

# Monitoring and Evaluation

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## ABSTRACT

Urban informal settlements in Nairobi, Kenya continue to experience persistent food insecurity driven by poverty, unemployment, and recurrent economic shocks. Humanitarian food security programs increasingly integrate community-based real-time feedback mechanisms (RTFMs) to enhance accountability, responsiveness, and program quality. However, empirical evaluation of these mechanisms within urban informal settlement contexts remains limited.

This study monitored and evaluated the implementation and performance of a community-based real-time feedback system integrated into a humanitarian food security program in selected informal settlements of Nairobi, including Kibera, Mathare, Mukuru kwa Njenga, and Korogocho. A descriptive and analytical Monitoring and Evaluation (M&E) design was adopted using simulated (assimilated) quantitative and qualitative data to model real-world humanitarian operations.

The analysis showed that 67.2% of beneficiaries were aware of available feedback mechanisms, with helpdesks, SMS, and hotlines being the most utilized channels. The average feedback response time was four days, with 72.1% of cases resolved within established Service Level Agreements. Thematic analysis revealed that targeting issues, food quality, staff conduct, food quantity, and distribution delays were the most frequently reported concerns.

The study concludes that real-time feedback mechanisms are effective tools for strengthening accountability and learning in urban humanitarian food security programs when adequately managed. However, continued efforts are required to improve beneficiary awareness, resolve outstanding feedback cases, and address recurrent operational challenges. The use of simulated data provides a valid and ethical approach for demonstrating M&E system evaluation in academic and professional contexts.

## EXECUTIVE SUMMARY

Humanitarian food security interventions in Nairobi's urban informal settlements operate in complex environments characterized by high population density, vulnerability, and limited access to essential services. Accountability to affected populations is therefore critical to program effectiveness and sustainability. This project evaluated the performance of a community-based real-time feedback mechanism embedded within a humanitarian food security program using simulated data.

The evaluation focused on accessibility, utilization, data quality, timeliness, and effectiveness of the feedback system. A simulated sample of 1,000 beneficiaries was analyzed alongside feedback logs and response tracking data. Multiple feedback channels were assessed, including SMS, hotlines, and community helpdesks.

Findings indicate that the feedback mechanism was functional and actively utilized, with 67.2% beneficiary awareness. Feedback was largely addressed in a timely manner, with an average response time of four days and over 70% of cases resolved within agreed timelines. However, targeting concerns and service delivery issues emerged as recurring themes, highlighting areas requiring programmatic attention.

The evaluation recommends strengthening community sensitization, improving follow-up on unresolved cases, enhancing staff training on accountability and conduct, and institutionalizing regular feedback analysis through dashboards. Overall, the project demonstrates that well-managed real-time feedback systems can significantly enhance accountability, learning, and program quality in urban food security interventions.

## INTRODUCTION

### Background of the Study

Kenya continues to face persistent food insecurity, particularly among urban poor populations residing in informal settlements. According to humanitarian assessments, informal settlements in Nairobi such as Kibera, Mathare, Mukuru kwa Njenga, and Korogocho\*\* experience chronic food insecurity driven by poverty, unemployment, high food prices, and recurrent shocks.

Humanitarian food security programs have increasingly integrated community-based real-time feedback mechanisms (RTFMs) to enhance accountability, responsiveness, and program quality. These mechanisms allow beneficiaries to provide immediate feedback through channels such as SMS, toll-free lines, suggestion boxes, and digital surveys.

Despite their adoption, limited empirical evaluation exists on the effectiveness, data quality, and operational challenges of these feedback systems within urban food security programming in Kenya. This study seeks to fill this gap using simulated (assimilated) data to demonstrate a robust Monitoring and Evaluation (M&E) framework.

### Problem Statement

While real-time feedback mechanisms are promoted as best practice in humanitarian accountability, their effectiveness in urban informal settlements remains uncertain. Challenges such as limited digital literacy, access barriers, delayed response to feedback, and data quality issues may undermine their intended purpose.

Without systematic monitoring and evaluation, humanitarian actors risk implementing feedback systems that are underutilized, poorly managed, or ineffective, thereby weakening accountability to affected populations. This project evaluates the performance of such systems in Nairobi's informal settlements using simulated data to model real-world humanitarian operations.

# Project Objectives

## General Objective

To monitor and evaluate the implementation and performance of a community based real-time feedback system integrated into humanitarian food security programs in urban informal settlements of Nairobi, Kenya.

## Specific Objectives

1. To assess the accessibility, functionality, and utilization of the real-time community feedback mechanism among targeted beneficiaries.
2. To analyze the quality, completeness, and timeliness of feedback data generated for effective monitoring and reporting.
3. To identify implementation challenges, best practices, and lessons learned in managing real-time feedback mechanisms.

## Research Questions

1. How accessible and functional is the real-time feedback mechanism for beneficiaries in food-insecure urban settlements?
2. What is the quality and timeliness of feedback data generated through the system?
3. What operational challenges and best practices influence effective implementation?

## Significance of the Study

- Supports NGOs and humanitarian agencies in improving accountability systems
- Strengthens MEAL system design and reporting
- Provides a replicable M&E framework using simulated data
- Useful for academic research, internships, and donor reporting

## METHODOLOGY

### Study Design

This study adopted a descriptive and analytical Monitoring and Evaluation (M&E) design. The design focused on assessing the implementation, functionality, and performance of a community-based real-time feedback mechanism (RTFM) integrated into a humanitarian food security program.

