A Gendered Value Chain Analysis of Post Harvest Losses in the Barotse Floodplain, Zambia

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Research project site

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Research Question One

What is the gendered nature of post-harvest losses (biophysical and economic) in the value chain?
What are the social and gender constraints to post-harvest losses and does gender inequality contribute to losses?
Types of post-harvest losses (PHL)

- **Biophysical Loss**
  - Total Loss: consumed by insects (or other animals), or due to spoilage, breakage, etc.

- **Economic Loss**
  - Quality Loss: leads to fish sold at lower cost
  - Market force loss: demand and supply changes

- **Nutrient Losses**
  - Biochemical changes and processing that denatures nutrients
# Research methodology

## BASELINE INSTRUMENTS

- Quantitative Fish Loss Assessment Method (QLAM)
- Gross Margins Analysis (GMA)
- Women’s Empowerment in Fisheries Index (WEFI)

### BASELINE INSTRUMENTS

- Quantification of losses in 7 day fish consignment recall
- Profitability of various nodes in the value chain disaggregated by sex
- Status of empowerment of men and women in the fishing camps
Quantitative Loss Assessment Method

- Sample of 176 people (33% women, 67% men) from six fishing camps
  - Given some fishers also processed fish [28.3% of fishers (all men)], total sample = 206, with:
    - Fishers = 106 (2% women, 98% men)
    - Processors = 60 (40% women, 60% men)
    - Traders = 40 (80% women, 20% men)
15.09% of fishers experienced loss primarily due to spoilage (53%)

44.83% of processors (63% of women, 32% of men: p-value = 0.0228) experienced loss primarily due to breakage

30% of traders (35% of women, 13% of men: p = 0.2379) experienced loss due to breakage
Fishers experienced loss primarily due to spoilage (34%) and market forces* (55%)

Processors experienced loss primarily due to breakage (58% of women, 55% of men) and market forces (42% of women, 36% of men)

Traders experienced loss due to breakage (25% of men, 17% of women), spoilage (42% of women, 25% of men), and market forces (50% of men, 42% of women)

*Size variation, high supply, price variation
Gross Margins Analysis

• Sample of 239 people (33% women, 67% men) from fishing camps and in town
  – Fishers = 113 (100% men)
  – Processors = 50 (70% women, 30% men)
  – Traders = 76 (56% women, 44% men)

• Gross margins analysis measures the difference between revenue and costs of goods sold and expressed as a percentage indicating profitability of an enterprise
Mean Gross Margin (%)

- Men Fisher: 21.49%
- Women Processor: 2.56%
- Men Processor: 5.5%
- Women Trader: 13.79%
- Men Trader: 12.21%

100% men, 70% women, 56% women
WEFI

• Adapted from the women’s empowerment in agriculture index (WEAI) (IFPRI, 2012)
• Sample of 151 people (39% women, 61% men)
• Measured access to assets, decision-making powers, individual leadership capabilities, gender attitudes and allocation of time
Participation of women/men in key nodes of the fishery value chain and decision-making powers

- Went fishing in last 12 months
- Decisions on fishing
- Spending money from fishing
- Processing in last 12 months
- Decisions on processing
- Spending money from processing
- Trading fish in last 12 months
- Decisions on trading
- Spending money from trading

[Bar chart showing participation rates for women and men in various activities related to the fishery value chain]
Access to assets

• A larger percentage of women’s households own locally-produced processing equipment (e.g., fishing baskets) compared to men’s (66.1% versus 58.7%)

• Although women are the primary processors in the Barotse Floodplain setting, majority own processing equipment jointly with their husbands (51.28% versus 57.69% for men), and majority jointly make decisions with their husbands when selling, renting/giving away, and purchasing new such equipment.

• Similar results for women and men regarding fishing and trading
Individual leadership in the camps

• **51% of women** felt very comfortable speaking in public to help decide on projects or issues affecting the fishing camp, compared to **83% of men**.

• **56% of women** felt very comfortable speaking in public to protest the use of illegal fishing gears or activities, compared to **87% of men**.
Women have more gender equal attitudes than men (p-value = 0.0019)

A greater percentage of men compared to women feel that women should not get involved in fishing and women should primarily be the ones who clean and process fish

More men than women feel that they should primarily be the ones who control the earnings obtained from the sale of fish

A greater percentage of men compared to women felt men should primarily be the ones who transport fish to a market for sale

Women and men almost equally believe that women should primarily be the ones who prepare meals (including fish)
Time allocation (average hours per day)

- Sleeping and resting
- Eating
- Fishing
- Fish processing
- Fish trading
- Transporting fish to market
- Gardening, farming, and/or livestock
- Other Activities e.g. buying groceries
- Cooking
- Care for children, adults, elderly
- Sports
- Drinking alcohol

Women:
- Sleeping and resting: 8
- Eating: 0.5
- Fish processing: 1
- Fish trading: 1
- Transporting fish to market: 0.5
- Gardening, farming, and/or livestock: 0.5
- Other Activities e.g. buying groceries: 0.5
- Cooking: 1
- Care for children, adults, elderly: 1
- Sports: 5
- Drinking alcohol: 0.5

Men:
- Sleeping and resting: 7
- Eating: 0.5
- Fish processing: 0.5
- Fish trading: 6
- Transporting fish to market: 0.5
- Gardening, farming, and/or livestock: 0.5
- Other Activities e.g. buying groceries: 0.5
- Cooking: 0.5
- Care for children, adults, elderly: 1
- Sports: 1
- Drinking alcohol: 0.5
Conclusions

• Women face higher physical and economic losses than men – men transfer risk of loss to women.
• Women incur smaller gross margins in processing node.
• A greater percentage of men make individual decisions on many fishing-, processing-, and trading-related processes.
• Gender attitudes about women’s and men’s involvement in key activities in the fishery value chain and their allocation of time devoted to paid and unpaid activities may influence women’s abilities to process higher-quality fish with minimal losses.
Drivers of PHL

- Poverty and marginalization, lack of access to improved technologies and markets, climate change, etc.

BUT also...

- Women’s access to resources, lack of individual decision-making powers, socially-assigned roles and gender attitudes, and time allocation.
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How the project is utilizing these results

Social and gender analysis to highlight harmful norms, behaviors and power relations in a PHL context

Design and test innovations that address that cause gender inequalities and prohibit women from processing higher quality fish

Research output

Outcomes

Reduced gender gaps
Greater adoption and utilization of technologies
Improved gender relations

Impact

More sustained development impact for all

Figure: Gender transformative impact pathway to change
PHL-reducing technologies
Using PAR to implement technologies
Gender transformative communication tool

Dramas are performed in fishing camps

Questions are presented to PAR groups

Actions to address the harmful social and gender norms are carried out