The idea of the project started from the “Accademia d’Impresa” that is the Special Agency of Chamber of Commerce, Industry, Handicraft and Agriculture of Trento, Italy. In 2011 a qualitative research was carried out: “**More awareness and less waste. Citizens as agents of change**”, in order to compare trends, believes, customs of citizens who are active and sensitive to the environmental issue and the non active ones.

The Civil and Environmental Engineering Department of University of Trento, was involved by the attendance of a research collaborator at the committed citizens’ group, deciding with the researchers to give an international visibility to the project. To this concern it is also planned a critical analysis of the results in order to transfer the approach into a reality different from the Italian one, which is living a time of consumers’ growth cause of its entrance in the European Union. This is the case of Romania, EU member since the 1st of January 2007.

2. Research Project

The research presented in this paper is a qualitative one; the approach was chosen because it gives a large number of data regarding the behavior of the

citizens. Some reflections on the proposed methodology as a tool for creative involvement and activation of the citizens are also presented.

The research activity was divided in several phases:

- A phase of qualitative research carried out through focus groups where the main objective was to monitor the consumption habits of the citizens;
- A creative workshop aimed to structuring a proposal to the administrators (the company that manages the MSW collection in the city of Trento and Rovereto and the waste Department of the Province of Trento which has responsibility for the MSW management strategy);
- The proposal presentation to the institutional administrators.

The research focused on the connection with purchase and consumption. A sensitive citizens group was organized (citizens and environmental organizations); this group observed the relationship between the behavior of individual consumption and waste generation. The group had 15 citizens. Three diaries were used as a tool for self-observation. They were made ad hoc for each meeting, subsequently discussed, examined and shared. In each diary, waste generation pathways at home, buying behaviors and attitudes at work were marked.

Each diary had a 2 week lasting: in the first period the involved citizen marked the daily behavior, and in the second one notes on the advantages and difficulties were made. During the third period citizens had to monitor the waste production during the working day.

At the end of each period, observations were shared with the aim of identifying the constraints to change and further opportunities emerging from the comparison with other sensitive citizens.

The creative workshop following the research activity was aimed to build a project to be proposed to the administrators. The project took into account the constraints and the discoveries of the focus groups. It also contains guidelines extended to other projects and experiences. The workshop took place during 6 meetings, and involved citizens who had participated in the previous activity and who are self-selected on a voluntary basis.

The research project was built in order to verify the following hypotheses:

1. A group of citizens from associations and groups that have shown particular attention to the environmental sustainability, could give rise to mutual emulation, generating a process of influence towards others – even outside of those groups – in order to change significantly each other's behavior;
2. The citizens previously described could influence the behaviors of citizens without special environmental connotations;
3. Between citizens previously described and a control group composed of citizens without special environmental connotations, there is a different approach to the problem: systematic on the one hand, and type "problem solver" in the second case;

4. Between the two groups of citizens there are living practices and selection criteria significantly different.

Other aspects analyzed were:

- What promotes change;
- What promotes spread (changes in attitudes and in behaviors caused by direct and indirect influence) and what constrains the circulation between citizens;
- The role of competition and emulation as a key factor for learning and changing of attitudes even at social level, in the frame of waste management and reduction.

3. Results and discussions

3.1 Qualitative research

The relationship with products is basically an individual one and answers to the individual or to familiar needs. The purchasing process is individual, the others do not exist to build together a possibility. For example, not everybody knows SPGs (Solidarity Purchasing Groups) or other activities, which are focused on collective dimension.

In the first focus group the main views were: "I do everything possible, I cannot go beyond" unless to discover, thanks to the debate, that some different choices are feasible. From listening to non-committed citizens emerged substantially the same attitude with regard to relationship with buying; it is the same individualism, which sometimes causes confusion. Indeed it is difficult to find one's way and to understand by themselves what is more suitable from the environmental point of view.

The *specific waste competence* of a committed citizen is higher than the one in a control group, but this seems foreboding of closure to the next. In the others there is a possibility of openness and curiosity, or alternatively, they comply with the SC rules properly without a problematic view.

The *wrong implicit hypotheses* of citizens are difficult to understand: organic waste is not harmful as it can be converted into compost. The knowledge of the process of transformation is one of those technical notions which sensitive citizens have; but there is not a reflection of the complexity of the process, organizational costs, economic and environmental aspects.