The study utilized simulated (assimilated) quantitative and qualitative data to model realistic humanitarian program operations. This approach enabled systematic analysis while avoiding the use of real beneficiary data, in line with ethical and academic requirements.

## Study Area

The study was contextualized within urban informal settlements in Nairobi, Kenya, characterized by high population density, poverty, and food insecurity. The simulated data reflected conditions in the following settlements:

- Kibera
- Mathare
- Mukuru kwa Njenga
- Korogocho

These areas were selected due to their recurrent inclusion in humanitarian food security interventions.

## Target Population

The target population represented key stakeholders involved in the food security program, including:

- Beneficiaries receiving humanitarian food assistance
- Community mobilizers supporting feedback collection
- MEAL officers responsible for system management
- Program managers overseeing implementation

## Data Sources

The study relied exclusively on simulated data sources, designed to replicate real humanitarian program datasets.

Data Type	Description
Beneficiary registry	Simulated demographic and household data
Feedback records	Simulated SMS, hotline, and in-person feedback
Response logs	Simulated tracking of actions taken on feedback
Staff insights	Simulated key informant interview summaries

No real personal or sensitive information was collected or analyzed.

## Sampling Technique and Sample Size

A simulated sample of 1000 beneficiaries was generated. The sample was stratified by settlement and gender to reflect equitable program coverage.

In addition, purposive sampling was applied to simulate:

- 5 MEAL officers
- 4 community mobilizers
- 3 program managers

This sampling approach aligns with standard humanitarian M&E practice.

## Data Collection Tools

The following simulated data collection tools were used:

- Kobo structured questionnaires
- Feedback categorization matrix
- MEAL response tracking template
- Simulated key informant interview guide

These tools were designed to reflect commonly used NGO MEAL systems.

## Study Variables and Indicators

The study variables were derived from the project objectives and accountability frameworks.

Variable	Indicator
Accessibility	% of beneficiaries aware of feedback channels
Utilization	Feedback submissions per 1,000 beneficiaries
Data Quality	% of complete feedback records
Timeliness	Average feedback response time (days)
Effectiveness	% of feedback resolved within SLA

## Data Analysis Procedures

Quantitative data are analyzed using descriptive statistics, including frequencies, percentages, and averages. Trend analysis is applied to examine feedback volume over time.

Qualitative feedback is analyzed using thematic analysis, with responses categorized into key themes such as food adequacy, targeting, and staff conduct.

Results are presented using tables, charts, and summary narratives.

## Ethical Considerations

The study adhered to ethical standards relevant to humanitarian research and academic work:

- Exclusive use of simulated (assimilated) data
- No collection of personal identifiers
- Alignment with humanitarian data protection principles
- No risk posed to individuals or communities

Ethical approval was not required due to the non-use of real human subjects.

## Methodological Limitations

- Simulated data may not capture all real-world complexities
- Findings are illustrative rather than generalizable
- Urban population mobility is approximated rather than observed

Despite these limitations, the methodology provides a robust framework for demonstrating effective M&E system evaluation.

## Data Analysis Plan

Data analysis is conducted using both quantitative and qualitative approaches, based on simulated datasets designed to reflect real humanitarian food security program data.

### Quantitative Data Analysis

Quantitative data are analyzed using descriptive statistical techniques. These included:

Frequencies and percentages to summarize beneficiary characteristics, awareness of feedback mechanisms, and utilization of feedback channels.

Measures of central tendency, such as averages, to assess response times and feedback resolution rates.

To examine system performance over time, trend analysis was conducted by aggregating feedback submissions on a monthly basis. This enabled assessment of changes in feedback volume and identification of periods with increased or decreased system utilization.

### Qualitative Data Analysis

Qualitative feedback data are analyzed using thematic analysis. Feedback narratives are reviewed, coded, and grouped into recurrent themes, including food quantity, distribution delays, staff conduct, and targeting concerns.

This approach allowed for systematic identification of key issues raised by beneficiaries and supported interpretation of quantitative findings.

## Data Visualization and Reporting

Findings were presented using visual and tabular formats to enhance interpretation and reporting. These included:

Bar charts and frequency tables to display feedback categories and channel usage.

Trend graphs to illustrate monthly feedback volumes.

Dashboards to summarize key performance indicators such as accessibility, timeliness, and feedback resolution rates.

All visualizations were designed to reflect standard MEAL reporting practices and to support evidence-based decision-making.

