Why food safety matters for development: agri-food system perspective

Better Targeting Food Safety Investments in Low and Middle Income Countries
Brussels, 24 May 2017

Delia Grace, ILRI and CRP A4NH
FOOD SAFETY IN DEVELOPING COUNTRIES: AN OVERVIEW

A learning resource for DFID Livelihoods Advisers

Delia Grace, October 2015

Aflatoxins
Finding Solutions for Improved Food Safety

Edited by
Laurian Unnevehr and Delia Grace

EVIDENCE ON DEMAND
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INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE


Review

Food Safety in Low and Middle Income Countries

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Academic Editors: Mieke Uyttendaele, Eelco Franz and Oliver Schluter
Foodborne disease matters for development

- **High health burden** mainly borne mainly by LMICs
- **High concern** of consumers and policymakers
- **High costs** of disease and disease control
- **High risk of un-intended consequences** of conventional approaches to improving food safety in informal markets
- **High potential benefits** from leveraging demand for safe food
Sustainable development goals
FBD- a new priority burden comparable HIV/AIDS, malaria, TB

Havelaar et al., 2015
Growing concern about food safety

- Many/most reported concern over food safety (40-97%)
- Willing to pay 5-10% premium for food safety
- Buy 20-40% less during animal health scares
- Younger, wealthier, town-residing, supermarket-shoppers willing to pay more for safety

Jabbar et al., 2010
Population Growth in Developing and Industrialized Countries: 1750 - 2050
## 2014 Food Safety Progress Report

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Healthy People 2020 target rate</th>
<th>2014 rate*</th>
<th>Change compared with 2006-2008†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campylobacter</td>
<td>8.5</td>
<td>13.45</td>
<td>13% increase (Sad emoji)</td>
</tr>
<tr>
<td>E. coli O157§</td>
<td>0.6</td>
<td>0.92</td>
<td>32% decrease (Happy emoji)</td>
</tr>
<tr>
<td>Listeria</td>
<td>0.2</td>
<td>0.24</td>
<td>No change (Neutral emoji)</td>
</tr>
<tr>
<td>Salmonella</td>
<td>11.4</td>
<td>15.45</td>
<td>No change (Neutral emoji)</td>
</tr>
<tr>
<td>Vibrio</td>
<td>0.2</td>
<td>0.45</td>
<td>52% increase (Sad emoji)</td>
</tr>
<tr>
<td>Yersinia</td>
<td>0.3</td>
<td>0.28</td>
<td>22% decrease (Happy emoji)</td>
</tr>
</tbody>
</table>

*Culture-confirmed infections per 100,000 population
†2006-2008 were the baseline years used to establish Healthy People 2020 targets
§Shiga toxin-producing Escherichia coli O157

For more information, visit [www.cdc.gov/foodnet](http://www.cdc.gov/foodnet)
More than 80% of perishables bought from informal markets

Characteristics

- No effective health and safety regulations;
- Many actors;
- Pay no tax;
- Traditional processing & retail practices;
- Poor infrastructure;
- Little support from public sector or NGO.

- Cheap;
- Fresh;
- Local breeds;
- Taste;
- Trust vendors;
- Credit.
GlobalGAP Kenya

Private standard
Most important source of foreign income

QGAP Thailand

• Public standard
• Uptake low
• Safety no better
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Hazards are high, but risks are variable

Fail standards: bacteria
- 100% milk in Assam, India
- 98% of raw meat in Ibadan, Nigeria
- 94% of pork in Nagaland, India
- 77% farmed fish in Egypt

Fail standards: chemical
- 92% milk in Addis Ababa
- 46% milk in Kenya

Diarrhoea in last 2 weeks
- 0.02% consumers in Canada
- 0.02% raw milk buyers in Kenya
- 23% consumers in Nagaland
- 43% Nigerian butchers
Perceptions are a poor guide to safety
Economic costs: cost of FBD and market access

- **Cost of illness:** USA over $15 billion annually (Hoffmann 2015); Australia $0.5-$2 billion per year (Abelson P 2006).
  - Vietnam: hospitalisation for FBD $6 million a year (Hoang, 2015)
  - Nigeria: $3.6 billion (Grace, 2012)

- **Food safety standards often exclude small firms and farms from export markets and emerging domestic markets**
  - Kenya and Uganda saw major declines (60% and 40%) in small farmers participating in export of fruit and vegetables to Europe under Global GAP.
Un-intended consequences 1: nutrition and health

<table>
<thead>
<tr>
<th></th>
<th>Wet market milk</th>
<th>Supermarket milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most common price/litre</td>
<td>56 cents</td>
<td>One dollar</td>
</tr>
<tr>
<td>Infants consume daily</td>
<td>67%</td>
<td>65%</td>
</tr>
<tr>
<td>Boil milk</td>
<td>99%</td>
<td>79%</td>
</tr>
</tbody>
</table>

- When markets differentiate by quality, substandard food is targeted to the poor
<table>
<thead>
<tr>
<th>Product</th>
<th>Production</th>
<th>Processing</th>
<th>Marketing</th>
<th>Consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk (cow)</td>
<td>men (x Nairobi)</td>
<td>women</td>
<td>women (x Abidjan)</td>
<td>both</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk (goat)</td>
<td>men (w milk)</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
<tr>
<td>Beef/goat</td>
<td>men (w assist)</td>
<td>men</td>
<td>men (butcher,pub)</td>
<td>both</td>
</tr>
<tr>
<td>Poultry</td>
<td>women</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
<tr>
<td>Pigs</td>
<td>women</td>
<td>men</td>
<td>men</td>
<td>both</td>
</tr>
<tr>
<td>Fish, crabs</td>
<td>men</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
</tbody>
</table>
Participatory approaches more promising?
Scalable and sustainable?

- Methodological: prioritisation, risk based approaches, HACCP
- Appropriate Technology: milk cans, boilers
- Novel Technology: Aflasafe
- Programmatic: street traders, T&C
- Zoonoses: control in reservoir hosts
- Policies: enabling environment
Take home messages

- FBD is important for health and development
- Most is due to microbes & worms in fresh foods sold in wet markets
- In LMIC the wet market constitutes most of the private sector
- Hazards in wet markets are always high but risks are sometimes low and perception is a poor guide
- Regulations necessary but not sufficient
- Provide, control & command doesn’t work but solutions based on working with the informal sector more promising
Acknowledgements

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