

Solution Challenge

2024

Team Name

Hunger Heaven



PROBLEM STATEMENT

**Reducing Food Waste and Facilitating Surplus Food
Donations**



Sustainable Development Goals Addressed



Zero Hunger



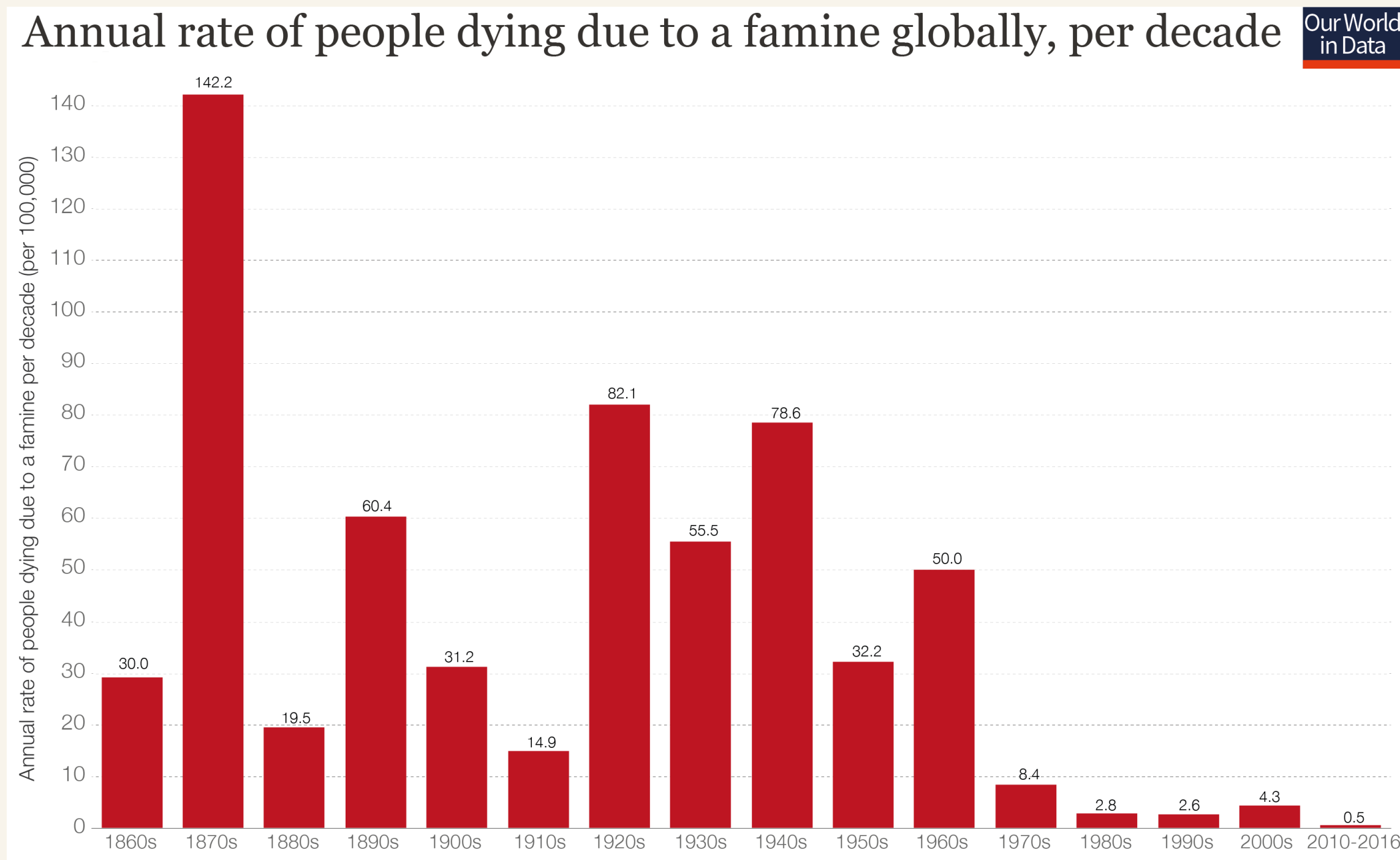
**Responsible Consumption
and Production**



