Rapid Loss Appraisal Tool (RLAT) for agribusiness value chains
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Practical challenges on the ground

- GIZ implements a large number of projects on value chain (VC) support worldwide; strong focus on agricultural value chains
- Food losses (including aflatoxin contamination) are not adequately (or even not at all) addressed so far
- 1st step: Create awareness on the necessity to reduce food losses
- Need for a rapid and cost-effective approach to identify the most important loss points within a VC and get a first idea about the extent (without quantifying / measuring)
Rapid Loss Appraisal Tool (RLAT)

Objectives:
- pre-screening of quantitative and qualitative losses along specific VCs
- finding leverage points for reducing losses along VCs with sufficient evidence for initiating further interventions
- identification of information gaps to support planning of further detailed studies on losses and loss reduction measures
- create willingness to address food losses

Limitations:
The Rapid Loss Appraisal Tool alone does not intend to provide sufficient data for evidence-based policy or enterprise decision making

Target group:
Bilateral programmes, development organisations and NGOs supporting VC development
Definition of losses and scope of the tool

<table>
<thead>
<tr>
<th>Plant product intended for food or feed</th>
<th>LOSSES</th>
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<tbody>
<tr>
<td><strong>Food / feed</strong></td>
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<tr>
<td>Pre-harvest losses</td>
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<tr>
<td>Harvest losses</td>
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<td>Transport losses</td>
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<td>Storage losses</td>
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<td>Processing losses (incl. drying)</td>
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<td>Marketing losses</td>
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<tr>
<td>Food/ feed for consumption</td>
<td>Absolute losses</td>
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<tr>
<td>Inedible / not used for main purpose</td>
<td>By-products</td>
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<td>e.g. maize stems</td>
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<tr>
<td>Spillage, spoilage, abnormal</td>
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<td>reduction in quality such as bruising</td>
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<tr>
<td>or wilting or other losses before</td>
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<tr>
<td>food/ feed is used</td>
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</table>

Weight losses due to drying or processing of raw material are not losses!

<table>
<thead>
<tr>
<th>Animal feed</th>
<th>Organic fertilizer</th>
<th>Bioenergy</th>
<th>Other uses</th>
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Process Steps of RLAT > see User Guide

Preparation (up to 12 days)
Process step 1: scheduling the rapid appraisal
Process step 2: training of RLAT users and facilitators
Process step 3: desktop study

Field-research phase (up to 24 days)
Process step 4: key expert roundtable
Process step 5: stakeholder workshop
Process step 6: focus group meetings and processor meetings
Process step 7: key informant meetings

Follow-up phase (up to 12 days)
Process step 8: assessment of results
Process step 9: conclusions and recommendations
Process step 10: reporting
# Preparation:

Selection/sampling criteria

## Checklists,

<table>
<thead>
<tr>
<th>General information</th>
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<tbody>
<tr>
<td>1. Seasons when product is grown and their importance in regard to losses</td>
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<tr>
<td>2. Average field size of product</td>
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<tr>
<td>3. Average yield</td>
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</tbody>
</table>
| 4. Relevance of maize in household economy  
(Relevance: not important, one activity amongst others, most important activity) |
| 5. Home consumption/commercialization (%) |
| 6. Where/to whom do the farmers sell to? |
| 7. Lowest and highest prices achievable on local market/with trader, Do farmers achieve it? |
| 8. Organizational structures on farmer’s level, their role in transport/storage/processing/marketing? |
| 9. Women in agriculture, if applicable specific roles in VC steps |

<table>
<thead>
<tr>
<th>Quality Awareness</th>
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<tbody>
<tr>
<td>10. Farmer’s definition of good and bad quality</td>
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<tr>
<td>11. Causes for bad quality</td>
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<tr>
<td>12. Price differentials at farmer’s level for different product qualities</td>
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<td>13. Usage of bad quality product</td>
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<tr>
<td>14. Measures applied to improve quality and their efficiency (A)</td>
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<tr>
<td>15. Measures known but not applied, reason for not applying</td>
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(As a reminder for later more in-depth discussions, the interviewer ticks the likely loss category.)

Are quality issues an important loss factor?

