



RESEARCH DOCUMENTATION

EDUCATING PEOPLE AND FINDING DIFFERENT WAYS
IN WHICH SUSTAINABLE SUBJECTS INTERSECT.

OVERTIMERS

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INTRODUCTION

The goal of Gloop was to bring a better understanding of the complexity involved with creating a more sustainable future. It was the vision of the team that true sustainability are the product of many small decisions forming a larger change on a whole. Not every decision is as black and white as many would assume. A balance of powers is the product of many considered “grey” changes that always have not only the end goal, but also the existing parameters in mind. In simulating this system we want to use as many real-life sustainability problems as possible. Doing this will help out with the awareness surrounding the topics portrayed and give the correct context for the system. This is why we researched which subjects were good portrayals of the larger system and important to bring to the attention of a wider audience.

RESEARCH QUESTIONS

We formulated two questions to guide our research:

1. IN WHICH WAYS DO DIFFERENT AREAS OF SUSTAINABLE GROWTH INTERSECT?
2. ARE PEOPLE AWARE OF THESE INTERSECTIONS?

METHOD

Both research questions ask for a different plan of action. For the former we dove into literature surrounding sustainable topics. We identified four quadrants we suspected would have a lot of different intersections with one another and researched where their problems and solutions had overlap.

For the the latter question we took our discovered intersections to the public and asked them to rate how novel this combination was for them. We held surveys with friends and strangers.

LITERATURE RESEARCH

THE FOUR QUADRANTS

- Cities/urban life/Consumption
- Farms/agriculture/Food Production
- The Ocean/Water
- Rainforests/Trees

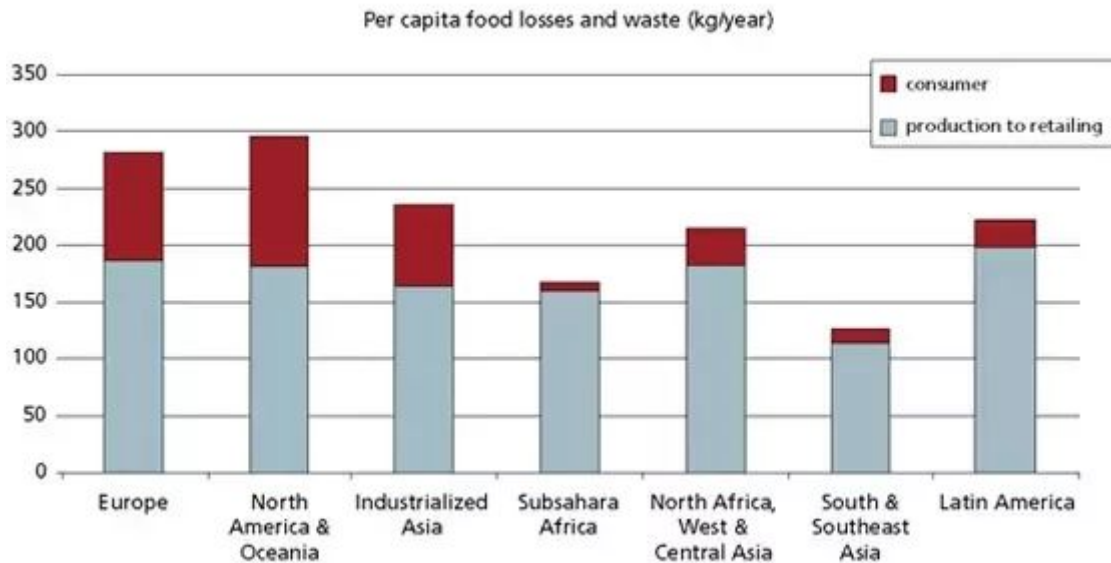
CITY

FARM

Some facts from the Food and Agriculture Organization of the United Nations;

- Roughly one third of the food produced in the world for human consumption every year — approximately 1.3 billion tonnes — gets lost or wasted.
- Food losses and waste amounts to roughly US\$ 680 billion in industrialized countries and US\$ 310 billion in developing countries.
- Industrialized and developing countries dissipate roughly the same quantities of food — respectively 670 and 630 million tonnes.
- Fruits and vegetables, plus roots and tubers have the highest wastage rates of any food.
- Global quantitative food losses and waste per year are roughly 30% for cereals, 40-50% for root crops, fruits and vegetables, 20% for oil seeds, meat and dairy plus 35% for fish.
- Every year, consumers in rich countries waste almost as much food (222 million tonnes) as the entire net food production of sub-Saharan Africa (230 million tonnes).
- The amount of food lost or wasted every year is equivalent to more than half of the world's annual cereals crop (2.3 billion tonnes in 2009/2010).