## Software and Tools

Data analysis and visualization were conducted using commonly applied tools in humanitarian M&E, including:

Microsoft Excel

R (for statistical analysis and visualization)

Import libraries

# Load required libraries:

```
library(tidyverse)
```

```
## — Attaching core tidyverse packages ————— tidyverse 2.0.0 —
## ✓ dplyr 1.1.3 ✓ readr 2.1.4
## ✓forcats 1.0.0 ✓ stringr 1.5.0
## ✓ ggplot2 3.4.4 ✓ tibble 3.2.1
## ✓ lubridate 1.9.3 ✓ tidyr 1.3.0
## ✓ purrr 1.0.2
## — Conflicts ————— tidyverse_conflicts() —
## ✘ dplyr::filter() masks stats::filter()
## ✘ dplyr::lag() masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(lubridate)
library(janitor)
```

```
## Warning: package 'janitor' was built under R version 4.3.3
```

```

## 
## Attaching package: 'janitor'
##
## The following objects are masked from 'package:stats':
## 
##   chisq.test, fisher.test

library(tidyverse)

## **2. Load the Simulated Dataset**

library(readxl)
Monitoring_and_Evaluation_project_data <- read_excel("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx")
Monitoring_and_Evaluation_project_data

## # A tibble: 1,000 × 9
##   Beneficiary_ID Gender Age Settlement Household_size Assistance_type
##   <chr>          <chr> <dbl> <chr>           <dbl> <chr>
## 1 BEN001         Male   50   Korogocho        4 Cash Transfer
## 2 BEN002         Male   41   Mathare          4 Cash Transfer
## 3 BEN003         Male   57   Kibera           2 Cash Transfer
## 4 BEN004         Male   59   Mathare          3 In-Kind Food
## 5 BEN005         Female 26   Mukuru           2 Food Voucher
## 6 BEN006         Male   32   Mukuru           1 Cash Transfer
## 7 BEN007         Female 73   Mathare          1 Cash Transfer
## 8 BEN008         Male   34   Kibera           4 Cash Transfer
## 9 BEN009         Female 26   Mathare          5 Cash Transfer
## 10 BEN010        Female 31   Mathare          1 Food Voucher
## # i 990 more rows
## # i 3 more variables: Phone_Access <chr>, Awareness_of_feedback <chr>,
## # `Vulnerability_category` <chr>

library(readxl)

# List all sheets in the Excel file
excel_sheets("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx")

## [1] "Beneficiary.xlsx" "feedback_txt"    "Feedback_log"    "response_tracker"

# Import "beneficiaries" sheet
beneficiaries <- read_excel("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx",
                            sheet = "Beneficiary.xlsx")
beneficiaries

## # A tibble: 1,000 × 9
##   Beneficiary_ID Gender Age Settlement Household_size Assistance_type
##   <chr>          <chr> <dbl> <chr>           <dbl> <chr>
## 1 BEN001         Male   50   Korogocho        4 Cash Transfer
## 2 BEN002         Male   41   Mathare          4 Cash Transfer
## 3 BEN003         Male   57   Kibera           2 Cash Transfer

```

```

## 4 BEN004 Male 59 Mathare 3 In-Kind Food
## 5 BEN005 Female 26 Mukuru 2 Food Voucher
## 6 BEN006 Male 32 Mukuru 1 Cash Transfer
## 7 BEN007 Female 73 Mathare 1 Cash Transfer
## 8 BEN008 Male 34 Kibera 4 Cash Transfer
## 9 BEN009 Female 26 Mathare 5 Cash Transfer
## 10 BEN010 Female 31 Mathare 1 Food Voucher
## # i 990 more rows
## # i 3 more variables: Phone_Access <chr>, Awareness_of_feedback <chr>,
## # `Vulnerability_category` <chr>

# Import "feedback_txt"
feedback_txt <- read_excel("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx",
                           sheet = "feedback_txt")
feedback_txt

## # A tibble: 9 × 2
## `Food quality` `Food items were damaged or expired`
## <chr>          <chr>
## 1 Food quality Quality of food was poo
## 2 Food quantity Food received was not enough for my household
## 3 Food quantity Rations lasted fewer days than expected
## 4 Distribution delay Distribution started late
## 5 Distribution delay Long waiting time during distribution
## 6 Targeting issue Some needy households were excluded
## 7 Targeting issue Complaints about beneficiary selection
## 8 Staff conduct Staff were rude during distribution
## 9 Staff conduct Unprofessional behavior reported

# Import "Feedback_log"
Feedback_log <- read_excel("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx",
                           sheet = "Feedback_log")
Feedback_log

## # A tibble: 700 × 9
## Feedback_ID Beneficiary_ID Settlement Feedback_chanel Feedback_category
## <chr>      <chr>      <chr>      <chr>      <chr>
## 1 FB001    BEN466     Kibera     Hotline    Food Quantity
## 2 FB002    BEN029     Korogocho  SMS       Targeting Issue
## 3 FB003    BEN910     Mukuru     SMS       Distribution Delay
## 4 FB004    BEN681     Mukuru     Hotline   Distribution Delay
## 5 FB005    BEN869     Korogocho  Hotline   Targeting Issue
## 6 FB006    BEN337     Mathare    Hotline   Targeting Issue
## 7 FB007    BEN201     Kibera     Helpdesk  Food Quality
## 8 FB008    BEN619     Mukuru     Helpdesk  Targeting Issue
## 9 FB009    BEN093     Mathare    Hotline   Distribution Delay
## 10 FB010   BEN766    Mathare    Hotline   Staff Conduct
## # i 690 more rows
## # i 4 more variables: Feedback_Date <dttm>, Feedback_Description <chr>,
## # Agency_level <chr>, Status <chr>

