Food environment toolkit to inform consumer-driven market system programming for better maternal and child nutrition: Learning from a practical application in rural Lilongwe District, Malawi

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Introduction

Background

- Food security programs are shifting to integrated market system and nutrition programming, which requires understanding how food environments can facilitate the acquisition and consumption of nutritious foods by specific target groups.
- There are currently no tools to inform such integration.

Study Objectives

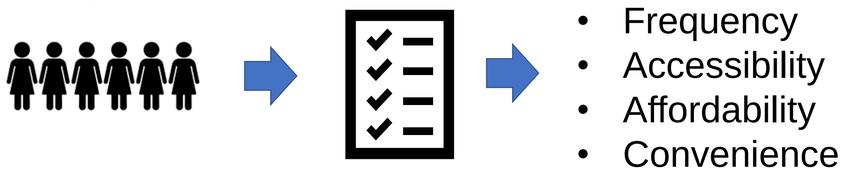
- Design and test a toolkit to measure personal and external food environment factors (Turner et al., 2018) that influence consumption of dairy and fish.
- Validate the findings with market stakeholders to inform food market system programming.

Methods

Mixed methods cross-sectional study in two randomly selected Traditional Authorities (Chadza and Khongoni) in Lilongwe District.

- Developed a **matrix** to assist in identifying foods that fill nutrient gaps for women and children <5 years, are mainly obtained through markets, and provided via market systems that have incentives to reach vulnerable consumers.
- **Personal food environment:**

4 focus groups Survey of mothers (N=200)



- Frequency
- Accessibility
- Affordability
- Convenience
- Desirability

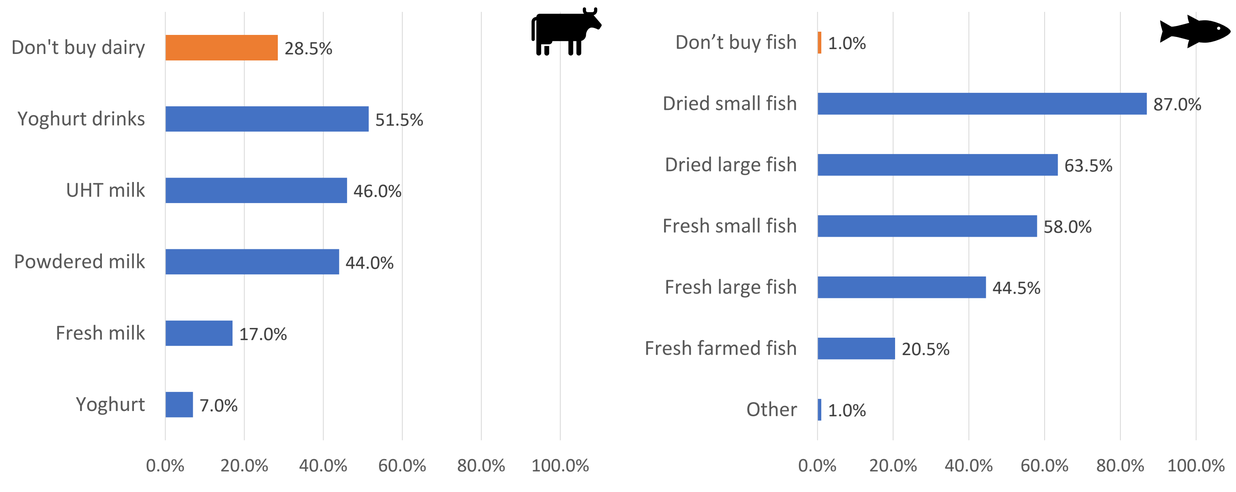
- **External food environment:** Desk review and key informant interviews (N=18) with market stakeholders to assess availability, prices, vendor and product properties, and marketing and regulation.
- **Stakeholder workshop:** Validate findings and identify recommended market actions based on evidence.

Results

Personal Food Environment

The most frequently purchased dairy and fish products were yoghurt drinks, UHT milk, and powdered milk (**Figure 1A**) and dried small and large fish (**Figure 1B**).

Figure 1. Frequency of purchasing dairy and fish



The main factors that influenced purchasing of dairy and fish:

Dairy
- ❑ Price
- ❑ Healthy/Nutritious
- ❑ Taste
- ❑ Children like it
- ❑ Quality
- ❑ Distance to market

"We look at the cheap price and the milk that gives energy."

"We look at the cleanliness of the selling place and quality of the fish, like sold unbroken and of good quality."

Fish
- ❑ Taste
- ❑ Healthy/Nutritious
- ❑ Children like it
- ❑ Price
- ❑ Quality
- ❑ Not available (fresh fish)

External Food Environment

Market stakeholders characterized their values chains as:

Dairy
- Lilongwe Dairy has 70% market share
- Price increases four-fold from Lilongwe to surveyed consumers
- Demand exceeds supply
- Constrained by distribution models, limited dairy productivity, and spoilage/cold chain

Fish
- 90% capture fishery
- Mostly small, dried fish
- Price doubles or triples from fisher to consumer
- Demand exceeds supply
- Constrained by limited aquaculture inputs, working capital to traders, and cold chain

Stakeholder Workshop Recommendations

Dairy value chain:
1. Improve rural distribution models
2. Coordinate a panel of stakeholders to consider the regulation of raw milk and formulate policy recommendations
3. Centralize regulation to ease the private sector's compliance management, and coordinate a coherent direction for future dairy regulations
4. Increase sensitization for rural consumers on the nutritional value of milk

Fish value chain:
1. Facilitate effective stakeholder coordination through improved communications and formal platforms
2. Improve aggregation and processing capability for fish farmers and groups
3. Coordinate fish production and marketing to address issues of seasonality
4. Encourage private sector actors to consider agent-based distribution models
5. Grow the semi-commercial production base

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For more information

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