- Per capita waste by consumers is between 95-115 kg a year in Europe and North America, while consumers in sub-Saharan Africa, south and south-eastern Asia, each throw away only 6-11 kg a year.



Sources:

<https://www.quora.com/How-much-food-do-we-waste-everyday>

<https://www.nytimes.com/2017/12/12/climate/food-waste-emissions.html>

<https://www.forbes.com/sites/michaelpellmanrowland/2017/08/28/food-waste-solution/#1e89f6fe4d17>

OCEAN

- According to the World Bank, only 0.5% of the world's water is drinkable.
- 30-40% of the world will suffer from water shortages by 2040 (I don't think retirement in a golfing community is going to be an option for too much longer)
- Agriculture accounts for 70% of our water use
- Energy companies also use a significant amount of our water supply as coolants
- The global middle class will increase from 1.8 billion to 4.9 billion by 2030. This increase will lead to a rise in consumption of freshwater.

RAINFOREST

5 Main Causes:

1 - Agricultural Expansion

The conversion of forests into agricultural plantations is a major cause of deforestation. The increase in global demand for commodities, such as palm oil and soybeans, are driving industrial-scale producers to clear forests at an alarming rate. Indonesia, the largest producer of palm oil, was named the "Fastest Forest Destroyer," in the 2008 Guinness World Records. Even when efforts are made to replenish barren plantations, the depleted soil is not able to produce the same biodiversity it once was.

2 - Livestock Ranching

Forest clearing for livestock ranching is another contributor of deforestation. Since 1990, Brazil, a top exporter of beef, has lost an area of forest that is three-fourths the size of Texas. A strong global demand for beef, supported by governments such as in Brazil, is expanding this kind of deforestation.

3 - Logging

Logging, including illegal logging, is a driver of deforestation. In Indonesia, illegal logging operations provide short-term income for people living on less than \$1 a day. However, it destroys the livelihoods of those who depend on the forest. Indonesia is one of the largest exporters of timber, with about 80 percent of it being exported illegally. It is estimated that organized criminals get between \$10-15 billion dollars from illegal logging per year.

4 - Infrastructure Expansion

The 5,404 km Highway which runs from Brazil to Peru is a concern as the road cuts a strip through the biodiverse Amazon rainforest. The road expansions often lead to logging and illegal logging. The cleared land then attracts an influx of settlers and disturbs the peace.

5 - Overpopulation

Increase of global needs and wants, leading to expansion and deforestation

Source:

<https://www.onegreenplanet.org/animalsandnature/5-big-causes-of-deforestation-and-how-you-can-stop-it/>

FOUND CONNECTIONS

CITY:

political party:

- Left:
 - Economy (City)
 - City Positive (City)
 - Budget (Farm)
 - Taxes (Farm)
 - Rainforest Positive (Rainforest)
 - Ocean Positive (Ocean)
- Don't vote:
 - Happiness (City)
 - Economy (City)
 - Health (City)
- Right:
 - Health (City)
 - City Positive (City)
 - Farm Positive (Farm)
 - Oil (Rainforest)
 - Tributary Dumping (Rainforest)
 - Land Runoff (Ocean)
 - Littering (Ocean)

Taxes:

- Low:
 - Economy (City)
 - Farm Positive (Farm)
- Medium:
 - Happiness (City)
 - City Positive (City)
 - Taxes (Farm)
- High:
 - Happiness (City)
 - Economy (City)
 - City Positive (City)
 - Taxes (Farm)
 - Food Production (Farm)

Industrialisation:

- Low:
 - Economy (City)
 - Happiness (City)
 - Food Production (Farm)
 - Budget (Farm)
- Medium:
 - City Positive (City)
 - Farm Positive (Farm)
 - Oil (Rainforest)
 - Oil Spills (Ocean)
- High:
 - City Positive (City)
 - Health (City)
 - Happiness (City)
 - Acid Rain (Farm)
 - Acid Rain (Rainforest)
 - Mining Accidents (Rainforest)
 - Oil Spills (Ocean)
 - Ocean Mining (Ocean)
 - Dumping (Ocean)

