

# Final Project Report Template

## 1. Introduction

### 1.1. Project overviews

Child malnutrition continues to affect millions of children worldwide, especially in lower-income countries. In this project, I use Power BI to turn years of raw data into clear, interactive visuals that show how malnutrition trends have changed from 1983 to 2019. The goal is to help health organizations and governments understand where help is needed most—so they can take action and improve children's lives.

### 1.2. Objectives

- **Analyze** global malnutrition trends (1983–2019) among children under five using reliable data sources.
- **Compare** different forms of malnutrition—stunting, wasting, underweight, and overweight—across countries.
- **Identify** high-risk regions and patterns to support better decision-making and targeted interventions.
- **Support** health organizations and policy-makers with actionable, data-driven recommendations.

## 2. Project Initialization and Planning Phase

### 2.1. Define Problem Statement

Malnutrition remains a serious issue for children under five, especially in low- and middle-income countries. Despite having access to large amounts of data, organizations and governments struggle to clearly understand where malnutrition is most severe, how it has changed over time, and how it relates to a country's income level or development status. Without clear, visual, and interactive analysis, it's difficult to make informed decisions or target the right areas. This project aims to solve that by using Power BI to turn complex malnutrition data into meaningful insights that can guide better policies and actions.

## ***2.2. Project Proposal (Proposed Solution)***

To address the challenges of understanding global malnutrition trends, this project proposes building an interactive Power BI dashboard that visualizes key malnutrition indicators—such as stunting, wasting, underweight, and overweight—among children under five from 1983 to 2019. By organizing the data by country, income level, and special classifications (like LDC, LLDC, SIDS), the dashboard will help users explore patterns, compare regions, and identify areas needing urgent attention. This visual, user-friendly solution will support faster, data-driven decisions for improving child health worldwide.

## ***2.3. Initial Project Planning***

- Data Collection
- Data Cleaning and Formatting
- Data Type Conversion
- Data Modeling
- Dashboard Design and Visualization
- Interactivity and Filtering Setup
- Final Reporting and Presentation

## ***3. Data Collection and Preprocessing Phase***

### ***3.1. Data Collection Plan and Raw Data Sources Identified***

- Collect reliable, multi-year data on child malnutrition for children under five
- Download publicly available datasets from trusted global health organizations  
Sources:
  - UNICEF, World Health Organization (WHO), World Bank.

### ***3.2. Data Quality Report***

- **Completeness**
- **Consistency**
- **Accuracy**

- **Timeliness**
- **Uniqueness**

### ***3.3. Data Exploration and Preprocessing***

First, I looked through the data to understand what's there and found some missing or duplicate values. Then, I cleaned the data by fixing country names, filling or removing missing spots, and making sure numbers and dates are in the right format. I also split and merged columns where needed and set up connections between tables so the data works well together for analysis.

## **4. Data Visualization**

### ***4.1. Framing Business Questions***

- Which countries have the highest rates of child malnutrition?
- How have malnutrition trends changed over time across different income groups?
- Are certain types of malnutrition more common in specific regions or country categories?
- What patterns can help policy-makers decide where to focus their efforts?
- How do economic factors relate to changes in child nutrition?

### ***4.2. Developing Visualizations***

In this step, I create clear and interactive charts and graphs using Power BI. I use line charts to show malnutrition trends over time, stacked bar charts to compare different types of malnutrition across countries, and maps to highlight regions with higher rates. Filters and slicers let users explore data by income groups, country categories, or years. The goal is to make complex data easy to understand so decision-makers can quickly spot patterns and make informed choices.

## **5. Dashboard**

### ***5.1. Dashboard Design***

The dashboard is an interactive Power BI report that brings together all the key malnutrition data in one place. It features charts, maps, and filters that let users explore

child malnutrition trends by country, income level, and time period. Users can easily compare different types of malnutrition, identify high-risk regions, and see how things have changed over the years. The dashboard is designed to be user-friendly and helps decision-makers quickly understand the data and take action.

## **6. Report**

### **6.1. Story Design**

Story design means organizing your dashboard visuals in a clear, logical way that guides users through the data. You start by showing the big picture – global malnutrition trends over time – then let users dive deeper into specific countries or regions. Use visuals like summary cards, trend lines, and maps in a sequence that tells a story: where malnutrition is highest, how it changes by income groups, and which areas need urgent attention. The goal is to make data exploration intuitive and help users discover insights step-by-step.

## **7. Performance Testing**

### **7.1 Utilization of Data filters**

Filters let users narrow down the data to focus on what matters most. In the dashboard, filters can be used to select specific years, countries, income groups, or types of malnutrition. This helps users quickly find trends or compare areas without being overwhelmed by too much information. Using filters makes the dashboard interactive and customizable, so different users can explore the data in ways that best suit their needs.

### **7.2 No of Visualization**

*I made like 7 to 8 visualizations by analyzing each one gaining valuable insights.*

## **8. Conclusion/Observation**

This project successfully analyzed global child malnutrition trends from 1983 to 2019 using Power BI. By combining data from UNICEF, WHO, and the World Bank, and grouping countries by income and development status, the interactive dashboard

reveals important patterns and high-risk areas. These insights can help health organizations and policy-makers make informed decisions and focus efforts where they're needed most to improve child health worldwide. Overall, the project shows how data visualization can turn complex information into actionable knowledge.

## **9. Future Scope**

In the future, this project can be expanded by adding more recent data beyond 2019 to track current trends. Incorporating other health and socioeconomic factors—like access to clean water or education—could provide deeper insights into the causes of malnutrition. Adding predictive analytics and machine learning models could help forecast future malnutrition risks. Finally, making the dashboard accessible on mobile devices and adding multilingual support would increase its reach and usability for global users.

## **10. Appendix**

- **Data Sources:** List of datasets used (UNICEF, WHO, World Bank)
- **Data Cleaning Steps:** Summary of how missing data, duplicates, and inconsistencies were handled
- **Data Model Diagram:** Visual of tables and relationships in Power BI

### **10.1. GitHub & Project Demo Link**

LINK: <https://github.com/HarshithaNadipena/Global-Malnutrition-Trends.git>