

Household food waste generation and composition in Greece as assessed by self-reporting diaries

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Keywords: food waste, composition, prevention, Greece.
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Food waste is a stream with multiple social, economical and environmental implications, generated throughout all the life cycle stages of food. Among those stages, in developed countries, such as Greece, the role of the households in the generation of food waste is particularly important.

To investigate and develop its prevention potential, quantification of the household food waste is required, so that the key sources of its generation are identified. In order to quantify the food wastage from households, two main options are available: the first is to ask the consumers to measure the food items they discard and fill in a diary during a certain period of time. The second is to separate and measure the quantity of food waste in their final depository, i.e. the municipal garbage bins. Both approaches have their advantages and disadvantages (Zorpas and Lasaridi, 2013).

Following a preliminary study on the estimation of household food waste generation (Abeliotis *et al.*, 2014), a diary was compiled and given to approximately 100 households in various urban and semi-urban areas in Greece. Self-weighing can be used effectively in small group activities, with sample sizes being small, usually 50 or 60 households, if carried out with regular data collection (Zorpas and Lasaridi, 2013). The participants were asked to weight and record each food item discarded in their households for two weeks. More specifically, the participants were asked to weight and write down both the avoidable (i.e. edible) and the unavoidable (e.g. fruit skins and vegetable trimmings) food waste fraction. Also, the number of the household members and the manner that they manage their food waste were also reported for each household.

Self-weighing requires close interaction with the householder because sometimes participants forget or omit to record some items (Zorpas and Lasaridi, 2013). At the end of the completion period, the diaries were collected and data were coded into a spreadsheet and further analysed. Extrapolation of results from the 2 weeks measuring period to an annual basis was performed. Results indicate that Greek households generate approximately 80 kg of food waste per person annually, of which 24 kg are avoidable food waste. Regarding the unavoidable food waste fraction, fruits and vegetables peelings were predominant, which is in good agreement with the results of Malamis *et al.* (2015) derived from a research based on compositional analysis of biowaste bins. The findings of the present research are within the range reported by other European studies, albeit in its lower end.

Regarding the self-reporting method used, it is a resource-intensive method for data collection, but it can provide precise data if performed properly. The main drawback of the method is that the volunteers need to be trained in order to fill in the diaries properly. Also they need to be dedicated, in order not to underestimate the amount of waste generated. The researchers tackled this drawback by contacting the participating households every second day in order to remind them to fill the diary properly.

Overall, this study attempts a further estimation of food waste generated by households in Greece based on self-weighing of food-waste, and can be of great assistance to the effective development of food waste prevention campaigns. Such campaigns can produce positive environmental, social and economic results, both at the household level and the overall waste management system in Greece.

Acknowledgements

Part of this research was supported by the LIFE WASP Tool project (LIFE10 ENV/GR/000622), which was co-funded by the European Commission LIFE+ programme.

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