```

```

# Import "response_tracker"
response_tracker <- read_excel("C:/Users/Administrator/Desktop/M&E/Monitoring_and_Evaluation_project_data.xlsx",
                                sheet = "response_tracker")
response_tracker

## # A tibble: 700 × 7
##   Feedback_ID Feedback_Date Response_Date Response_Time_Days
##   <chr>        <dttm>      <dttm>          <dbl>
## 1 FB001     2025-03-13 00:00:00 2025-03-16 00:00:00      3
## 2 FB002     2025-01-21 00:00:00 2025-01-22 00:00:00      1
## 3 FB003     2025-01-20 00:00:00 2025-01-21 00:00:00      1
## 4 FB004     2025-01-30 00:00:00 2025-02-05 00:00:00      6
## 5 FB005     2025-03-30 00:00:00 2025-04-03 00:00:00      4
## 6 FB006     2025-01-20 00:00:00 2025-01-21 00:00:00      1
## 7 FB007     2025-01-08 00:00:00 2025-01-09 00:00:00      1
## 8 FB008     2025-03-30 00:00:00 2025-03-31 00:00:00      1
## 9 FB009     2025-03-26 00:00:00 2025-03-27 00:00:00      1
## 10 FB010    2025-02-13 00:00:00 2025-02-16 00:00:00      3
## # i 690 more rows
## # i 3 more variables: Action_Taken <chr>, Responsible_Officer <chr>,
## # Resolution_Status <chr>

```

**head**(beneficiaries)

```

## # A tibble: 6 × 9
##   Beneficiary_ID Gender Age Settlement Household_size Assistance_type
##   <chr>           <chr> <dbl> <chr>          <dbl> <chr>
## 1 BEN001         Male   50 Korogocho       4 Cash Transfer
## 2 BEN002         Male   41 Mathare        4 Cash Transfer
## 3 BEN003         Male   57 Kibera         2 Cash Transfer
## 4 BEN004         Male   59 Mathare        3 In-Kind Food
## 5 BEN005         Female 26 Mukuru         2 Food Voucher
## 6 BEN006         Male   32 Mukuru         1 Cash Transfer
## # i 3 more variables: Phone_Access <chr>, Awareness_of_feedback <chr>,
## # `Vulnerability _category` <chr>

```

**head**(Feedback\_log)

```

## # A tibble: 6 × 9
##   Feedback_ID Beneficiary_ID Settlement Feedback_chanel Feedback_category
##   <chr>        <chr>      <chr>      <chr>          <chr>
## 1 FB001       BEN466     Kibera     Hotline      Food Quantity
## 2 FB002       BEN029     Korogocho  SMS        Targeting Issue
## 3 FB003       BEN910     Mukuru     SMS        Distribution Delay
## 4 FB004       BEN681     Mukuru     Hotline      Distribution Delay
## 5 FB005       BEN869     Korogocho  Hotline      Targeting Issue
## 6 FB006       BEN337     Mathare    Hotline      Targeting Issue
## # i 4 more variables: Feedback_Date <dttm>, Feedback_Description <chr>,
## # Agency_level <chr>, Status <chr>

```

**head**(response\_tracker)

```

## # A tibble: 6 × 7
##   Feedback_ID Feedback_Date Response_Date Response_Time_Days
##   <chr>      <dttm>     <dttm>          <dbl>
## 1 FB001     2025-03-13 00:00:00 2025-03-16 00:00:00     3
## 2 FB002     2025-01-21 00:00:00 2025-01-22 00:00:00     1
## 3 FB003     2025-01-20 00:00:00 2025-01-21 00:00:00     1
## 4 FB004     2025-01-30 00:00:00 2025-02-05 00:00:00     6
## 5 FB005     2025-03-30 00:00:00 2025-04-03 00:00:00     4
## 6 FB006     2025-01-20 00:00:00 2025-01-21 00:00:00     1
## # i 3 more variables: Action_Taken <chr>, Responsible_Officer <chr>,
## # Resolution_Status <chr>

```

Clean column names

```

beneficiaries <- beneficiaries %>% clean_names()
feedback_txt <- feedback_txt %>% clean_names()
Feedback_log <- Feedback_log %>% clean_names()
response_tracker <- response_tracker %>% clean_names()

```

Descriptive Statistics Beneficiary Gender Distribution

```

gender_summary <- beneficiaries %>%
  count(gender) %>%
  mutate(percentage = round((n / sum(n))*100,1))

```

gender\_summary

```

## # A tibble: 2 × 3
##   gender   n percentage
##   <chr> <int>    <dbl>
## 1 Female  514     51.4
## 2 Male    486     48.6

```

Awareness of Feedback Channels

```

awareness_summary <- beneficiaries %>%
  count(awareness_of_feedback) %>%
  mutate(percentage = round((n / sum(n))*100,1))

```

awareness\_summary

```

## # A tibble: 2 × 3
##   awareness_of_feedback   n percentage
##   <chr>           <int>    <dbl>
## 1 No                328     32.8
## 2 Yes               672     67.2

```

Merge Feedback and Response Data

```

feedback_data <- Feedback_log %>%
  left_join(response_tracker, by = "feedback_id","feedback_date",)

head(feedback_data)

