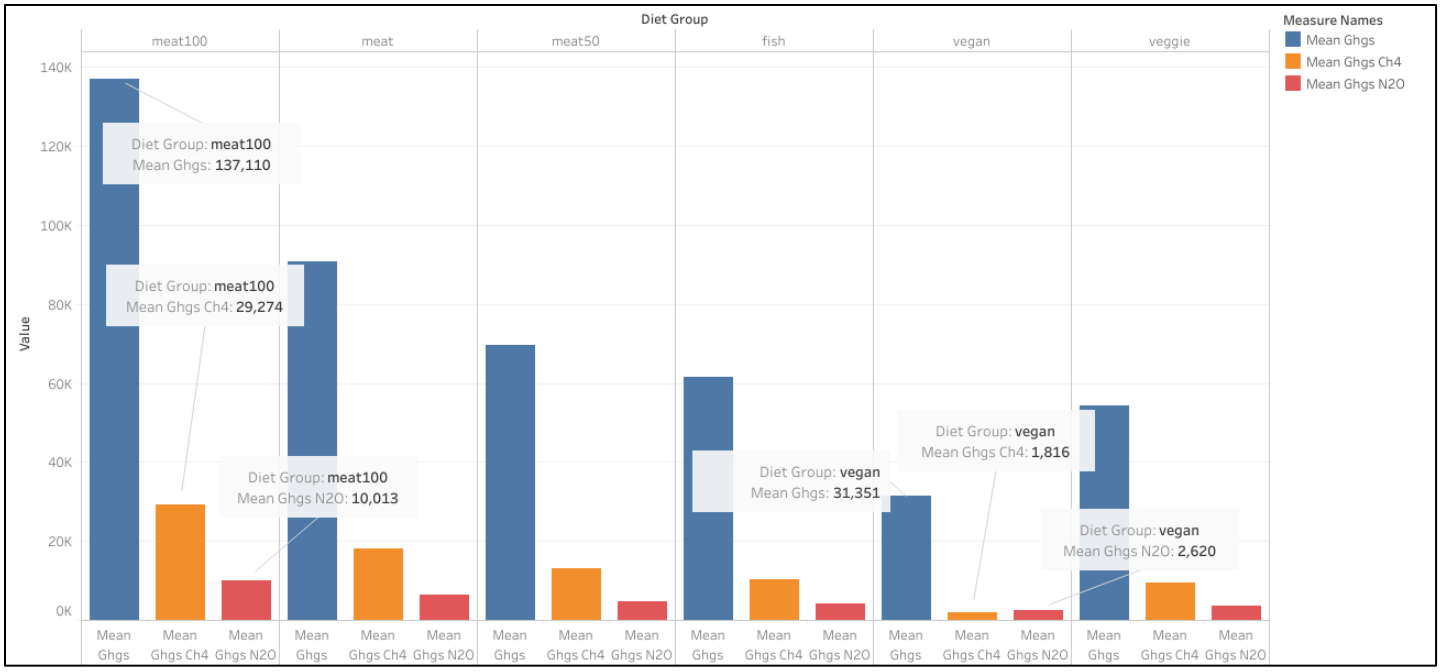


Visualization: Greenhouse gas emissions (mean, CH_4, N_2O) by different Diet Groups.

Visual Design Type: Side-by-side bar graph chart

Name of Tool: Tableau

Diet Groups: Fish, meat, meat(≥100 g/day), meat (>50 g/day), Vegans, Vegetarians.

Variables:

- mean_ghgs: Average total greenhouse gas emissions
- mean_ghgs_ CH_4: Average methane emissions from livestock
- mean_ghgs_ N_2O: Average nitrous oxide emissions from fertilizers
- diet_group: The different dietary categories

The columns were chosen to analyze the relationship between the greenhouse gas emissions and the different diet groups

Visual Mappings:

- X-axis: Diet groups including all the diets. The gasses are grouped based on different diet groups
- Y-axis: Greenhouse gas emissions. (Sum of the mean of each GHGs)
- Bar color: Emission type (total GHG, methane, nitrous oxide)

