Food waste in a Greek Higher Education institution: Students' attitudes, compositional analysis and environmental impacts.

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Food waste is a significant problem of contemporary societies globally, with noteworthy environmental, social and ethical implications.







This study documents the composition of the food waste generated in the main dining facility on campus, as well as the attitudes of students of a Greek higher education institution towards food waste. Furthermore, it attempts to show the way for a more focused estimation of the environmental impacts of food waste with the use of Life Cycle Assessment results.



Methods



As values and attitudes correlate with wastage, in this study we aim to document both the amounts of the food waste generated at the main dining facility of Deree –American College of Greece –, and student attitudes related with food waste generation.



Weight Measurement Campaign As the food waste measurement campaign temonstrated most of the



As the food waste measurement campaign demonstrated most of the food waste is avoidable; 65.35 kg were avoidable, and 34.17 kg were unavoidable. Thus, given the cycle of operation of this college dining facility, it was estimated that 2,777 kg of avoidable and 1,452kg of

unavoidable food waste are generated per year.



80% of Avoidable

It was estimated that 2,777 kg of avoidable and 1,452kg of unavoidable food waste are generated per year.*



95% of Unavoidable

1.1. Survey results

 In terms of students' perceptions about food consumption, survey results demonstrated that respondents' satisfaction does not relate with the variety of plates (64.5%) they purchase, while there was no clear agreement that the variety of plates is a sign of social status (49% neither agree or disagree, 32.5% disagree and 22.5% agree).





1.2. Survey results

 The main reasons that respondents do not complete their meal are: because they are full (70%); because they don't like the food (30%); and only 5% as an issue of prestige. Only 2.5% of the respondents always complete their meal.

Feeling Full Do Not Like Their Meal Issue of Prestige





1.3. Survey results

- Most of the respondents were aware of the negative environmental impacts of food waste. 50% of the respondents considered food waste an important environmental problem (very or extremely environmentally harmful), while 7.5% thought that it had no negative environmental impacts.
- Respondents generally felt some guilt relating with food waste, indicating some sense of responsibility for the possible harm done. The overwhelming majority felt guilty towards needy people when wasting food (95%); only 5% did not. Regarding their guilt feelings towards the environment, their responses are mixed: 40% agreed or strongly agreed and 27.5% disagreed or strongly disagreed. Most of the respondents felt guilt regarding the subsequent waste of money







Main findings

- Students dining in the facility do not associate satisfaction with the variety and the abundance of food choices or plates.
- It is unclear whether there is a correlation of conspicuous consumption and identity-signaling; results do not clearly support the idea that food selection correlates with a desire to demonstrate social status or internal sense of worth.





- Students believe that they have adequate general knowledge of the environmental impacts of food waste (but this should be further investigated).
- Students' feelings of responsibility for these impacts are weak. It is interesting to note that they do express some sense of guilt relating with hungry people when they waste food, and they identify money/cost as a main source of influence for their sense of responsibility related with food waste.



Avrildlife Effects: Hybridization of domestic and wild species, Decrease in genetical diversity etc.

Societal Effects: Spread of Zoonotic Diseases





Direct Impacts: impacts produced by the food waste material itself

Indirect Impacts: those related with the production, processing, distribution (i.e. the life cycle) of the food that ends up as food waste



In an attempt to identify an effective method for the estimation of environmental impacts from food wastage, results of Life Cycle Assessment studies were used for the main two components identified in the food waste: French fries and orange peels. The estimation of the impacts of orange peels could not be effectively concluded as the retrieved LCA results referred to the whole orange juice production process in an industrial setting.

Based on the results of the French fries LCA conducted by Mouron, Willersinn, Möbius, & Lansche (2016), it was estimated that from the disposed French fries alone on an annual basis the Deree dining facility produces 4,551 kg of CO2 equivalents (global warming potential), 91,375 MJ equivalents (demand for nonrenewable energy resources), 1,576.2 kg 1.4-DB equivalents (human toxicity), 8.88 kg 1.4-DB equivalents (terrestrial ecotoxicity), and 600 kg 1.4-DB equivalents (aquatic ecotoxicity).





Final remarks

- A useful approach to the analysis of the drivers of food waste generation at the consumers' level : identifying three relevant stages in the process (food acquisition, food consumption, post-food consumption).
- Use of LCA results for a more accurate discussion of food waste environmental impacts



Thank you