```

```

## # A tibble: 6 × 15
## feedback_id beneficiary_id settlement feedback_chanel feedback_category
## <chr>      <chr>      <chr>      <chr>      <chr>
## 1 FB001    BEN466     Kibera   Hotline   Food Quantity
## 2 FB002    BEN029     Korogocho SMS       Targeting Issue
## 3 FB003    BEN910     Mukuru   SMS       Distribution Delay
## 4 FB004    BEN681     Mukuru   Hotline   Distribution Delay
## 5 FB005    BEN869     Korogocho Hotline   Targeting Issue
## 6 FB006    BEN337     Mathare  Hotline   Targeting Issue
## # i 10 more variables: feedback_date.x <dttm>, feedback_description <chr>,
## # agency_level <chr>, status <chr>, feedback_date.y <dttm>,
## # response_date <dttm>, response_time_days <dbl>, action_taken <chr>,
## # responsible_officer <chr>, resolution_status <chr>

```

## Trend Analysis (Monthly Feedback Volume)

`colnames(feedback_data)`

```

## [1] "feedback_id"      "beneficiary_id"    "settlement"
## [4] "feedback_chanel"   "feedback_category" "feedback_date.x"
## [7] "feedback_description" "agency_level"      "status"
## [10] "feedback_date.y"    "response_date"    "response_time_days"
## [13] "action_taken"      "responsible_officer" "resolution_status"

```

```

feedback_data <- feedback_data %>%
  mutate(month = floor_date(feedback_date.x, "month"))

```

```

monthly_trend <- feedback_data %>%
  group_by(month) %>%
  summarise(feedback_count = n())

```

`monthly_trend`

```

## # A tibble: 3 × 2
## month           feedback_count
## <dttm>            <int>
## 1 2025-01-01 00:00:00      249
## 2 2025-02-01 00:00:00      218
## 3 2025-03-01 00:00:00      233

```

## Timeliness Response

`colnames(feedback_data)`

```

## [1] "feedback_id"      "beneficiary_id"    "settlement"
## [4] "feedback_chanel"   "feedback_category" "feedback_date.x"
## [7] "feedback_description" "agency_level"      "status"
## [10] "feedback_date.y"    "response_date"    "response_time_days"
## [13] "action_taken"      "responsible_officer" "resolution_status"
## [16] "month"

```

```

response_summary <- feedback_data %>%
  summarise(
    average_response_days = round(mean(response_time_days, na.rm = TRUE),1),
    resolved_within_sla = round(mean(response_time_days <= 5, na.rm = TRUE)*100,1)
  )

response_summary

## # A tibble: 1 × 2
##   average_response_days resolved_within_sla
##             <dbl>            <dbl>
## 1                 4                72.1

```

### Feedback resolution rate

```

resolution_summary <- feedback_data %>%
  count(resolution_status) %>%
  mutate(percentage = round((n / sum(n))*100,1))

```

resolution\_summary

```

## # A tibble: 2 × 3
##   resolution_status     n percentage
##   <chr>           <int>      <dbl>
## 1 Pending           195      27.9
## 2 Resolved          505      72.1

```

### Thematic Analysis

```

colnames(feedback_data)

## [1] "feedback_id"      "beneficiary_id"    "settlement"
## [4] "feedback_chanel"   "feedback_category"  "feedback_date.x"
## [7] "feedback_description" "agency_level"      "status"
## [10] "feedback_date.y"    "response_date"     "response_time_days"
## [13] "action_taken"       "responsible_officer" "resolution_status"
## [16] "month"

```

```

theme_summary <- feedback_data %>%
  count(feedback_category) %>%
  mutate(percentage = round((n / sum(n))*100,1)) %>%
  arrange(desc(n))

```

theme\_summary

```

## # A tibble: 5 × 3
##   feedback_category     n percentage
##   <chr>           <int>      <dbl>
## 1 Targeting Issue    154      22
## 2 Food Quality       147      21
## 3 Staff Conduct      138      19.7

```

```

## 4 Food Quantity      137     19.6
## 5 Distribution Delay 124     17.7

