CREATING A GLOBAL FOOD LOSS AND WASTE MEASUREMENT PROTOCOL

Master Document

January 2014
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I. SUMMARY

The Food Loss & Waste Protocol (FLW Protocol) is a multi-stakeholder effort to develop the global standard for measuring food loss and waste. It will enable countries, companies and other organizations to estimate in a credible, practical and consistent manner how much food is lost and wasted and identify where the loss and waste occur. With this information, users will be better equipped to address food loss and waste.

The vision of the FLW Protocol is that wide use of the measurement standards will empower the world to minimize food loss and waste, thereby enhancing food security, economic growth, and environmental health.

The FLW Protocol will contribute to the “Think Eat Save: Reduce Your Food Print” campaign led by the United Nations Environment Programme (UNEP) in collaboration with Food and Agriculture Organization (FAO), the Waste & Resources Action Programme (WRAP) and other partners, as well as to FAO’s Save Food Initiative. In addition, it will build upon regional measurement approaches being developed by the EU FUSIONS initiative and others. Development of the FLW Protocol is being coordinated by the World Resources Institute (WRI) in conjunction with the Consumer Goods Forum (CGF), FAO, FUSIONS, UNEP, World Business Council for Sustainable Development (WBCSD), and WRAP.

II. BACKGROUND

The opportunity

A significant share of food grown is not ultimately eaten. The FAO estimates that 32 percent of all food produced in the world by weight is lost or wasted (FAO 2011). In this context, “food loss and waste” refers to the edible parts of plants and animals that are produced or harvested for human consumption but that are not ultimately eaten by people. When converted into calories, global food loss and waste amount to approximately 24 percent of all food produced (Lipinski et al. 2013). In short, one out of every four food calories intended for people is not ultimately consumed.

Addressing this massive inefficiency can have a significant impact on people and the planet. It can improve the food security of people and countries. It can raise farmer incomes and reduce costs to companies in the food value chain and end consumers. And it can reduce greenhouse gas emissions as well as demands on water and energy.

The FAO’s Global Food Losses and Food Waste—Extent, Causes, and Prevention (2011) was a groundbreaking, systematic effort to quantify food loss and waste at a global and regional level. Now many countries and companies want to quantify food loss and waste at their own scale and on a regular basis.

Although the adage ‘what gets measured, gets managed’ applies to food loss and waste, several challenges exist. For instance, there are varying definitions of what constitute food loss and waste. In addition, different methods for quantifying food loss and waste are emerging, a development that risks confusion amongst users, lack of comparability and consistency among methods, and multiple “reinventions of the wheel.” Furthermore, data availability remains a challenge; quantifiable data on food loss and waste is often sparse or inconsistently gathered.

The FLW Protocol

The Food Loss and Waste Protocol seeks to address these challenges. Developed via an expert and stakeholder engagement process, the FLW Protocol will provide a globally consistent approach and guidance for countries, companies and others to measure and monitor the food loss and waste that occur within their boundaries and value chains. It seeks to define best practice methods and data sources, harmonize measurement approaches, enable comparability between geographies and entities, and facilitate transparency across users.

Users of the FLW Protocol will likely have varying motivations for measuring food loss and/or waste. The FLW Protocol design will reflect these distinctions and meet multiple purposes. It will provide written guidance on various aspects of measuring food loss and food waste including, but are not limited to:

- Definitions of food loss and waste (e.g., across different parts of the food value chain, by destination, and by type of material)
- Boundaries or “scopes” for what to measure
- Unit(s) of measure
- Data collection, quantification and extrapolation methods
- Types of data sources
- Evaluating tradeoffs between accuracy, completeness, relevance, and cost
- Setting targets
- Reporting results

The FLW Protocol will take the form of a publication; somewhat akin to the Greenhouse Gas Protocol (see the Revised Corporate Standard at www.ghgprotocol.org). The publication may be complemented by an online component that points to tools and other forms of assistance for entities that want to conduct a food loss and waste audit in accordance with the FLW Protocol.

The FLW Protocol development process may go beyond developing guidance for measuring food loss and waste. For instance, it may recommend new methods for gathering and/or generating data on food loss and waste. And it may conduct outreach and make recommendations to decision-makers about policies and investments (e.g., in data collection) needed to facilitate the ability of governments, companies and others to measure their food loss and waste.

Benefits
The FLW Protocol is designed to generate a number of benefits to countries, companies and other organizations. Most importantly, it will guide users on how to measure food loss and waste, providing:

- Confidence that the methods used are robust, credible, and globally accepted
- Consistency and comparability
- Alignment to prevent “reinvention of the wheel”
- Accelerated transfer of best measurement practices

In turn, measuring food loss and waste in accordance with the FLW Protocol will enable users to answer questions such as:

- How much food is being lost and/or wasted?
  - Provides methods for users to quantify the amount of loss and waste
  - Links to guidance on how to set baselines, formulate targets, benchmark, measure, and report
  - Supports the development of relevant prevention and reduction strategies
Where is the loss and/or waste happening?
- Identifies where loss and waste is occurring
- Highlights who to engage
- Enables the development of practical action plans

