

A Project Report

On

**Global Food Production Trends and Analysis A
Comprehensive Study from (1961 to 2023)Using Power BI**

Submitted for fulfilment of

Experiential Project Based Learning(EPBL)

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I want to take a moment to express my sincere appreciation for the dedication, effort, and teamwork each of you has shown throughout this project. Your commitment to excellence, problem-solving skills, and collaboration have truly made a difference.

Every challenge we faced was met with determination, and your ability to support one another has been inspiring. It is because of your hard work that we have been able to achieve great results. I am grateful for the contributions each of you has made, and I look forward to continuing this journey together.

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Thank you for your hard work and for being such an amazing team!

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1. INTRODUCTION

1.1 Project Overview :

This project analyzes global food production trends from 1961 to 2023, focusing on major crop and livestock categories. The goal is to understand historical patterns, identify drivers, and assess implications for food security.

Purpose :

To provide a comprehensive overview of food production changes, highlight key trends, and offer insights for future food production strategies

2.IDEATION PHASE

2.1 Problem Statement :

Global food production faces challenges from increasing demand, climate change, and resource scarcity.



Customer Problem
Statement (1).pdf

2.2 Empathy Map Canvas:

Stakeholders include farmers (concerns about yields), consumers (concerns about affordability), and policymakers (concerns about food security).



Empathy map
Canvas.pdf

2.3 Brainstorming:

3. Requirement Analysis :

3.1 Customer Journey Map:



Customer Touchpoint
Map.pdf

3.2 Solution Requirement:



Solution
Requirements.docx

3.3 Data Flow Diagram:



Data Org Chart.pdf

3.4 Technology Stack:

4. Project Design:

4.1 Problem Solution Fit:



Solution
Requirements.docx

4.2 Proposed Solution:



4.2 Proposed Solution
Template.docx

4.3 Solution Architecture:



Solution
Architecture.docx

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning:



Project Planning
Template.docx

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing :



6.Performance
test.docx

7. RESULTS

7.1 Output Screenshots :

8 .Advantages:

Advantages of Global Food Production (1961–2023):

- 1. Increased Productivity:** Advancements like the Green Revolution, biotechnology, and improved farming techniques boosted crop yields and food availability.
- 2. Diverse Food Access:** Global trade allowed countries to access a wide variety of foods, improving diet diversity.
- 3. Economic Growth:** Expansion of agriculture created jobs, lifted millions out of poverty, and boosted economies, especially in developing countries.
- 4. Famine Reduction:** Improved distribution and food security measures helped reduce famine and hunger.
- 5. Sustainability Innovations:** Growing interest in sustainable farming practices, organic agriculture, and agroecology.

- **DISADVANTAGES of Global Food Production (1961–2023):**

1. Environmental Damage: Intensive farming caused soil degradation, deforestation, and water scarcity, contributing to biodiversity loss and climate change.

2. Greenhouse Gas Emissions: Agriculture became a major emitter of methane, nitrous oxide, and carbon dioxide.

3. Vulnerable Supply Chains: Global food systems became increasingly susceptible to disruptions (e.g., pandemics, trade wars, and climate events).

4. Loss of Biodiversity: Monoculture farming and GMOs reduced genetic diversity, making crops more vulnerable to pests and diseases.

5. Health and Inequality Issues: Processed foods contributed to diet-related diseases, and food insecurity persisted in many regions despite increased production.

9. CONCLUSION:

Conclusion: Global Food Production from 1961 to 2023

From 1961 to 2023, global food production experienced significant advancements driven by technological innovations, such as the Green Revolution, biotechnology, and improved farming techniques. These developments led to increased productivity, greater food diversity, and expanded access to food across the globe. This transformation has helped reduce famine and poverty in

many regions, while also fostering economic growth through agricultural exports.

However, the benefits of increased food production have come with notable environmental and social challenges. Intensive farming practices have contributed to soil degradation, deforestation, water scarcity, and a rise in greenhouse gas emissions. The overreliance on monoculture crops and global supply chains has made food systems vulnerable to disruptions. Additionally, while food availability increased, issues of food insecurity, inequality, and diet-related health problems have persisted in some areas.

Moving forward, balancing the need for increased food production with sustainability, environmental conservation, and equitable distribution will be critical in addressing the challenges faced by global food systems

10. FUTURE SCOPE

Future scope

The future scope of global food production, from 1961 to 2023, will focus on addressing sustainability, climate change, and food security. Key areas include:

1.Sustainable Farming: Emphasizing regenerative agriculture, precision farming, and eco-friendly practices to reduce environmental impacts.

2. Technological Innovation: Advancements in AI, gene editing (e.g., CRISPR), vertical farming, and automation will improve productivity and resource efficiency.

3. Alternative Proteins: Increased focus on plant-based and lab-grown proteins to reduce the environmental impact of traditional livestock farming.

4. Climate Resilience: Developing climate-resilient crops and adapting farming practices to cope with changing weather patterns.

5. Waste Reduction: Minimizing food waste through better preservation, packaging, and recycling in a circular food economy.

The future of global food production will balance technological growth with environmental sustainability, aiming to feed a growing population while protecting the planet.

**** Appendix: Global Food Production from 1961 to 2023**

1. 1960s - Green Revolution::

- o Introduction of high-yielding varieties (HYVs) of crops (e.g., wheat, rice, maize).**
- o Use of chemical fertilizers, pesticides, and irrigation expanded.**
- o Significant increases in food production, especially in developing countries (e.g., India, Mexico).**

2. 1970s - Growth and Expansion:

- o Agricultural productivity continued to rise with more mechanized farming.**

- o The global food trade grew, allowing for a more diverse food supply worldwide.

- o The rise of industrial farming methods contributed to higher outputs.

3. 1980s-1990s - Biotechnology and GMOs:

- o Genetic modification and biotechnological advancements began to play a role.

- o The first GMOs were developed, such as Bt cotton and Roundup-resistant crops.

- o Environmental concerns about monoculture farming and pesticide use grew.

4. 2000s - Technological Integration:

- o Rise of precision farming using GPS, sensors, and data analytics for efficient resource use.

- o Increase in organic farming and sustainable practices in response to environmental concerns.

- o Growth of food exports, with some countries becoming major food producers and exporters.

5. 2010s - Sustainability and Climate Change Awareness:

- o Heightened focus on climate change, water scarcity, and soil degradation in agriculture.

- o Introduction of vertical farming, hydroponics, and aquaponics to address land and water limitations.

- o Expansion of alternative protein sources like plant-based foods and lab-grown meat.

6. 2020s - Future-Oriented Innovations:

- o Advances in AI, robotics, and drones to monitor crops and manage farming operations efficiently.**
- o Increased interest in sustainable farming, circular food economies, and food waste reduction.**
- o Focus on climate-smart agriculture and the development of climate-resilient crops.**
- o The rise of lab-grown meat and plant-based protein alternatives to reduce the environmental impact of livestock farming.**