Roadmap approach for improving food value chain efficiencies

5 March 2023, Melanie Kok, Vera Vernooij and Bob Castelein
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Part 1: Opening
Welcome
Getting to know each other
Part 2: Introduction
Achievement

- Mechanization in rice farming in Nigeria

A) Manual threshing

B) Mechanical threshing

Source:
https://www.researchgate.net/publication/360026819_Mechanization_in_rice_farming_reduces_greenhouse_gas_emissions_food_losses_and_constitutes_a_positive_business_case_for_smallholder_farmers_-_Results_from_a_controlled_experiment_in_Nigeria
Introduction (1)

- The value chain

![Diagram showing the value chain with various stakeholders: Trade associations, Input suppliers, Investors, Communities, Governments, Other.]}
Introduction (2)

- Value chain inefficiencies can lead to undesirable outcomes
  - food losses and waste
  - deteriorating food quality
  - food safety issues
  - reduced accessibility and affordability of food to (vulnerable) people

Source:
https://www.sesotec.com/apac/en/resources/blog/what-is-food-safety
Intervening in food value chains to support greater availability and access to safe and nutritious food

- >50% of interventions fail → white elephants
- Lasting, long-term change needed (interlinking, inclusive, conditions)

Intervention selection is a complex task as they should:
- Fit the context
- Make economic sense (be profitable)
- Not burden the environment
- Improve access to food
- Socially and culturally acceptable
- Affordable and accessible
- Address real issues
Aim of today (1)

1. Become familiar with food value chain thinking
   - Focusing on inter-connection between value chain components or actors
   - Creating and adding value by having collaboration between actors in the supply chain
   - Practically address food value chain inefficiencies

2. Practice with the methodology for intervention selection and implementation strategy

- Create a comprehensive, long-term perspective on chain-level intervention strategies = roadmap
  - Interventions at different levels, types, and with different actors
  - Use in combination with other long-term planning approaches
  - Structured, adaptable approach to sketch possible pathways
Methodology – The EFFICIENT protocol

1. Scoping → Product selection and (geographical) demarcation
2. Flow → Define chain structure
3. Focus → Determine issues and hotspot(s)
4. Measurements (optional) → (measure only when necessary)
5. Causes → Determine causes of issues and bottlenecks
6. Interventions → Evaluate potential interventions
7. Strategy → Formulate coherent long-term intervention strategy

Source: Kok et al. (2021)
Part 3: Identifying FLW hotspot and causes

1. Scoping
2. Flow
3. Focus
4. Measurements (optional)
5. Causes
6. Interventions
7. Strategy
Scope

Boundaries

▪ **Product:** Selection of a food category, product or variety

▪ **Actors:** Selection of the 1) type of actors and 2) deciding about generic of specific actors

▪ **Region:** Selection of the country or geographical region(s) you want to include
Flow

- Draw the food flow of your supply chain
  - What actors are involved in the supply chain
  - How does the food flow from actor to actor

Figure: Onion supply chain (Source: Kok et al. 2021)
Focus

- Where are the issues and hotspots in the supply chain?
  - Quality and/or economic losses
  - Amount of food that will be disposed
  - Main food safety issues
  - Highest input costs

Figure: Onion supply chain (Source: Kok et al. 2021)
Identify the issues, causes and root causes for the hotspot

- What is the issue?
- Causes: 5x why?
- Stop when you try to find a solution (often when using ‘no’ in your answer)

- Not sold in time
  - Price is high
  - Low supply
  - Low import volume from India

- Sorted out after arrival
  - Not meeting consumer criteria

- Rot
  - Fungus
  - Moisture content too high

- Root cause(s)

- Series of natural disasters in production hubs in India
### Assignment 1: Template example

**a) What are the major issues in the supply chain? (mention 1 – 3 issues)**
- Sorting out products after arrival
- Product thrown away end of the day
- Losses during storage

