Cataloging Innovations to Reduce Food Loss and Waste, Enhance Food Safety, and Promote Access to Nutrient-Dense Foods
**METHODOLOGY**

<table>
<thead>
<tr>
<th>Scoping Innovations</th>
<th>Innovation Census</th>
<th>Innovation Prioritization</th>
<th>Context-Specific Socio-technical Innovation Bundling</th>
</tr>
</thead>
</table>
| USAID Global Innovation Exchange Database, literature review & knowledge networks, success stories, existing innovation portals | Delphi-like method to compile existing innovations that has some evidence of implementation | Measured quantitatively utilizing USAID’s Agricultural Scalability Assessment Tool, adapted to reflect the effectiveness and commercial viability | - Participatory Priority Setting  
- Bundling Innovation for scaling impact |

Over 50 FSN-IL consortium partners and technical experts
STEP 1 - INNOVATION CENSUS

Identified 265 innovations that were broadly focused on FLW, enhancing food safety, and promote access to nutrient-dense foods, categorized into four thematic components:

- **Theme 1**: 58 innovations around agriculture production, harvest, and post-harvest
- **Theme 2**: 74 innovations around post-farm gate processing, packaging, and storage
- **Theme 3**: 51 innovations around infrastructure, transport, and markets
- **Theme 4**: 82 innovations around food environment, consumer choices, and retail promotion
INNOVATIONS CENSUS – REDUCING FLW

189 Innovations on Reducing FLW

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Production, Harvest, and Post-Harvest Losses</td>
<td>30</td>
<td>16%</td>
</tr>
<tr>
<td>Post-Farmgate Food Processing, Food Packaging and Food Storage</td>
<td>51</td>
<td>27%</td>
</tr>
<tr>
<td>Infrastructure, Transport and Markets</td>
<td>51</td>
<td>27%</td>
</tr>
<tr>
<td>Food Environment, Consumer Choice, and Retail Promotion</td>
<td>57</td>
<td>29%</td>
</tr>
</tbody>
</table>

- Products: 108 (57%)
- Processes: 38 (20%)
- Practices: 33 (18%)
- Metrics: 10 (5%)
Examples of Products, Processes, Practices to Reduce FLW

**Products**
- Biofortification
- PICs bags and Hermetic storage
- Fruit bagging to mitigate losses
- BSF for poultry feed from waste streams
- Active Packaging
- Dry cards
- Cold Rooms and Cold Storage Tech
- Reusable crates
- Antimicrobial paper liners

**Processes**
- Sustainable Post-harvest loss reduction business models
- Dehytray
- Low-cost milk chilling center
- Food Safety Management Systems
- Innovative food delivery systems
- Food traceability platforms

**Practices**
- Educational Animations on Ag, Health, Women Empowerment, etc.
- Innovative multimedia campaigns
- Trade shows
- Urban youth digital engagement platform

Processes: Market processes, support for development, policies/standards
STEP 2 - INNOVATION PRIORITIZATION

_Innovations with potential for transformational impact, based on the available evidence of effectiveness or commercial viability_

- Measured quantitatively utilizing USAID’s Agricultural Scalability Assessment Tool, adapted to reflect the effectiveness and commercial viability

**Dimension A** - Issue the innovation addresses (4 ingredients)
**Dimension B** - Credibility and observability (8 ingredients)
**Dimension C** - Requirements for adoption, both at individual and institutional-level (18 ingredients)
**Dimension D** - Benefits and risks for adopters (11 ingredients)
**Dimension E** - Enabling environment for commercialization (12 ingredients)
# Prioritization - Innovation Score

<table>
<thead>
<tr>
<th>Innovation</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Mean</th>
<th>Sum</th>
<th>Gmean</th>
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</thead>
<tbody>
<tr>
<td>Innovation 1</td>
<td>0.80</td>
<td>0.80</td>
<td>0.50</td>
<td>0.20</td>
<td>0.20</td>
<td>0.50</td>
<td>2.50</td>
<td>0.42</td>
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<tr>
<td>Innovation 2</td>
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<td>0.20</td>
<td>0.10</td>
<td>1.00</td>
<td>1.00</td>
<td>0.50</td>
<td>2.50</td>
<td>0.33</td>
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<td>Innovation 3</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>2.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Innovation 4</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.50</td>
<td>0.10</td>
</tr>
<tr>
<td>Innovation 5</td>
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<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>4.00</td>
<td>0.80</td>
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</table>
PRIORITIZATION - ACTIVE PACKAGING

Setting R&D Priorities:
- better understanding of commercialization and consumer adoption by food industries/producers
- Evidence to show its effectiveness/cost-effectiveness in-practice accounting for social processes/context

<table>
<thead>
<tr>
<th>Active Packaging - fruit/vegetables/animal sourced products</th>
<th>0.67</th>
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</thead>
<tbody>
<tr>
<td>Issue the Innovation Addresses</td>
<td>0.77</td>
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<tr>
<td>Credibility &amp; Observability</td>
<td>0.77</td>
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<tr>
<td>Requirements for Adoption</td>
<td>0.54</td>
</tr>
<tr>
<td>Benefits and Risks to Adopters</td>
<td>0.63</td>
</tr>
<tr>
<td>Enabling Environment for Commercialization</td>
<td>0.72</td>
</tr>
</tbody>
</table>
STEP 3 - BUNDLING AS A SOLUTION

Source: Socio-Technical Innovation Bundles for Agri-Food Systems Transformation, 2022
Christopher B. Barrett et al.,
ILLUSTRATION: BUNDLING INNOVATIONS TO REDUCE LOSS/WASTE OF NUTRIENT-RICH PERISHABLE FOODS

Figure adapted from: C.B. Barrett et. al., Socio-Technical Innovation Bundles for Agri-Food Systems Transformation, Sustainable Development Goals Series'
BI4SI PLATFORM

Bundling Innovations for Scaling Impact (BI4SI) platform to:

• **Visualize** the state of innovations (context-specific, stage of development, food groups, etc.)
• **Measure** potential for transformational impact and commercial viability (prioritization)
• **Communicate** shared language to facilitate participatory priority setting and innovation bundling to scale an impact.
NEXT STEP FOR FSN-IL FOCUS COUNTRIES

Identify Experts and Stakeholders

Scaling Strategy

Participatory Priority Setting
National food system pathways - action track priorities;

Identify best-bet innovation bundles; map barriers, gaps, opportunities and enablers for scale up

Utilize BI4SI for visualization of bundle of innovations catering scaling ambition

Wave 3: Scaling outcomes
Aspired impact at scale (Improved nutrition)

Location A
Innovation X (Imp chicken breed)
Scaling Strategy A (site-specific package, bottleneck, partnership)

Location B
Innovation Y (Orange Fleshed SP)
Scaling Strategy B (site-specific package, bottleneck, partnership)

Location C
Innovation Z (Vit A supplement)
Scaling Strategy C (site-specific package, bottleneck, partnership)

Source: March Schut et al., CGIAR IPSR workshop
**OPPORTUNITIES**

**Targeted Investment in Research & Development:** Support research and development in agri-food systems to enhance effectiveness and scale innovations, aiming to ‘sustainably’ reduce FLW.

**Stakeholder Collaboration:** Encourage local partnerships between governments, NGOs, private sector, research and academia, civil society to collaboratively reduce FLW, contributing to sustainable transformation of food systems.

**Policy Support:** Advocate for the formulation and/or implementation of policies that incentivize the scaling of bundled innovations targeting FLW reduction