

Contents lists available at [ScienceDirect](#)

Waste Management

journal homepage: www.elsevier.com/locate/wasman

Evaluating opinions, behaviours and motivations of the users of a MSW separate collection centre in the town of Baronissi, Southern Italy

Giovanni De Feo ^{a,*}, Anna Rita Polito ^b, Carmen Ferrara ^a, Ivan Zambalotti ^c

^a Department of Industrial Engineering, University of Salerno, via Giovanni Paolo II, 132, 84084 Fisciano, SA, Italy

^b M.Sc. in Environmental Science, Contrada Genzano 98, 84045 Altavilla Silentina, SA, Italy

^c B.Sc. in Environmental Science, via Maggiore 26, 84081 Baronissi, SA, Italy

ARTICLE INFO

Article history:

Received 15 January 2017

Revised 10 May 2017

Accepted 25 June 2017

Available online xxxx

Keywords:

Opinion

Behaviour

Motivation

Separate collection centre

Waste management

ABSTRACT

This paper presents the results of a survey regarding customer satisfaction as well as other aspects relating to the frequency and motivations of citizens going to a separate collection centre (SCC) for recyclables in a Southern Italian town. The study was carried out in 2015 to verify whether there were significant changes in the behaviours and opinions of the SCC's users, who had been interviewed in 2013, in the light of the change of the local administration. The majority of the respondents (60.4%) coupled going to the SCC with other tasks, with 58.6% of them going to a supermarket. Therefore, future SCCs should be localized near shopping centres (it would be preferable to have small and numerous SCCs). Chi-square and Fisher's exact tests showed how SCC's users of the town under study behaved as a community. The percentage of respondents that declared to 'agree' or 'strongly agree' with the idea that only putrescibles and residue could be collected at their home, with all the other materials being collected at the SCC, increased from 56.6%, in 2013, up to 59.0%, in 2015. The percentage of respondents that declared going to the SCC due to environmental motivations was unanimous. Moreover, the saving of money for the community became the second preferred option, with a significant improvement (from 65.6%, in 2013, up to 93.2%, in 2015). Therefore, the community's interests over the individual's were privileged. The SCC's users confirmed their attention to environmental issues even though the local administration changed. It is probable that this could be the result of maintaining high standard of service as well as a good job in terms of communication, continuous involvement of citizens and the adoption of good environmental practices.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

Improving the efficacy of the source-separation is one of the aims of the optimization of municipal solid waste (MSW) management. The effectiveness of separate collection programs has necessarily to be evaluated both in quantitative (i.e. high percentages of separation) and qualitative terms (i.e. low level of impurities among the separately collected materials). The role of the citizen is fundamental in achieving this goal. In fact, the correct source-separation of MSW components is at the basis of any successful collection program (Dhokhikah et al., 2015).

Knowing the rules on how to separate correctly MSW components is not enough to obtain a high level of source-separation. An effective campaign of environmental education and awareness is necessary to obtain a good level of separation (Lucas et al., 2008;

Ramayah et al., 2012; Polanec et al., 2013; Thomas and Sharp, 2013).

Moreover, as defined by the Aarhus Convention, citizens have the right to participate in decision-making processes as well as have access to justice in environmental matters (Taşan-Kok and Korthals Altes, 2012). In accordance with this policy, the possibilities of participation increased over time (Soma et al., 2016): public authorities have progressively reevaluated the role of citizens, sharing with more information them.

Nowadays, citizens are involved in different ways:

- Public Hearing, namely open forums where participants simply listen to the topics covered by meetings (Borrelli, 2012).
- Negotiation, namely an institutional mechanism that is useful to citizens' participation and as a means to resolve possible conflicts (Borrelli, 2012).
- Customer satisfaction evaluation that allows to understand the functionality of a product or a service provided (Gerpott et al., 2001).

* Corresponding author.

E-mail address: g.defeo@unisa.it (G. De Feo).

In particular, customer satisfaction, which is carried out using surveys, is widespread for the evaluation of waste collection services. In current literature, there are several studies where the opinions of citizens were surveyed.

For example, citizens can be interviewed to assess their willingness to pay as a function of the separate collection services, to understand which socio-demographic characteristics influence the production of waste as well as to identify proposals for the recycling promotion (Challcharoenwattana and Pharino, 2016). In the study of Visschers et al. (2016), the survey was carried out to understand the reasons that led families to produce a high quantity of biodegradable waste (food waste).

Studies that relate more closely to customer satisfaction have been conducted in various countries. In the case of China, Zeng et al. (2016) interviewed (using a questionnaire) 518 rural families in order to study their perception and satisfaction of MSW management services as well as to investigate their level of awareness and knowledge on the importance of source-separation.

Other studies have focused on particular types of waste, such as waste electrical and electronic equipment (WEEE) that have been discussed in the work of Pérez-Belis et al. (2015). They studied consumer behaviour, identified by the families who buy toys, in relationship with their recycling and disposal processes. These studies are important in both rural areas and developing countries in order to survey citizens previously to the implementation of new source-separation programs or even after the beginning of a new system to assess its success as well as the collaboration of the families (Ogwueleka, 2013).