**b) To which actor does every issue apply mainly?**
- Wholesaler
- Retailer
- Farmer

**c) Why is this issue occurring?**
1x Not meeting consumer’s criteria
2x Rotten products
3x Low supply of the product
4x Moisture content too high in combination with fungus

**d) Root cause(s)**
5x Production and harvesting season is from April till October
5x Made of cheap, weak material

---

**Scope for this assignment > given**

**Flow in the supply chain > given**

**Focus > group assignment**

**Causes > group assignment**
a) What are the major issues in the supply chain?

b) To which actors do these issues apply mainly?

c) What are the intermediate causes of this issue at this actor?

d) What is/are the root cause(s) for this issue at this actor?
Part 4: Interventions and strategy
Interventions

- Match root causes to interventions
  - Think about solutions to solve the root cause

- Root causes
  1. Fungus
  2. Moisture too high after drying
  3. Bulk load truck - physical damage

- Interventions
  - Improved storage rooms
  - Drying facilities and moisture meters
  - Access to finance
  - Quality standards and quality based pricing
  - Good transport practices
Strategy

- Describe supportive actions that are needed to implement the intervention successfully

- Conditions for successful implementation
  - Where to start?
  - What actors to involve
  - Duration of implementation
### Group assignment 2

- Intervention selection based on root cause
- Define strategy for successful implementation
- Template for assignment 2 + filled in example

#### Assignment 2 Template example

<table>
<thead>
<tr>
<th>a) Select one of the root causes from assignment 1</th>
<th>Moisture content too high in combination with fungus</th>
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</table>
| b) Come up with 1-3 suitable interventions       | 1) Dry the product after harvesting  
2) Use proper chemicals/fungus control during production  
3) Transport the product in ventilated vehicles |

| c) Strategy | i. Pick 1 suitable intervention  
ii. Describe supportive actions  
iii. Prioritize the intervention and actions (what to do first)  
iv. Stakeholder involvement  
v. Duration of implementation |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intervention | Dry the product after harvesting  
8  
Supply chain actors  
12 months |
| Supportive action 1 | Select a drying location at the farm  
5  
Supply chain actors  
2 months |
| Supportive action 2 | Access to finance  
2  
Governmental organization  
6 months |
| Supportive action 3 | Buy moisture meters  
4  
Supply chain actors and donor organization  
1 month |
| Supportive action 4 | Define formal quality standards  
1  
Supply chain actors, research institute and governmental organization  
3 months |
| Supportive action 5 | Introduce quality based pricing system  
7  
Supply chain actors  
12 months |
| Supportive action 6 | Provide training for farmers about how to dry (curing)  
3  
Governmental organization or non-governmental organization  
1 month |
| Supportive action 7 | Provide training to intermediaries about how to maintain the quality, and about quality based pricing  
6  
Governmental organization or non-governmental organization  
1 month |
| Supportive action 8 | |
Group assignment 2

a) Select one of your identified root causes to solve

b) Come up with 1 to 3 suitable interventions to solve this root cause

c) What strategy would you suggest to address the identified root causes? A strategy consists of:

   I. Pick 1 suitable intervention to solve the root cause

   II. Describe supportive actions

   III. Prioritize the intervention and supportive action in terms of a timeline (what to do first)

   IV. Per action, describe the stakeholder involvement

   V. Per action, describe the duration of implementation
Part 5: Sharing
Share findings

- Share in 5 minutes:
  - What issue and actor did you select?
  - What is the selected root cause of this issue?
  - What intervention do you propose?
  - **What should be the next steps?**
Part 6: Closing session
**Conclusions**

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<td>Efficiënt Protocol explanation video</td>
<td><a href="https://www.youtube.com/watch?v=a3oJtCqYlw&amp;time=40s">https://www.youtube.com/watch?v=a3oJtCqYlw&amp;time=40s</a></td>
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<tr>
<td>Cause tree tool</td>
<td><a href="https://isu.containers.wurnet.nl/">https://isu.containers.wurnet.nl/</a></td>
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Closure

- Thank you for your presence and effort today
- Questions or remarks?
To explore the potential of nature to improve the quality of life

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