

CATEGORY 4

Group ID 4-091

Project Food Waste

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*Underlined and bolded ones are a new chapter in this written report.

1--Introduction:

1.1 Abstract

‘Why do we end up wasting the things that keep us alive?’

While food is necessary for our survival, food waste is still a pertinent problem in Singapore. A pressing concern, Singapore generated 744 million kg of food waste in 2019, or approximately 2 bowls of rice daily. Globally, one-third of all food produced is lost or wasted around 1.3 billion tonnes of food. Thing is, it is just that easy to waste food... or is it?

The shocking truth is that it is ‘easy’ for food to be wasted due to us. Improper food storage, carelessness, plain wastage of food or food with blemishes ‘not up to par’ to us are tossed away, not having been bought by people in supermarkets or restaurants. While food waste does not cause underlying problems to our body, it does, but in another form, another way. Food waste accounts for 35% of all solid waste, either dumped or incinerated. At this rate of consumption and wastage, we will eventually waste so much food that we may not even have space or produce much more carbon

emissions into the atmosphere which also harms us. Worst comes to worst, the very thing that was in abundance -- food, would be in scarcity for our future humanity and the very thing that sustained us would be the very thing that would end us too.

We do not want that to happen, hence a reduction and education on the public, especially teens, regarding food waste, is integral. Hence, we hope that students moulding the future like our age will make better choices with regards to food waste.

1.2 Objectives

Our board game aims to educate teenagers about the negative impacts of food waste and ways to reduce the amount of food waste produced. As they are the future generation leaders, they need to understand this problem well.

Nowadays, we tend to forget just how fortunate we are, seemingly always having food on the table. However, as many as 811 million people still go hungry. To put that into perspective, about 1 in 10 people go hungry. One of the major causes of this is the fact that we waste roughly one-third of the food we have.

Hence, we are trying to do our part to produce less food waste, and try to encourage other better methods, such as composting, or recycling, at the comforts of our homes to...

1.3 Target Audience

13-16. They are the ones who will lead us into the future. If we can change them now, we would be able to make a change to how we produce food waste.

1.4 Resources

The resources used to make the project are:

- Canva, an online designer
- Cardboard to put the printed board design on
- Thicker Paper, to paste the Community Chest, Chance Cards and deeds on
- Colour Pencils, Markers to do some extra touch-ups for the deeds

2--Review:

There are very few resources or projects on aiding food waste, and even if there were, it was mostly NEA infographics/projects targeting the public and did not have much. Even with posters regarding reducing food portions if students cannot finish the food, it is still largely ineffective as they would ignore it. Hence there is an urgent need to develop a

resource that not only caters to teens but also encourages recycling and reduction of food waste. Here are some examples below.



Statistics from Singapore National Environment Agency and the Food and Agriculture Organization of the UN

THE STORY BEHIND SINGAPORE'S FOOD LOSS & WASTE



2million*
tonnes of food
is imported



393,000
tonnes of food
IS LOST



UPSTREAM
Food loss that takes place
during **production**



MIDSTREAM
Food loss that takes place
during **processing and transportation**

Food and Agricultural Organisation (FAO) Definition

FOOD LOSS refers to any food that is **lost in the supply chain** between the producer and the market.

Example: post-harvest losses, handling, storages, packaging or transportation losses.

FOOD WASTE refers to the **discarding** or alternative (non-food) use of **food that is safe and nutritious** for human consumption.

Example: disposal of "Ugly Food", food close to 'Best-before' dates, edible unused or leftover foods discarded from kitchens.

167,000 tonnes of
Fruits & Vegetables lost

= **5,901** 20-foot Containers



25,000 tonnes of
Fish & Seafood lost

= **883** 20-foot Containers



5,500 tonnes of
Eggs lost

= **305** Double-Decker Buses



An average of
62 kg of food
is lost per person
each year

is equivalent to

177 cans

of 350g
**Tomato
Canned Soup**



342,000
tonnes food loss is equivalent to

S\$2.54 billion

*Figures taken from SFA Import Data 2017.

3--Research & Methodology

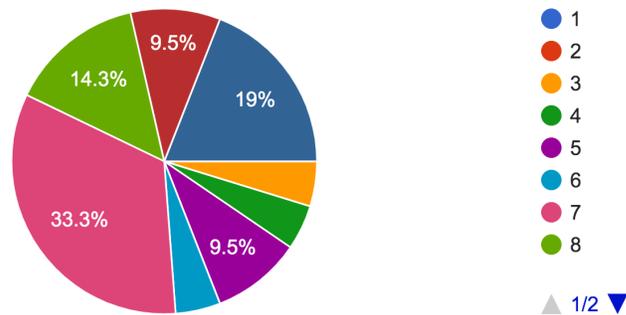
3.1 Statistics (Needs Analysis)

After setting our goals and objectives, we began to work. First, we surveyed our data. After getting our survey vetted through our mentor, we sent it out. We pushed out our survey to our classmates, friends, and CCA group chats. As we waited for some responses to come in, we conducted some research to find some locally and globally. Locally, we found out some shocking facts. Food waste makes up half of the 1.5kg of waste discarded daily by Singaporean households. Another fact that surprised us was that from 2007 to 2017, the amount of food waste in Singapore jumped from 558,000 tonnes to 810,000 tonnes in just 10 YEARS. Globally, about 811 million people go hungry, which means that every 1 in 10 people goes hungry. To take a look at our findings, please proceed to the next unit.