Hornik et al. (1995) pointed out that, among others, significant variables for separate collection are monetary incentives, ecological concern, personal satisfaction, knowledge, commitment, and frequency of collection. In particular, regarding the latter variable, González-Torre and Adenso-Díaz (2005) confirmed (with a case study in the north of Spain) that when citizens have bins near to their homes, they appear to be willing to recycle more fractions than when they have to walk for a greater distance to drop off the waste. Williams and Kelly (2003), investigating green waste collection and the public's recycling behaviour in the Borough of Wire, in England, highlighted how information and education are important to improve the level of participation. Vicente and Reis (2007), studying households recycling attitudes in a Portuguese urban area, suggested to focus on evaluating the impact of specific communication strategies on changing attitudes and willingness to cooperate with recycling. Hage et al. (2009) investigated the determinants of the collection of household packaging waste in Sweden finding that both economic concerns and moral obligations influenced recycling outcomes at the household level. Gellynck et al. (2011), in the Flemish region of Belgium, found that income per capita, cost of residual waste collection, collection frequency and separate curbside collection of organic waste were the variables that contributed the most to increasing recycling and reducing residual household waste. Finally, Saladié and Santos-Lacueva (2016) emphasized the importance of awareness campaigns to prevent the generation of waste as well as to improve separate collection, both quantitatively and qualitatively.

Over the last years, many separate collection centres (SCC) for recyclable materials have been constructed in different Italian and European towns. These structures allow citizens to deliver directly source-separated recyclables. The SCC service is optional in Italy, since it is frequently associated with a kerbside collection system. Usually, economic incentives are used to encourage citizens to utilize this service.

SCCs are considered focal points for increasing the efficacy of separate collection systems (Engkvist et al., 2016). The study conducted by Engkvist et al. (2016) surveyed the situation of SCCs in

Sweden hypothesizing a future organizational scenario aimed at increasing the working conditions of the employees as well as the functionality and safety of people using the SCC.

This work stems from a study conducted in 2013 in the town of Baronissi, in Southern Italy, described by De Feo and Polito (2015). The principal aim of the previous research was to investigate, by means of a sociological survey, the relationship between the citizens going to the SCC and the source-separation program, principally to understand the main reasons why people went to the SCC.

In the 2013-survey, 56.6% of the interviewed agreed that only putrescibles and residue should be collected directly from their homes, while all the other materials should be collected exclusively at the SCC (with a saving of money and a consequent waste fee reduction for the citizens). A possible increasing of impacts due the emissions of citizens' vehicles is one of the main possible drawbacks of this proposal aimed at centralizing the collection of recyclables. However, everyday experience suggests that, usually, in the area under study, going to the SCC is done together with other activities (e.g. going to the supermarket, going to work, etc.). Starting from this result, a new survey in the SCC was realized in 2015 in order to verify this hypothesis.

A further important objective of the study was to evaluate the effect of time on the opinions, behaviours and motivations of the citizens in light of the change of the local administration occurred in 2014. This is particularly important because the local government changed from a conservative party to a labour party. Another aim of the study was to evaluate the results with descriptive and inferential statistics to check whether the respondents' answers depended on the category they belonged to (profession, education, age range, and distance from the SCC).

2. Materials and methods

2.1. The study area

The study area is the municipality of Baronissi (Fig. 1), in the province of Salerno (Campania Region, Southern Italy), 8 km north of Salerno, with a population of 17,003 inhabitants at January 1st, 2016 (derived from the databases of the Italian National Institute of Statistics, Istat). The town in 2001 introduced a bring separate kerbside collection system (putrescibles, recyclable materials and residual waste were delivered to several collection banks sites), similar to that described in González-Torre and Adenso-Díaz (2005). The system was optimized in the following years, obtaining the results shown in Fig. 2 in terms of percentages of source-separation.

In both 2013 and 2015, MSW was collected by means of a separate kerbside collection system. It was separated into the following components: putrescibles (collected three times a week); paper and cardboard (once a week), glass (twice a month), aluminium and other metals together with plastic (twice a week); non-recycling residues (twice a month); sanitary towels, nappies and incontinence pads (six days a week); bulk refuses and WEEE; used clothing and hazardous MSW. In accordance to the municipal MSW collection rules, in the town under study, a citizen every day can deposit a MSW fraction only after 8 p.m. during winter and after 9 p.m. during summer. Contrarily to the systems described in Gallardo et al. (2010), in Baronissi there are no drop-off points but only one SCC. Baronissi's SCC, while being close to the industrial area, is about 1.5 km from the city centre and in a strategic point: the highway entrance is at about 1 km (Fig. 3). The SCC is not far from the city centre, but it is more distant from the other geographical districts. In particular, three districts are in a radius of 2 km (Sava, Orignano and Caprecano); two districts are in a radius of 3.1 km (Fusara and Saragnano); one district is in a radius

Download English Version:

<https://daneshyari.com/en/article/5756621>

Download Persian Version:

<https://daneshyari.com/article/5756621>

[Daneshyari.com](https://daneshyari.com)