The *beliefs* are "do-it-yourself" and the guiding criteria are changeable. Several participants, for example, are very careful to choose products that contain few packaging, but this criterion is not significant compared to the quality of the product. In particular, some of them recognize that the organic products they use are also those that contain more packaging; in these cases the criterion becomes the expected quality. Similar confusion was generated by the sector of cleaners

and in general hygiene products (personal or for home), where individual trends related to care of oneself, of the next context, of the family, have the leading role.

The interesting aspect is that these contradictions are not viewed as such. Sensitive Citizens tend to assert their claim regarding the consistency between values, thoughts and actions. However it seems that when there are many options of behavior, the choice can be random.

There is a lot of *nostalgia of the rural world*, but without specific events and without future. People do not see that in reality they cannot eat and drink anymore some rural products as crude milk, etc. It is not laziness, as they often tend to think it is more difficult to make alternative choices. There are also the limitations imposed by the acquisition of lifestyle habits, tastes, which cannot be transformed at any moment thanks to a voluntary choice. There are features of the rural world, in fact, that if properly developed and adapted, may be a source of inspiration for the future.

The attitude among the non-sensitive citizens is generally pragmatist, not loaded by questions and doubts. They respect selective collection, but they are not active.

During the research, particular phenomena of emulation among sensitive citizens did not emerge. The participants were attentive, not particularly enthusiastic during the compilation of the diaries, experienced as boring. It was difficult to generate a process of mutual influence; a closure to those who think differently was noticed.

The approach to the problem of waste remains a problem solver one, both between sensitive citizens and the control groups, although the nostalgia for the rural world let emerge doubts about the real possibilities of change. Between sensitive citizens and control groups it was not noticed different practices of life or different selection criteria. For example, the consistency between values and choices is greater in the control groups, while sensitive citizens are often involved in finding subjects that self-justify a behavior inconsistent with the ideological assumptions.

The discussions, which the research group focused on, shared with the group of sensitive citizens, are mainly two; they are related to conditions that may allow a change:

- To recognize themselves as a part of the same community that lives, as consumers, a second nature which is made of goods, first of all means recognizing the cognitive and emotional limitations that we share with the rest of humanity;
- To implement an invention action, which bring back attention more to the materials, than to the product; the product is characterized by the function; it is therefore implicit that has a life cycle, while the materials are characterized by the possibility of transformation.

3.2 Qualitative research

After the first phase, the activity of listening, comparison and involvement, carried out according to the described stages, has converged in a workshop. All the citizens related to groups committed to aspects of environmental sustainability and citizens who have been involved in control groups took part. The aim was to identify possible actions that could help citizen waste reduction through a facilitation activity.

The idea was to check under what conditions it is possible to change the relationship between institutions that deal with waste management and citizens. The idea was to change the meaning of the waste for the citizens simply reversing the traditional pattern, which is fruit of an obsolete hypothesis, which considers the production system as a linear one. It produces two negative effects: on the one hand the need to increase more and more consumption of goods in order to be able to feed themselves, increasing in this way the production of waste; on the other hand, producing a relationship with citizens in which they are limited to the position of consumers, and therefore they are often unaware of processes and not involved in these.

The techno-structures designed to deal with waste are generated from this scheme; therefore they preferably use a broadcast communication model with communication campaigns that aim to encourage in citizens good behavior in consumption and savings. However, in reality, there is always a lack of linkages and interdependencies between individual actions and institutional ones: a lack of common welfare idea.

During the workshop the following aspects were taken into account:

- How the heritage of reflections gleaned through focus groups, and returned to the participants themselves, can become the common heritage of participants, of institutions that manage waste and of citizenship;
- How these heritages can be used in order to obtain feasible proposals;
- How it can help to reverse the traditional relationship between citizens and institutions;
- How the public perception of waste, as a discard of our civilization, changes valorizing the materials.

A single target was given to participants: to formulate a proposal to customers (the main waste decision makers of the region) taking into account the results from the developed research. The start of the workshop was not easy; once again, the expertise of individuals with regard to the issue was more a constraint than a resource.

The first three meetings were dedicated to deconstruct preconceived beliefs focusing on what fosters change. The research group used as tool some short stories that had as characters people who understood something about the waste or

about the environmental issues in general and who changed their attitudes and behaviors. The aim of the stories was to allow the group assuming an attitude of participatory research, questioning about the parameters that favor the change, in order to identify the variables that should have been used as guidance in the next step of the project. Up to that moment the position of the participants was collaborative, but essentially passive.