3.2 Comparison

Based on our previous survey, we concluded that half of the students in HCI manage their food well and do not contribute too much to the food wastage problem. (see below)

How would you rate yourself at managing food waste? 1 being not good 10 being Super duper
21 responses



However, this does not seem to be true in the school. Much food was observed to be wasted in the high school canteen at the cutlery and plates return area or even the black trash bags used to dispose of food after eating class. Here are some pics of much food wasted after being disposed of into the respective buckets.



Thus we can conclude that Hwa Chongians and many other teenagers are not aware of the food wastage they produce every day, contrary to their thinking.

3.3 First Evaluation

In Term 2, we had a proposal evaluation, and the judges gave us relatively positive comments regarding our board game project. However, there were certainly some improvements to work on. More details are listed down below.

Judges' Comments:

- Good link to environmental impact, interesting
- Nice twist to the classic game, PPT was also engaging
- Well-prepared, confident

Judges' Advice:

- Do a bit more research on the age group reason
- Even out more time during a presentation
- Be more precise in explanation.

After the evaluation, we took note of our areas for improvement (API). We thus proceeded to plan our final product, reviewed our AFI before the upcoming evaluation, and created our board game.

4--Discussion

4.1 (Timeline)

May

With the assurance that all our resources created were useful from good feedback received, we wasted no time in the craft of the board game. We pondered on whether to pick handcrafting the board or using online tools, which resulted in a unanimous decision to pick the online tools, templates and apps. This led us to use Canva which had a variety of templates that we could use and add on elements/improvisations later on.

June

We decided that the game would start easy with only increments of 1 food waste starting from Round 2, but every 5 waves from then on would increase 1 food waste per round, with cards able to intensify this. With the scene being that food had overrun the world and the player would have to own countries to reduce food waste, we picked a

specific monopoly board template that had the potential to be converted into something educational regarding it. Research to find the countries which could recycle the most food waste and the ones which waste the most food, per capita, (Countries selected include Singapore, Luxembourg and more, explained in final evaluation). Since counting money is pretty annoying, we standardized the currency to \$1. (\$1 in-game is \$100,000,000 in real life). In this case, the most expensive deed would be \$40, the cheapest \$5 and the starting money \$150. We also decided on the 'cheapest' country to recycle 0.25 food waste and the most expensive saving a whopping 4 food waste. Taking monopoly into consideration, we also edited and added chance cards, community chests and the 4 special big grids inside. Chance cards were also decided to hold fun facts in them.

July

We commenced on the design of the country cards, using monopoly's deed cards as a reference to its format. We also felt that instead of putting fun facts about recycling food waste into the chance cards, we could make a separate card for them instead. This way, we need not have to worry about spacing problems. Discussion on the buffs and debuffs of the cards was also underway. Adapting from the gradual difficulty posed by classic monopoly due to the increasing number of deeds and hotels one could buy and step on, we revamped the community chest: As the game progresses, more food could be recycled. Once the community chest is full (Hits 40 food waste recycled), everybody has to roll the die. The highest die wins and gets 3 community chest cards, reaping great rewards or severe consequences like bankruptcy. By the end of the month, we had the cards mostly undergoing design and were 75% done.

August

By then, the board was successfully printed and cards were almost done too. However, we decided that more usage was to be done regarding money. Hence, we allowed players to 'incinerate' some of their food waste for cash and introduced an advertising campaign requiring money. The player can place a certain amount of advertisements every round using cash and get advert stamps accordingly. Once one has a certain amount of stamps, one could roll the dice and if its value is 7-12, he gets to keep the selected deed he wants. If not, he cannot get it. This presents an element of volatility in the game and the luck-based aspect of life.

We had a consideration about how we wanted to present info cards for food wastage and we thought that we should mix it up with the chance cards. Because facts are normally boring, people will normally ignore picking up the info cards to not "waste their

time". Thus, we mixed the info cards with the chance cards which create a sort of excitement due to the punishments and help given by them. Thus, players will get facts about food waste while having the same excitement and fun.

5--Conclusion & Credits

The project was no easy feat to accomplish and allowed us to further understand each other as friends and how we work together as a team. We have found out the amount of food wasted that goes unnoticed or wasted from our daily consumption. Thus, from this project, we have researched how countries manage their food waste as well as the huge amount of food that is being produced compared to the amount consumed. This made us reflect on how Singaporeans do not shine a light on food waste. So we aimed to educate the young teens and try to reduce the impact of food wastage. In the end, it resulted on a positive note, with the board being relatively innovative and hopefully useful to the public in terms of inspiration and education of recycling food waste.