Waste Management:

- Burn:
 - Health (City)
 - Air Pollution (Rainforest)
- Bury:
 - Health (City)
 - Food Production (Farm)
 - Water Waste (Farm)
 - Litter (Ocean)
- Recycle:
 - City Positive (City)

- Rainforest Positive (Rainforest)
- Ocean Positive (Ocean)

Transport:

- Sea:
 - City Positive (City)
 - Ballast Water (Ocean)
 - Dumping (Ocean)
 - Noise Pollution (Ocean)
- Land:
 - City Positive (City)
 - Air Pollution (Rainforest)
 - Land Runoff (Ocean)
- Air:
 - City Positive (City)
 - Air Pollution (Rainforest)

FARM:

Fertilizer:

- Good:
 - City Positive (City)
 - Economy (City)
 - Farm Positive (Farm)
 - Budget (Farm)
 - Food Production (Farm)
 - Rainforest Positive (Rainforest)
 - Ocean Positive (Ocean)
- Medium:
 - City Positive (City)
 - Economy (City)
 - Farm Positive (Farm)
 - Fertilizers & Pesticides (Rainforest)
 - Land Runoff (Ocean)
- Bad:
 - Health (City)
 - Fertilizers & Pesticides (Rainforest)
 - Mining Accidents (Rainforest)
 - Land Runoff (Ocean)

Food Origin:

- Local:
 - City Positive (City)
 - Economy (City)
 - Happiness (City)
 - Farm Positive (Farm)
- Foreign:
 - City Positive (City)

- Farm Positive (Farm)
- Taxes (Farm)
- Budget (Farm)
- Ballast Water (Ocean)
- Dumping (Ocean)
- Exotic:
 - City Positive (City)
 - Farm Positive (Farm)
 - Taxes (Farm)
 - Budget (Farm)
 - Fertilizers & Pesticides (Rainforest)
 - Ballast Water (Ocean)
 - Dumping (Ocean)

Irrigation Type:

- Surface:
 - Economy (City)
 - Water Waste (Farm)
- Conventional Drip:
 - City Positive (City)
 - Farm Positive (Farm)
 - Budget (Farm)
- Low Cost:
 - City Positive (City)
 - Farm Positive (Farm)

Waste Management:

- Burn:
 - Health (City)
 - Air Pollution (Rainforest)
- Bury:
 - Health (City)
 - Food Production (Farm)
 - Water Waste (Farm)
 - Litter (Ocean)
- Recycle:
 - City Positive (City)
 - Rainforest Positive (Rainforest)
 - Ocean Positive (Ocean)

Cultivation Type:

- Shifting:
 - Economy (City)
 - Farm Positive (Farm)
 - Rainforest Positive (Rainforest)
 - Ocean Positive (Ocean)
- Intensive:
 - Farm Positive (Farm)
 - Water Waste (Farm)

- Fertilizers & Pesticides (Rainforest)
- Land Runoff (Ocean)
- Commercial:
 - City Positive (City)
 - Water Waste (Farm)
 - Fertilizers & Pesticides (Rainforest)
 - Land Runoff (Ocean)

RAINFOREST:

Hitting a tree:

- Health (City)
- Air Pollution (Rainforest)

Hitting an oil barrel:

- Economy (City)
- Food Production (Farm)
- Oil (Rainforest)

Hitting a mine cart:

- Economy (City)
- Happiness (City)
- Mining Accidents (Rainforest)
- *Also add the effects of 'Hitting a tree' for each tree and/or 'Hitting an oil barrel' for each oil barrel the mining cart hits.*

OCEAN:

Moving the ship:

- Ballast Water (Ocean)

Hitting a rock:

- Economy (City)
- Happiness (City)
- Health (City)
- Budget (Farm)
- Food Production (Farm)
- Oil Spills (Ocean)

Losing cargo:

- Economy (City)
- Food Production (Farm)
- Dumping (Ocean)
- Littering (Ocean)

TARGET AUDIENCE RESEARCH

<https://docs.google.com/forms/d/e/1FAIpQLSf6nXLcEIUEKvJJex6Red8yIkDJPBUUCkQAx6ARB8N2iWzivA/viewform?fbzx=7507449988450003397>

[TO DO: connections inzetten, grafieken exporteren, resultaten opschrijven]

CONCLUSION