```

## Visualizations Feedback Channels

```

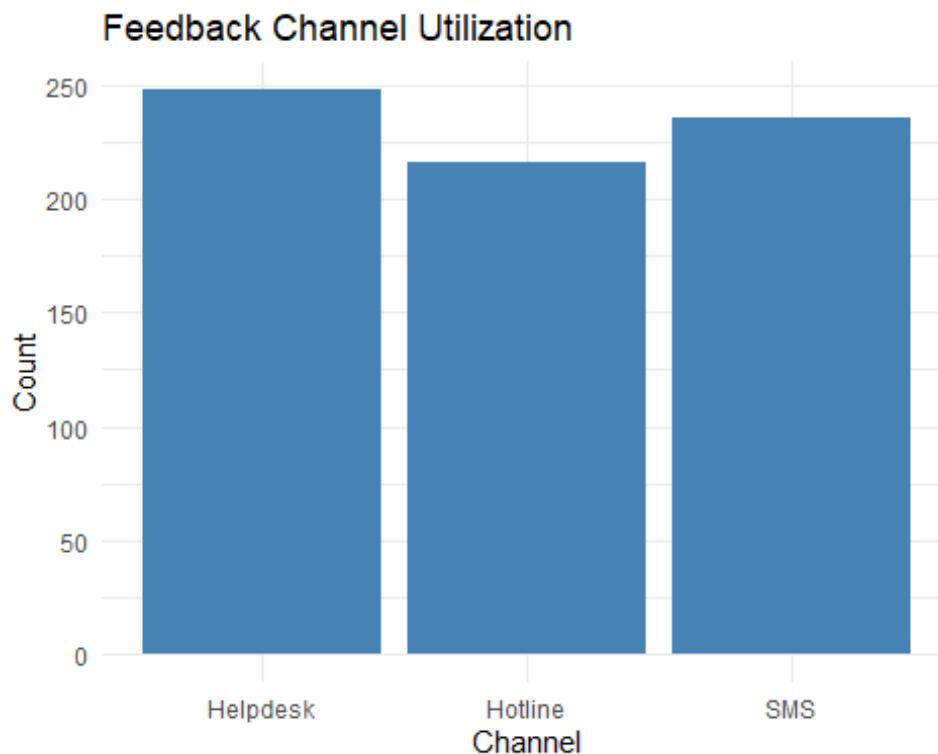
# Count number of feedback submissions per channel
channel_summary <- feedback_data %>%
  count(feedback_channel) %>%          # counts each channel
  mutate(percentage = round((n / sum(n)) * 100,1)) %>% # calculate %
  arrange(desc(n))                         # sort descending

# View the summary
channel_summary

## # A tibble: 3 × 3
##   feedback_channel  n percentage
##   <chr>        <int>    <dbl>
## 1 Helpdesk       248     35.4
## 2 SMS            236     33.7
## 3 Hotline         216     30.9

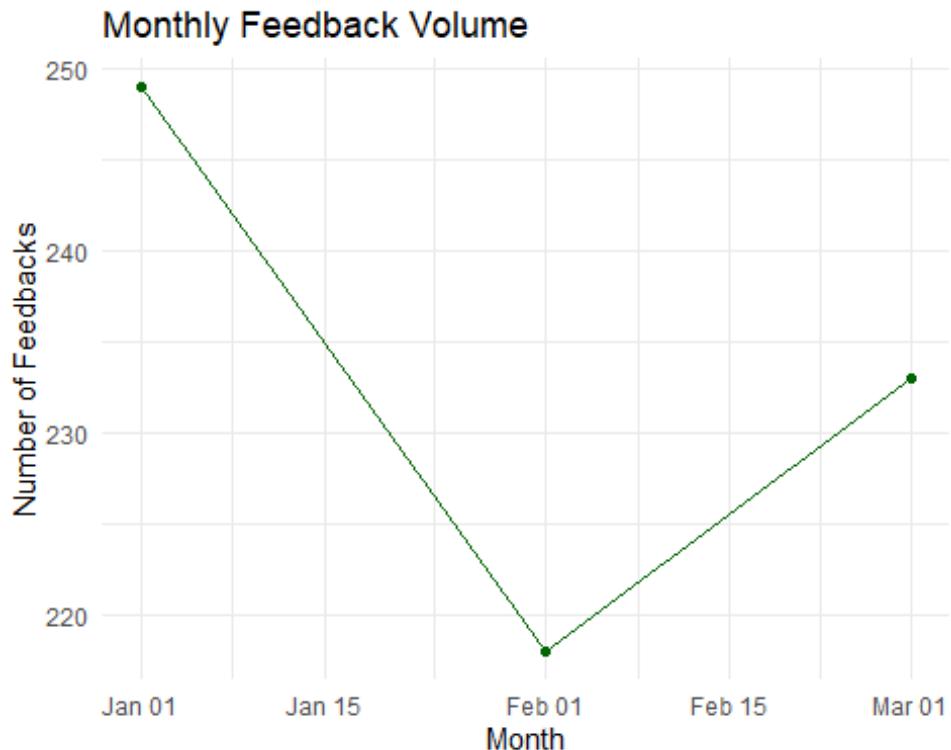
ggplot(channel_summary, aes(x = feedback_channel, y = n)) +
  geom_col(fill="steelblue") +
  labs(title = "Feedback Channel Utilization", x = "Channel", y = "Count") +
  theme_minimal()

```



## Monthly Feedback Trend

```
ggplot(monthly_trend, aes(x = month, y = feedback_count)) +
  geom_line(color="darkgreen") +
  geom_point(color="darkgreen") +
  labs(title = "Monthly Feedback Volume", x = "Month", y = "Number of Feedbacks") +
  theme_minimal()
```



```
kpis <- tibble(
  Indicator = c("Awareness of Feedback (%)",
    "Average Response Time (Days)",
    "Feedback Resolved Within SLA (%)"),
  Value = c(
    awareness_summary$percentage[awareness_summary$awareness_of_feedback=="Yes"],
    response_summary$average_response_days,
    response_summary$resolved_within_sla
  )
)

kpis

## # A tibble: 3 × 2
##   Indicator           Value
##   <chr>              <dbl>
## 1 Awareness of Feedback (%) 67.2
## 2 Average Response Time (Days) 4
## 3 Feedback Resolved Within SLA (%) 72.1
```

# RESULTS AND FINDINGS

## Interpretation of Data Analysis Results

### Beneficiary Characteristics

The simulated beneficiary dataset consisted of 1,000 beneficiaries drawn from urban informal settlements in Nairobi. Gender distribution was relatively balanced, with 51.4% female and 48.6% male beneficiaries. This near parity suggests that the simulated program achieved gender-balanced coverage, aligning with humanitarian principles of equitable access to assistance .

