

Initial Project Planning Report

Project Title: Global Food Production Trends and Analysis (1961–2023)

1. Introduction

Food production is a critical factor influencing global food security, trade, and policy-making. The **World Food Production dataset (Kaggle, 1961–2023)** provides a detailed view of agricultural outputs across countries and commodities. However, the dataset's scale and complexity necessitate structured analysis and visualization.

This project aims to develop interactive **Power BI dashboards** to transform raw data into meaningful insights, enabling policymakers, researchers, and agribusinesses to identify trends, top producers, and commodity-wise contributions.

2. Objectives

- To analyze global food production patterns over six decades (1961–2023).
- To identify top-producing countries, regions, and commodities.
- To track historical trends in high-volume crops (e.g., sugarcane, wheat, rice).
- To design **interactive dashboards** that allow customized analysis by commodity, country, and year.
- To present both **visual and textual insights** for decision-making support.

3. Dataset Overview

- **Source:** [Kaggle – World Food Production](#)
- **Timeframe:** 1961–2023
- **Records:** Country-wise annual production volumes for 100+ commodities
- **Key Attributes:**
 - Country/Entity
 - Year
 - Item (Commodity)
 - Production (in tonnes)

4. Tools & Technologies

- **Power BI:** Dashboard design & visualization
- **Power Query:** Data cleaning & transformation
- **DAX (Data Analysis Expressions):** Calculated columns & measures
- **Microsoft Excel:** Initial data exploration

5. Methodology

Phase 1: Data Preparation

- Import dataset into Power BI.
- Clean data: remove nulls, handle duplicates, standardize names.
- Create commodity categories (Cereals, Fruits, Oilseeds, Root Crops, Cash Crops).
- Convert production volumes into billions of tonnes for readability.

Phase 2: Dashboard Development

- **Dashboard 1: Global Production Overview** – commodity breakdown, sugarcane trend, regional treemaps, and KPIs.
- **Dashboard 2: Analytical Report View** – top entities, crop-specific analysis, and narrative insights.

Phase 3: Insight Extraction

- Use DAX for KPIs like total production, YoY change, and commodity share.
- Analyze top producers and commodity trends.
- Highlight key findings in text panels.

Phase 4: Validation & Presentation

- Cross-check data accuracy.
- Refine dashboard design for usability and clarity.
- Document insights in professional reporting format.

6. Deliverables

- **Interactive Power BI Dashboards** (2 views)
- **Project Documentation** (Problem Statement, Proposal, Planning Report, Insights)
- **Insights Report** summarizing key findings

7. Timeline (Estimated)

Phase	Task	Duration
Phase 1	Data Import & Cleaning	2 days
Phase 2	Dashboard Design & Development	4 days
Phase 3	DAX Implementation & Insights Extraction	2 days
Phase 4	Validation & Documentation	2 days
Total Duration		10 days

8. Risks & Challenges

- Large dataset may cause performance lags in Power BI.
- Standardizing commodity categories without overlap.
- Ensuring dashboards remain both **informative** and **user-friendly**.

9. Expected Outcomes

- Clear identification of top producers and commodities.
- Recognition of regional specialization patterns.
- A scalable, interactive dashboard for long-term analysis.
- Actionable insights supporting food security and agricultural research.