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Methodologies for food waste quantification

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Abstract

Every year, about 4 billion tonnes of food are produced, but poor practice in harvesting, storage, and transport, along with market and consumer wastage, mean that about 40% of it (1.2-2 billion tonnes) is wasted. Feeding a projected population of 9.6 billion people by 2050 is going to be an unparallel challenge for humankind and may well require a multidimensional and integrated global strategy. Increasing food production is merely one of many ways to rise to this challenge. Researchers argue that one strategy to enhance food availability would simply be to lessen waste generation. The apparent necessity of food waste quantification, and standardization of methodologies has been repeatedly demonstrated. Scholars and decision makers have concerns on the current data deficiency and inconsistency, while they indicate that measurements of higher numbers and quality are needed (Xue et al., 2017). All involved parties - in both food supply chain and food waste management sectors - agree that the existing data on food losses and waste suffer from major gaps, such as narrow spatial coverage, outdated figures and statistics, unbalanced focus among the different stages of food supply chain, lack of primary data, and heterogeneity of definitions and boundaries, which leads to inefficient, incomparable, and in some cases unreliable data (Xue et al., 2017). Thus, the adoption of a standard methodological approach that would ensure uniform measurement, would tackle the issues related to data availability and quality. The study is designed to comprise a pool of the most adequate methodological approaches, indicating their selection criteria, their benefits, and restraints. Special effort was made to address barriers, obstacles, difficulties, and ambiguities, which usually hinders quantification and reporting process. The development of a baseline of food waste quantities generated will be achieved through the selection of the appropriate combination of methodological approaches (e.g., direct measurements and questionnaires). Overall, these approaches fall into two distinct categories: direct measurements of food waste generation along the food supply chain, and inference on food waste amounts by calculation (Corrado et al., 2019; Hanson et al., 2016; Moller et al., 2014). The study aims at presenting a thorough overview and compare food waste quantification methods. It presents an overview of the main food waste (FW) quantification methods, namely surveys, kitchen diaries, waste audits and estimates

based on secondary data, considering in detail to compare the strengths and limitations of each method. The need for standardized methodologies for food waste quantification is further highlighted.

Keywords: food waste, quantification, methodologies, Greece

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