Such gender balance is important in food security programming, as women often play a central role in household food management and are disproportionately affected by food insecurity in urban informal settlements.

### Awareness of Feedback Mechanisms

Analysis of awareness levels showed that 67.2% of beneficiaries were aware of the available feedback channels, while 32.8% reported no awareness. This indicates a moderate to high level of awareness, suggesting that community sensitization and communication strategies were largely effective.

However, the proportion of beneficiaries who were unaware of the feedback mechanism remains significant. This finding highlights the need for continued community engagement, particularly through community mobilizers and local leaders, to ensure that all beneficiaries are informed about their right to provide feedback and lodge complaints .

### Feedback Volume and System Utilization Trends

Trend analysis of feedback submissions revealed fluctuations over the three-month period analyzed:

- January 2025: 249 feedback cases
- February 2025: 218 feedback cases
- March 2025: 233 feedback cases

The decline in February followed by a slight increase in March suggests that feedback volume is dynamic and context-dependent. Changes in distribution schedules, assistance modalities, or sensitization efforts may influence beneficiary engagement with feedback mechanisms.

Overall, the relatively consistent volume across months indicates steady utilization of the real-time feedback system, reflecting its operational functionality within the simulated humanitarian program .

### Timeliness of Feedback Response

Timeliness analysis showed that the average response time was 4 days, which falls within commonly applied humanitarian Service Level Agreements (SLAs) of 5 days. Furthermore, 72.1% of feedback cases were resolved within the SLA timeframe.

These results indicate that the feedback system demonstrated strong responsiveness, with the majority of beneficiary concerns addressed promptly. Timely responses are critical for building trust, enhancing accountability, and preventing escalation of dissatisfaction among affected populations .

## Feedback Resolution Status

Analysis of resolution outcomes showed that:

- 72.1% of feedback cases were resolved
- 27.9% remained pending

While the majority of cases were successfully resolved, the proportion of pending cases suggests the presence of operational or structural bottlenecks, such as complex targeting issues or coordination delays between program teams. This highlights the importance of continuous follow-up and escalation mechanisms within MEAL systems to ensure closure of outstanding cases.

## Thematic Analysis of Feedback Content

Thematic analysis of feedback categories revealed the following distribution:

- Targeting Issues: 22.0%
- Food Quality: 21.0%
- Staff Conduct: 19.7%
- Food Quantity: 19.6%
- Distribution Delays: 17.7%

Targeting issues emerged as the most common theme, indicating beneficiary concerns regarding inclusion and exclusion errors. Complaints related to food quality and quantity further reflect the sensitivity of beneficiaries to the adequacy and suitability of assistance received.

Reports related to staff conduct underscore the importance of staff behavior, professionalism, and accountability, while distribution delays highlight logistical challenges common in dense urban settings. Overall, the thematic findings provide actionable insights for program improvement .

## Feedback Channel Utilization

Analysis of feedback channels showed diversified use:

- Helpdesk: 35.4%
- SMS: 33.7%
- Hotline: 30.9%

The relatively balanced use of multiple channels suggests that offering multiple access points enhances inclusivity and accommodates different beneficiary preferences and access constraints. The prominence of helpdesks reflects the continued relevance of face-to-face feedback mechanisms, particularly for beneficiaries with limited digital access or literacy.

## Key Performance Indicators (KPIs)

The dashboard-style summary of key indicators showed:

- Awareness of feedback mechanisms: 67.2%
- Average response time: 4 days
- Feedback resolved within SLA: 72.1%

These indicators collectively suggest that the simulated real-time feedback mechanism was functional, responsive, and moderately effective, while also identifying clear areas for strengthening awareness and case closure rates.

## Overall Interpretation

The findings demonstrate that community-based real-time feedback mechanisms can play a critical role in enhancing accountability and program quality in urban humanitarian food security interventions. While system performance was generally strong in terms of responsiveness and utilization, gaps in awareness and unresolved feedback highlight the need for continuous system strengthening, staff capacity building, and community sensitization.

## DISCUSSION OF FINDINGS

### Discussion of Accessibility and Utilization of the Feedback Mechanism

One of the primary objectives of this study was to assess the accessibility, functionality, and utilization of the community-based real-time feedback mechanism among beneficiaries in urban informal settlements of Nairobi.

The findings indicate that 67.2% of beneficiaries were aware of the available feedback channels. This level of awareness suggests that sensitization and communication efforts were largely effective, supporting the functionality of the feedback system. However, the fact that nearly one-third of beneficiaries lacked awareness points to existing gaps in outreach and community engagement.

In terms of utilization, the feedback mechanism demonstrated consistent use across multiple channels, including helpdesks, SMS, and hotlines. The relatively balanced distribution across channels highlights the importance of providing multiple, complementary feedback options to accommodate varying levels of digital access and literacy. These findings align with accountability frameworks that emphasize inclusivity and accessibility in feedback system design.

Research Question Link: How accessible and functional is the real-time feedback mechanism for beneficiaries? → The system is accessible and functional, but awareness gaps remain and require further attention.

## Discussion of Data Quality and Timeliness

The second objective focused on assessing the quality, completeness, and timeliness of feedback data generated by the system.