As a following step, the variables emerged as critical were:

- The connection between the idea of **freedom and the environment**; it may be an advantage to know the season products, people who cultivate them and the way they do it; therefore it becomes crucial to work on the trigger of **conditions of perceptions changing**;
- The issue of **autonomy and beauty**; the idea of beauty is linked to the care that manufacturers put into the process of invention and construction of a good, more than externals governed by the system of fashion and planned obsolescence;
- The theme of the **game**; the encounter with the other opens uncommon possibilities that the individual alone does not have. The overconsumption can be seen as a source of substitute gratification of the presence of the neighbor;
- The issue of **access and exchange** as a mode of movement of goods different from the traditional relationship of purchase where the relationship is between the individual who purchases and merchandise, which often lies in the houses degrading its market value.

During the workshop, participants also met with the waste managers for :

- Sharing relevant information on the waste production, on selective collection, on the reduction actions promoted by the Municipalities and the Province and on the strategic perspectives defined by the provincial waste plan;
- Promoting close relationships between citizens and institutions by promoting mutual confidence.

The last part of the workshop was dedicated to the plan of the project hypothesis that was subsequently presented to the waste managers.

3.3 The proposal

The core of the citizen proposal was a permanent reuse center (PRC): a center that constitutes a preliminary step to material collection centers (MCC), where citizens can dispose of their recyclable waste.

The PRC is not only a physical place, an exchange store; it is thought as a real permanent laboratory for re-use: creative, or otherwise reuse, of objects that are not yet waste because they are reusable. The PRC can be a chance to channel attention and sense of responsibilities of citizens in the community and the

environment. For those reasons the PRC should be located in the city or in the suburbs, in order to become a place of meeting and passing, to go and see what there is, a center for collection and dissemination of information about alternative modes of behavior. It is the transition from an idea of waste as a problem to an idea of waste as landscape and feature of our living together.

The proposed PRC could be a place of exchange, where relationships of gratuitousness take priority over the economic dimension.

The idea of the PRC found favor with the local waste decision makers involved, who shared this approach and who were thinking over similar solutions, especially about a center of preparation to the reuse.

4. Conclusions

The paper is titled "3R's from citizens' point of view and their proposal: a case-study" for two reasons:

- First, because the result of the pathway described is a design hypothesis (proposal), which is currently under discussion and must be evaluated thoroughly to be applied;
- Second, because it is possible to be citizens with rights, duties, knowledge, in many moments of everyday life, many more than we often use and dare (point of view).

In the analyzed case-study, the Public Administration is the owner of the project and defines the scope, rules, limits of participation. The participatory planning lives a paradox: it needs that citizens constitute themselves into independent subjectivity, able to think beyond the constraints of Public Administration, and at the same time they are able to accept the rules and to negotiate them.

The presence of a shared theoretical framework, enabled the participants, and with them the research group, to abandon the previous certainties without having to give up the individual points of view. In fact, the keywords identified by group allowed meeting all the requirements, while the shared theoretical framework allowed placing these keywords in an evolutionary framework. The need to provide a tactile experience, for example, to use one of the criteria identified, could be compatible very well with the need for a culturally significant action.

This need was transferred from the creative team in the invention of the Permanent Reuse Center, where the guiding idea is that the material never loses value, but can always be used in passing from hand to hand, from use to use.

The creative team, in order to describe the heart of the proposal, wrote:

We propose the creation of a recognized and recognizable physical place to experiment with different experiences of recycling / reuse / exchange / loan and to raise awareness of waste reduction (and beyond):

- *A place where you can go to give and take/buy reusable objects;*
- *A place where objects are repaired even “do it yourself”;*
- *A place where objects are transformed and redesigned to measure;*
- *A place of exchange for all;*
- *A place where workshops to teach in creative ways to reuse various materials take place.*

Compared to these symbolic and relational needs, the issue of waste is presented as a unique opportunity, although the application of these criteria to objects and materials that people dispose of becomes particularly difficult cause of a conservatively restrictive law, which aims to limit opportunities for illicit waste.

The need highlighted by projects such as the one described is to fundamentally change the approach to the issue. The fact that the EU recognizes the reduction and reuse as a priority requires a major overhaul in the approach.

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