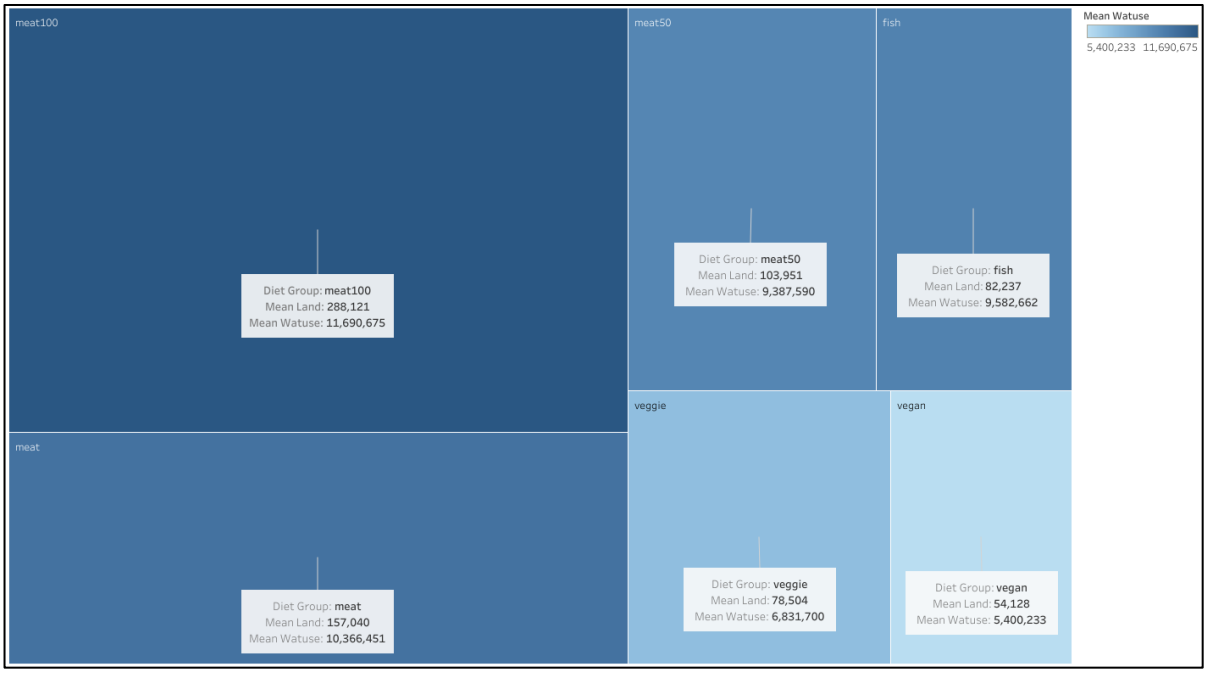
Key Insights:

- The bar graph clearly shows that the high meat-eater group has the highest total greenhouse gas emissions. The Meat-eater Group who consume more than 100g per day are the one with highest emission of both methane and nitrous oxide compared to other diet groups.
- In contrast, the vegans have the lowest overall GHG emissions.

As the amount of meat and animal-based foods consumed decreases from high meat-eaters to vegetarians and vegans, the total greenhouse gas emissions, methane, and nitrous oxide emissions also decrease proportionally. These insights demonstrate that the environmental impact, particularly in terms of greenhouse gas emissions, is strongly associated with the level of animal-based food consumption in the different diet groups.

Data Preparation:

The original dataset was aggregated to the diet group level to provide a more concise and readable visualization.



Visualization: Relationship between Land usage and water usage amongst different diet groups.

Visual Design Type: Heatmap

Name of Tool: Tableau

Diet Groups: Vegans, Vegetarians, Fish-eaters, Low Meat-eaters, Medium Meat-eaters, High Meat-eaters.

Variables:

- mean_land: Average land use
- mean_watuse: Average water usage
- diet_group: The different dietary categories

These variables were chosen to explore the relationship between the land and water impacts associated with the different dietary patterns.

Visual Mappings:

- X-axis: Land use (mean_land)
- Y-axis: Water usage (mean_watuse)
- Color-coding: Diet group
- Area: Area coverage for land usage

The heatmap visualization allows us to see the distribution of the diet groups based on their land and water impacts. The color-coding helps identify any patterns or correlations between these two environmental metrics.

Key Insights:

- The heatmap clearly shows that the plant-based diets (vegans, vegetarians) cluster in the lower right quadrant, indicating lower land and water usage compared to the meat-heavy diets (high meat-eaters) which are positioned in the upper left quadrant.

This suggests that reducing the consumption of animal-based foods, especially red meat, can significantly lower the land and water footprint of an individual's diet. Additionally, the heatmap reveals a distinct grouping of the fish-eaters, who appear to have a relatively lower land use but higher water usage compared to the other diet groups.

Data Preparation: The original dataset was used without any modifications to generate the heatmap visualization.