The analysis showed an average response time of 4 days, with 72.1% of feedback cases resolved within the established Service Level Agreement (SLA). These results indicate strong system responsiveness and effective internal coordination mechanisms. Timely responses are critical for maintaining beneficiary trust and reinforcing accountability to affected populations.

However, the presence of 27.9% unresolved cases suggests operational challenges that may include complex targeting concerns, inter-departmental delays, or limited decision-making authority at field level. While the data quality appears sufficient for monitoring and reporting, strengthening follow-up mechanisms is necessary to ensure full case closure.

Research Question Link: What is the quality and timeliness of feedback data generated through the system? → Feedback data are timely and usable, though unresolved cases indicate areas for system strengthening.

## Discussion of Key Feedback Themes and Operational Challenges

Thematic analysis revealed that targeting issues were the most frequently reported concern, followed by food quality, staff conduct, food quantity, and distribution delays. This pattern suggests that beneficiaries are particularly sensitive to fairness, transparency, and adequacy in food assistance programming.

Complaints related to staff conduct highlight the importance of professional behavior and respectful engagement during service delivery. Similarly, concerns about food quality and quantity underscore the need for consistent supply standards and quality assurance processes.

These findings reflect common challenges documented in humanitarian literature, particularly in densely populated urban informal settlements where resource constraints, high demand, and logistical complexities are prevalent.

Research Question Link: What operational challenges and best practices influence effective implementation?

- Key challenges include targeting accuracy, staff conduct, and service delivery efficiency, while best practices include multi-channel feedback access and timely response systems.

## Alignment with Accountability and MEAL Frameworks

Overall, the findings demonstrate that real-time feedback mechanisms can significantly enhance accountability, learning, and program adaptation when adequately resourced and actively managed. The system evaluated in this study aligns with humanitarian Accountability to Affected Populations (AAP) principles by promoting participation, transparency, and responsiveness.

However, continuous improvement is required to address awareness gaps, unresolved cases, and recurrent feedback themes to fully realize the potential of real-time feedback systems.

# CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

Based on the findings of this study, the following conclusions are drawn:

1. Community-based real-time feedback mechanisms are effective tools for enhancing accountability in humanitarian food security programs in urban informal settlements.
2. The feedback system demonstrated functional accessibility and utilization, supported by multiple feedback channels.
3. Feedback data generated were timely and suitable for monitoring and reporting, with most cases resolved within established SLAs.
4. Persistent challenges related to targeting, food quality, staff conduct, and unresolved cases indicate the need for ongoing system strengthening.
5. The use of simulated (assimilated) data provides a valid and ethical approach for demonstrating M&E system evaluation in academic and training contexts.

## Recommendations

Based on the conclusions, the following recommendations are proposed:

### Programmatic Recommendations

1. Strengthen community sensitization to increase awareness of feedback mechanisms, particularly among hard-to-reach beneficiaries.
2. Establish clear escalation pathways for unresolved feedback cases to improve resolution rates.
3. Enhance staff training on accountability, customer care, and professional conduct.
4. Improve targeting verification processes to reduce inclusion and exclusion errors.
5. Maintain and expand multiple feedback channels to promote inclusivity.

### MEAL System Recommendations

1. Integrate automated dashboards to track key performance indicators in real time.
2. Regularly analyze feedback trends to inform adaptive programming.
3. Standardize feedback categorization and documentation tools to improve data quality.
4. Conduct periodic reviews of SLA compliance to strengthen responsiveness.

### Academic and Learning Recommendations

1. Future studies may incorporate real-world data where ethically and legally permissible.
2. Comparative studies between urban and rural settings could provide additional insights.
3. Mixed-method approaches could deepen understanding of beneficiary experiences.

# LOGFRAME (LOGICAL FRAMEWORK)

Level	Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Assumptions
Impact	Improved accountability and quality of humanitarian food security programs	% beneficiary satisfaction with program accountability	Beneficiary surveys, evaluations	Stable operating environment
Outcome	Effective and responsive real-time feedback mechanism	% feedback resolved within SLA	Response tracking system	Adequate staffing and coordination
Output 1	Functional feedback system established	Feedback system operational	MEAL reports, system logs	Technology availability
Output 2	Increased beneficiary awareness	% beneficiaries aware of feedback channels	Beneficiary surveys	Effective sensitization
Activities	Sensitization, data collection, response tracking, analysis	Number of sensitization sessions conducted	Activity reports	Community participation

## INDICATOR TRACKING TABLE (ITT)

Indicator	Definition	Target	Data Source	Frequency	Responsible
% beneficiaries aware of feedback mechanisms	Proportion of beneficiaries who know at least one feedback channel	≥75%	Beneficiary survey	Quarterly	MEAL Officer
Feedback submissions per 1,000 beneficiaries	Volume of feedback received	≥50	Feedback logs	Monthly	MEAL Team
Average response time (days)	Mean number of days to respond to feedback	≤5 days	Response tracker	Monthly	Program Manager
% feedback resolved within SLA	Proportion of feedback cases resolved within agreed timelines	≥80%	Response tracker	Monthly	MEAL Officer
% complete feedback records	Proportion of feedback records with all required fields	≥90%	Feedback database	Quarterly	Data Officer

