Development of Internationally Common Methodology for the Sorting Analysis of Food Waste from Household Sources - Comprehension and Deviation on the Proposed Categories

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INTRODUCTION

Sustainable Development Goals Target 12.3 calls for halving the amount of food waste that is generated at households, retail, and food service. For this target, a common definition of food waste and a methodology for its measurement is essential, but they are still under development. On this matter, the SDG12.3 research group comprising of the authors of this paper, in collaboration with international research partners from Austria, Italy and the UK, have developed a methodology for sorting analysis of household food waste, that 1) makes clear the concept of avoidable food waste, 2) is practical and does not overcomplicate the work of grasping the situation of food wastage, and 3) generates useful information for policy-making and for tackling with reduction of food waste (Okayama et al 2019).

The categories for the sorting analysis has been thoroughly discussed with our international collaborators, In addition, we have conducted workshops with various participants, which involves placing photos of food waste items into each category. This paper summarises and analyses the results of the workshop, identifying the feasibility of the proposed classification scheme and the factors behind discrepancies among the participants.

MATERIALS AND METHODS

The proposed classification scheme

In order to produce information useful for waste reduction, we need to focus on the activities in which waste is generated. Hence our proposed classification scheme is based on the flow of food items in households. When raw food items (ingredients for meals) enter the household, they usually need to go through a preparation process. Items that are wasted before the preparation process is categorised as **A:"unused ingredients"**. After preparation, the food items become ready to be eaten. Households also obtain food that is already prepared and ready to be eaten. Such items when they are wasted before put on the dining table for eating, are **B:"unused ready to be eaten food"**. Ready to be eaten food after being placed on the table (plate), but not eaten and wasted falls under the category **C:"leftovers"**. Categories A, B, and C are examples of avoidable food waste. On the other hand, there are parts that are removed and disposed of as they are considered not to be eaten. These are known as unavoidable food waste, and categorised here as **D:"intentionally removed parts"**. Category D can be further classified into **De: "potentially edible residues"** (e.g, peel of potato or apple) and **Di: "physically inedible parts"** (e.g.

eggshell, bone).   We used these main categories for the purpose of the workshops described below, although we have also suggested further subcategories under these main categories (ibid. 2019).

The photo-sorting workshop

The classification scheme must be intuitively easy to understand, both for conducting the analyses as staff member, and for understanding their results as policy-makers and as general public.   We wanted to test if our categories meet this criterion, among a wide range of people with different cultural and professional backgrounds.   As it is difficult to use "real" waste samples, we decided to use photos of food waste items found in analyses conducted earlier.   About 35 items were selected, including "tricky" items that can fall under different categories depending on the way one thinks about them.

The participants of the workshops are asked to sort the photos into the abovementioned A, B, C, De and Di categories, after a brief explanation of the classification scheme by the facilitator.   We preferred to set this up as a group work of people with different backgrounds, as that will trigger discussions and deeper consideration among the participants.   The authors conducted this workshop at many occasions, such as international academic or professional conferences (e.g. Sardinia 2019, Meeting of Agricultural Chief Scientists of G20), seminars for international students (e.g. Keio University Japan, University of Cambridge UK), as well as at staff training before conducting sorting analyses based on this classification.

RESULTS AND DISCUSSION

Results of about 20 groups from the workshops, excluding those aimed for staff training are summarised. These include participants from all over the world, both from developed and less developed economies. For many items such as raw meat packaged in plastic tray and wrap, there was unanimous agreement in all cases (in this case, category "A").   This implied that the basic concepts of our proposed sorting categories are universally agreeable.

However, there were items that caused discrepancies.   For certain items, there was disagreement on whether that falls under "De" or "Di".   To a lesser extent there were also cases of disagreement between "A" and "De".   The main factor for this is difference in food customs in the former case, and awareness or tolerance of food waste in the latter.   We consider that for these items, a universal standard is not feasible. Suitable standards can probably be set, depending on each country conducting the sorting analysis.

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REFERENCES

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