Case study: Dairy in Assam, NE India

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Dairy in developing countries

100 litres milk handled per day
generates:

- 5.6 jobs making milk sweets in Bangladesh
- 10 jobs selling milk snacks in Ghana

<table>
<thead>
<tr>
<th>Location</th>
<th>Mean Price (KSh/Litre)</th>
<th>Pasteurised milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi</td>
<td>31.5</td>
<td>40.0</td>
</tr>
<tr>
<td>Nakuru urban</td>
<td>25.3</td>
<td>41.0</td>
</tr>
<tr>
<td>Nakuru rural</td>
<td>18.4</td>
<td>41.0</td>
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<table>
<thead>
<tr>
<th>Country</th>
<th>Pasteurised Milk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>80%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>98%</td>
</tr>
<tr>
<td>W. Africa</td>
<td>90%</td>
</tr>
<tr>
<td>India</td>
<td>83%</td>
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<tr>
<td>Nicaragua</td>
<td>86%</td>
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</tbody>
</table>
Is it safe?

40% African cows + for *Brucella* spp.

6% milk samples Tanz. + for *Staph. aureus*

6% milk samples Tanz. + for *Staph. aureus*

Milk a source of *Toxoplasma* in Ethiopia & Uganda

10% Nairobi cows + for *Cryptosporidium*

M. *bovis* – 10% of extra-pulmonary and 4% pulmonary in N. Tanz.

<50% milk samples antibiotic residues

High *Campylobacter* prev. in Kenya & W. Africa

2% Nairobi & Kampala cows for EHEC

7% dairy products in Morocco + for *Y. enterocolitica*

<50% milk samples antibiotic residues

2% Nairobi & Kampala cows for EHEC

High *Campylobacter* prev. in Kenya & W. Africa

31% milk samples exceed aflatoxin limit in Kenya
Background of the study

- Comprehensive study of the dairy sector in Assam – WB, DDD, ILRI, national partners
- Empirical information for Pro-Poor Dairy Development Plan for Assam
- Three main components:
  - consumers – 3,000
  - milk market agents – 600
  - milk producers - 1,500
  Milk samples
Per capita consumption 35 liters per year.

Urban consumers:
- purchase more
- pay more per liter of milk
- consume more variety
- spend more (182 rupees urban, 120 rupees rural)

Preference for fresh, full fat milk
“I am well satisfied with the level of hygiene and quality of milk available.”
“I am well satisfied with the purity of raw milk being sold by milk vendors.”
Compliance with standards: Both bad
Adulteration - widespread
- But safe
Good practices

Milk-handling hygiene (%)
Conclusions

- Informal sector predominates
  - Perception that formal is cleaner and safer
  - Not supported by evidence

- Evolving markets
  - Urbanisation changing consumption
  - Longer, complex chains with more problems
Conclusions

- High levels of safety concerns
  And high level of hazard
  But human health risk not clear

- Perception versus risk

- Value chain actors are risk managers
  Risk reducing & enhancing practices
Given

- Huge informal sector
- Increasing concerns over safety & quality
- Informal preferred on taste and freshness
- ...and doesn’t underperform on safety
- Bulk of risk management along value chain
- ...but hazards unacceptably high
A third path of dairy development

- Risk assessment and risk based regulation
- Training & certification of informal sellers
- Appropriate innovation & technology
- Raising consumer awareness
- Market-based solutions to quality and safety.
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