- No  
- Negligible  
- Concern  
- Intolerable  
- Total loss
Methods > see Toolbox

Field-research phase - participatory methods

- Loss Hot Spot Analysis
- Key Expert Roundtable
- Stakeholder Workshop
- Focus Group Meetings and Processor Meetings
- Farm Transect Walk
- Market Transect Walk and Trader’s Place Transect Walk
- Loss Categories and Loss Ranking Matrix

Field-research phase – biophysical measurements
Example: Loss Ranking Matrix

<table>
<thead>
<tr>
<th>VC Function (cf. VC map)</th>
<th>Immediate effect</th>
<th>Likely later effect</th>
<th>Step 2: Relevance (0-3)</th>
<th>Step 3: Importance (0-3)</th>
<th>Step 4: Hot spot (6-9)</th>
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<tbody>
<tr>
<td>Input supplies</td>
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<td>Pre-harvest</td>
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<td>Harvest</td>
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<td>Aggregation</td>
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<td>Transport</td>
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**Step 2:** Relevance

**Step 3:** Importance

**Step 4:** Hot spot

- Missed opportunities
- Probability of event (0-3): „how many people suffer?”
- Severity of event (0-3): “how much do people suffer?”

*Hot spot if “Relevance x Importance” = 6 or 9*

Same approach for **Wholesale Trade, Processing, Retail Trade …**
Example: Loss perception matrix in focus group discussions
Example: Transect Walk
Methods > see Toolbox

**Biophysical measurements** and Methods for Aflatoxin Assessment

- e.g. Count No. of insects per 500 grains after sieving through a household sieve,
- Count the No. of grains that are discolored,
- Grain moisture measured with rapid grain moisture tester,
- sampling for laboratory analysis

**Follow-up phase:**

**Evaluation sheets**

Mostly for Aflatoxin risk assessment with farmers, traders, and processors

**Focus groups**

**Forms for documenting results**

Mostly data collection sheets and proposed outline for final reporting
Integrating Aflatoxin Risk Assessment

Aflatoxin checklist:
- Points of increased risk for aflatoxin contamination along the production to consumption chain
- Risk evaluated as percentage of positive responses
- List has to be specifically conceived for every commodity

Bio-physical measurements:
- Indication of aflatoxin risk via number of discoloured grains (which has no direct relationship with aflatoxin, but indicates a higher risk)
- Use of blue-light as aflatoxin indicator not successful – high rate of instrumentation needed in the field, including access to POWER
- Laboratory testing is too lengthy and complicated (sampling !) for RLAT, but should be recommended as a follow up if a high risk has been detected by the number of discoloured grains
Case example: VC map/ VC functions maize Brong Ahafo/ Ashanti Regions (large-scale trader)

Input Providers
- Small-scale Farmers and Farmer Groups
  - Nucleus Farmer Groups
  - Larger scale Farmers

Aggregators (Middlemen)

Large-scale Traders
- 1st stage Processing
  - 1st grading
  - drying
  - cleaning
  - 2nd grading
- Bulking/ Wholesale
- Packaging
- Bulking

Processor
- Brewery industry
- WFP

Feed industry/ Poultry Farmers
- Households

Functions: manufacturing/ procurement of inputs (e.g. seeds)
- storage
- selling
- advisory services

Functions: sourcing supplies
- shelling
- transport
- storage

Functions: sourcing
- grading
- drying
- cleaning
- milling
- packing
- selling

Functions: seasonal planning
- storage
- insect control
- customer search
- shelling
- distribution
- advisory services
- promotion

Quality assurance along the entire value chain
Lessons learnt so far

- Narrowing the scope to PHL is not useful for VC actors
  - Include pre-harvest losses and lost opportunities (i.e. choice of inappropriate seed). This is also a result of previous case studies on rice in Nigeria and potatoes in Kenya!

- Temporal variability of food losses
  - Carefully determine and plan the schedule

- Spatial and process-related variability of food losses
  - A reasonable scale is crucial, i.e. a specific value chain

- (The integration of an Aflatoxin risk assessment)
  - In this context, the definition of “loss” has to be rethought, as contaminated grains continue to be consumed, with very negative effects on human health (and the related costs)
Conclusions

Based on a sound analysis of a selected value chain, the Rapid Loss Appraisal Tool provides:

- Identified loss hotspots
- Loss estimates in terms of quantity and in economic terms
- Understanding of Causes & Losses relationships
- Adaptability in orientation (Food security; VC intervention points for upgrades; energy input sinks etc.)
- Flexible use of methodology based on a clear understanding of the value chain in question, the use of participatory tools and facilitation skills
Thank you for your attention!

Donor Platform - Rapid Loss Appraisal Tool (RLAT)

See also library on post-harvest publications:
https://www.donorplatform.org/postharvest-losses-and-food-waste/on-common-ground