

Food Waste on Aalto University Campus

Food waste is a major problem around the world. According to some estimates, about one-third of all food produced in the world is wasted, which means about 1.3 billion tons every year [1].

Much food is also discarded on a daily basis in the student restaurants of Aalto University. Even though it might feel like food waste does not affect you directly, throwing out your food in fact contributes to climate change by growing landfills, which produce methane gas, the second most common greenhouse gas. The carbon footprint of food produced and not eaten is estimated at 3.3 billion tons of greenhouse gases: making food wastage the third top GHG emitter after the U.S. and China [2].

In addition, tossing food away not only wastes your money but also creates major negative impacts on water, land and biodiversity. Globally, the consumption of surface and groundwater resources of food wastage is about 250 cubic kilometers (km³), an equivalent to the annual water discharge of the Volga river, or three times the volume of Lake Geneva [2]. Produced but discarded food occupies almost 1.4 billion hectares of land; representing nearly 30 percent of the world's agricultural land area [2]. As for the impacts on biodiversity at a global level, FAO's *Food Wastage Footprint: Impacts on Natural Resources* claims that "food wastage unduly compounds the negative externalities that mono-cropping and agriculture expansion into wild areas create on biodiversity loss, including mammals, birds, fish and amphibians" [2].

Apart from the environmental impacts, the direct economic consequences to producers of food wastage run about \$750 billion annually, according to FAO's report [2].

The food waste situation on Aalto University campus is clearly unsustainable and must be quickly remedied. What should be done to

- 1) reduce food waste (storage, production, presentation/serving, customer)
- 2) reduce emissions caused by food production
- 3) ensure sustainability throughout the value chain from farmer to consumer
- 4) implement the SDGs to the maximum in tackling this situation
- 5) ensure students have access to food that promote health, well-being and sustainable lifestyles (while at the same time reducing the environmental impact)?

Each student should function as an expert on their particular area within the team and is responsible for researching the solution from that particular angle including design, branding, technical or financial viability.

[1] <http://www.fao.org/save-food/resources/keyfindings/en/>

[2] <http://www.fao.org/3/i3347e/i3347e.pdf>

https://www.researchgate.net/publication/313853965_Criteria_of_effective_scenarios_in_problem-based_learning_PBL

Table (1) How to create effective PBL scenarios*

- Learning objectives form the basis of the scenario
- After students study the scenario, the same learning objectives and/ or more are derived
- Problems should be appropriate to the stage of the curriculum and the level of the students' understanding
- Scenarios should have sufficient intrinsic interest for the students or relevance to future practice
- Basic science should be presented in the context of a clinical scenario to encourage integration of knowledge
- Scenarios should contain cues to stimulate discussion and encourage students' explanations
- The problem should be sufficiently open, so that discussion is not curtailed too early in the process
- Scenarios should promote participation by the students in seeking information from various learning resources
- *Adapted from Dolmans et al. Med Teacher 1997; 19:185-9

Table (2) PBL scenario criteria

- A title that offers a content & not a hint
- Core issue
- Neutral description
- Concrete terms, understandable language
- Brief & not complicated
- Not many topics are introduced
- Balance between study load & available study time
- The scenario should be close to real life as possible

1 Table (3) Good PBL cases should be

- Realistic, preferably based on a real case
- Engaging and able to stimulate integration of knowledge across disciplines
- Challenging, but adjusted to students' prior knowledge
- Stimulating to students' discussion at a higher cognitive level
- Set in a context representing students' future careers
- Open-ended or using a gradual disclosure design
- Addressing the pre-set learning objectives
- Logical in their flow
- Student-centered in their design

Problems ⇒	Name of Problem 1	Name of Problem 2	Name of Problem 3
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Learning outcomes ↓			
L.O. 1 Present, challenge and defend solutions to real-life sustainability issues faced by companies and organizations	Still an x amount of food is wasted on Aalto Campus: how could this be solved?		
L.O. 2 Organise arguments clearly, cohesively and concisely in speaking and in writing		1) recommendation 2) team presentation 3) final presentation	
L.O. 3 Collaborate in interdisciplinary teams			1) Students learn the necessary tools to collaborate in interdisciplinary teams 2) Each student functions as an expert on their particular area within the team and is responsible for researching the solution from that particular angle, e.g. design, branding, technical or financial viability.
L.O. 4			

- Present, challenge and defend solutions to real-life sustainability issues faced by companies and organizations
- Organise arguments clearly, cohesively and concisely in speaking and in writing
- Collaborate in interdisciplinary teams