Good Health and Wellbeing



Death Due to Hunger



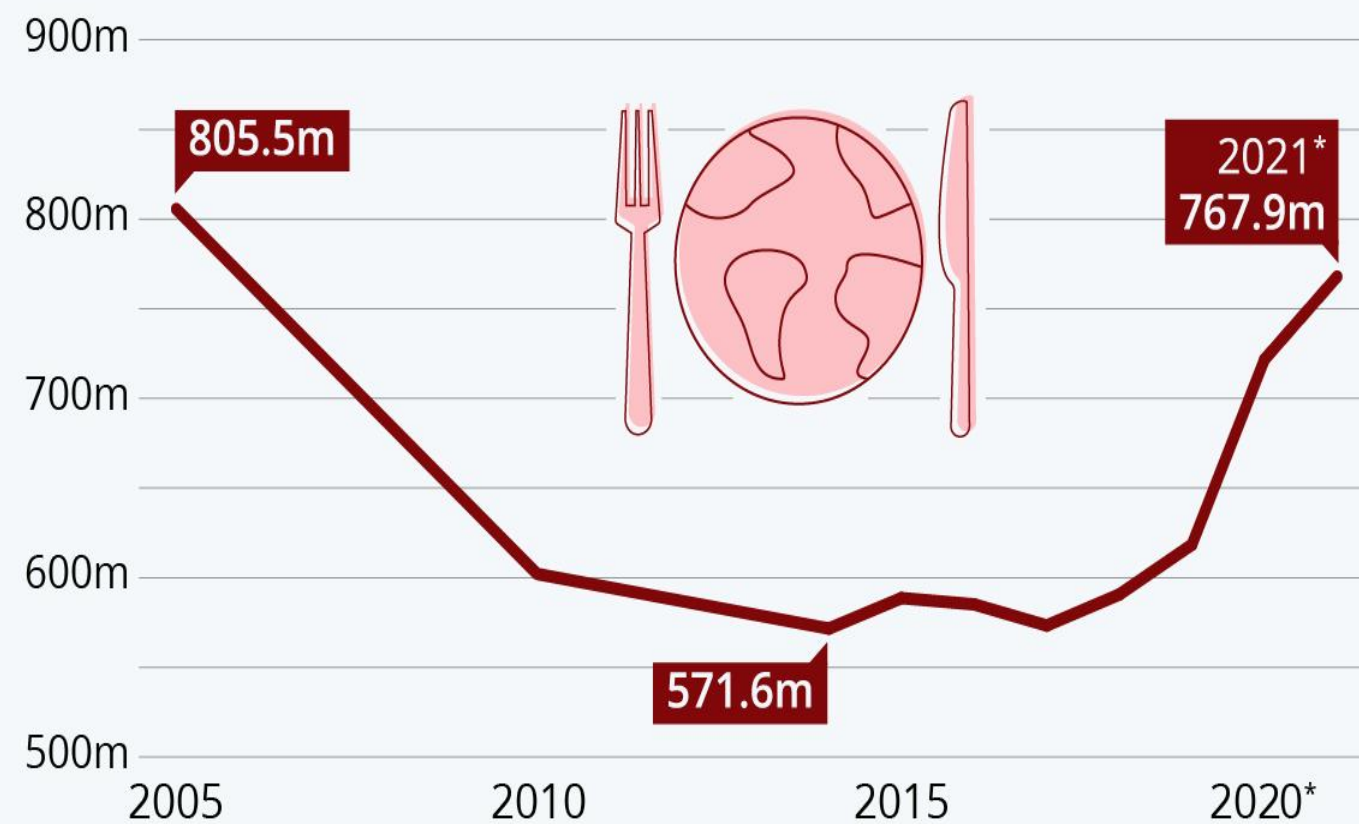
Data source: The rate of the excess mortality due to famines shown here is presented in detail on OurWorldinData.org/famines [The dataset was constructed by Joe Hasell and Max Roser].
How the rate is calculated: The annual rate is calculated for each decade by dividing the total number of famine victims in each decade by the average size of the world population in that decade and dividing the resulting ratio by 10 (and for the data from 2010 to 2016 it is divided by 7) to arrive at a yearly rate. To express it as the rate per 100,000 people, this annual rate is then multiplied by 100,000.
For famines that happened at the end of a decade and the beginning of the next decade the famine victims are split by decade on a year by year basis.
For famines for which different excess mortality estimates are published the midpoint between these estimates was chosen here.
This visualization is available at OurWorldinData.org. There you find the full dataset and more research and visualizations on famines and global development.
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Hunger Rate Chart

World Hunger Continues Dramatic Rise

Number of undernourished people worldwide from 2005 to 2021*



* 2020: Middle estimate. 2021: Middle estimate, projection

Source: UN Food and Agriculture Organization



statista

Food Waste Chart

The Enormous Scale of Global Food Waste

Total annual household food waste produced in selected countries*



* UNEP estimates with high or medium confidence

Source: UNEP Food Waste Index Report 2021



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SOLUTION

Efficient Surplus Food Redistribution:

- Connects restaurants with surplus food to delivery drivers for streamlined donations.
- Facilitates real-time input of surplus food details by restaurants.

Seamless Mobile App Experience:

- Cross-platform mobile app (Flutter) with an intuitive interface for both restaurant staff and delivery drivers.
- Firebase backend ensures real-time data processing and communication.

Optimized Pickup Recommendation through Machine Learning:

- Scikit-learn-based machine learning predicts demand and optimizes delivery routes for efficient pickups.
- Enhances delivery drivers' recommendations based on historical and real-time data.

Real-Time Communication and Firestore Database:

- Ensures seamless communication between the mobile app and Firebase backend.

Positive Impact on Food Waste and Hunger:

- Reduces food waste by connecting surplus food with those in need.
- Addresses hunger by efficiently redistributing surplus food, optimizing resource usage.





Tech Stack

- **Flutter:** Mobile App
- **Python:** Machine Learning
- **Google Maps API:** Geospatial Integration
- **Firebase:** Backend



Workflow

Step 1 Restaurants

Input surplus food details into the app for real-time visibility.

Step 2 Delivery Drivers

Receive optimized recommendations for surplus food pickups.

Step 3 Machine Learning

Predicts demand, optimizing delivery routes based on historical and real-time.

Step 4 Real-Time

Seamless interaction between the app and Firebase backend.



FUTURE ASPECT

Scalability and Expansion

- Explore opportunities to scale the platform to new cities and regions.

Advanced Machine Learning Integration

- Investigate advanced algorithms for optimizing delivery routes and surplus food identification.

Partnerships with nearby NGOs

- Form partnerships with charitable organizations and potential sponsors to strengthen the impact.

Impact Assessment and Analytics

- Implement robust analytics tools to measure the impact of surplus food donations.

Localization and Cultural Adaptation

- Customize the application to align with local preferences and cultural considerations.



The Team

Team Member 1

Yash Mistry

Team Member 2

Smit Mistry

Team Member 3

Dhruv Thakkar

Team Member 4

Himanshu Sanghani