Guiding principles
The process of developing the FLW Protocol will adhere to several guiding principles. It will:
- **Use a multi-stakeholder process.** The FLW Protocol will be developed via an inclusive, global, multi-stakeholder process, involving both public and private sectors from around the world.
- **Build on existing initiatives.** FLW Protocol development will engage those who are creating measurement methods for specific geographies or specific aspects of the food value chain.
- **Keep the scope broad.** The FLW Protocol will cover both food loss and food waste, and will be designed for use by countries, companies and other organizations.
- **Meet user needs.** Methods recommended in the FLW Protocol should satisfy the diverse needs of users, be practical, have low barriers to use, yet yield meaningful results.
- **Avoid letting the perfect become the enemy of the good.** One does not need absolutely complete information or completely precise information in order to start working on reducing food loss and waste.
- **Be amenable to differences.** Design of the FLW Protocol should be amenable to the different initial conditions of data availability between countries and food supply chains, yet encourage continuous improvement to more accurate and more frequent data collection and use.

Ingoing hypotheses
In light of these guiding principles, the following hypotheses will guide development of the FLW Protocol:
- **Series of versions.** The FLW Protocol will evolve over time reflecting advances in methods, data, and user needs. Therefore, there will be multiple versions of the FLW Protocol over the course of a decade (e.g., version 1.0, version 2.0).
- **Tiered methods.** In order to be amenable to differences between regions regarding current data availability and measurement capacity, the FLW Protocol may propose “tiers” of recommended methods and data sources for quantifying food loss and waste. The level of accuracy and comprehensiveness increases the higher the tier. This feature is important because some countries (e.g., the United Kingdom) and companies today may be able to measure their food loss and waste in accordance to the highest tier while others (e.g., Burkina Faso) may not. Having lower tiers available enables the latter to still start the process of quantification. Yet having higher tiers available sets aspirations and establishes “the bar” that can guide investment decisions around what data needs to be collected.
- **Modular coverage.** Guidance will be provided in a modular manner so that a user can select the suite of elements most relevant to its specific objectives. This may include, for example, recommendations that users measure and record separately the different paths food may take if not consumed by humans (e.g., donation, animal feed, energy, compost, disposal).
III. GOVERNANCE STRUCTURE

The governance process to oversee and develop the FLW Protocol is based on the following principles:

- The FLW Protocol will be developed through an open, transparent, inclusive, multi-stakeholder process.
- The governance structure will strive for balance by including participation from diverse geographies and a mix of government, business and civil society participants.
- All outputs will be subject to robust review by interested stakeholders.

The governance structure will consist of several groups. Table 1 provides a summary of each group’s purpose and anticipated commitments and Figure 1 illustrates the structure. Further details about each group’s composition and proposed terms of reference are noted in subsequent pages.

Table 1. Summary purpose and expected commitment

<table>
<thead>
<tr>
<th>Group</th>
<th>Purpose</th>
<th>Anticipated Commitment</th>
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<tbody>
<tr>
<td>Secretariat (WRI)</td>
<td>Convene, facilitate and oversee development of the FLW Protocol. Also serves as member of the Steering Committee.</td>
<td>Team of 3 staff coordinate and participate in calls/meetings, conduct outreach, hold <em>ad-hoc</em> meetings as needed.</td>
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<tr>
<td>Steering Committee (CGF, FAO, FUSIONS, UNEP, WBCSD, WRAP)</td>
<td>Approve FLW Protocol drafts and final document. Provide strategic and technical leadership and guidance throughout the FLW Protocol development process</td>
<td>Calls: One conference call (1-2 hours), averaging every 3 months in 2014 and 2015. Meetings: One in-person meeting per year (will aim to coordinate with existing venues). General: <em>Ad hoc</em> teleconference meetings as necessary. Timely response to reviewing materials and email correspondence.</td>
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<tr>
<td>Technical Working Groups</td>
<td>Develop the technical content of the FLW Protocol</td>
<td>Calls: At least one conference call (1-2 hours) per month in 2014 and 2015. Meetings: 1-2 in-person meetings per year. General: Time to prepare/review materials (approximately 5-15 hours/month).</td>
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<tr>
<td>External Review Group</td>
<td>Provide input and support use of the FLW Protocol</td>
<td>Commit to provide recommendations on FLWP development, feedback on drafts and/or support use of the FLW Protocol.</td>
</tr>
<tr>
<td>Pilot Testers</td>
<td>Apply the draft FLW Protocol to validate and test its practicality, and provide feedback for improvement</td>
<td>Test the draft FLW Protocol and provide comprehensive feedback based on a pre-determined set of requirements.</td>
</tr>
</tbody>
</table>

With respect to acknowledgements, all participants will be recognized in the final FLW Protocol publication and any web-based systems for their contributions unless we are requested not to do so.
The following pages provide details on the composition, responsibilities, and anticipated commitments for each group.
A. Secretariat

Purpose
Convene, facilitate and oversee development of the FLW Protocol.

Composition
World Resources Institute (WRI) will be the Secretariat. The WRI team will consist of 3 staff, which collectively possesses the skills required for project management and facilitation as well as expertise on food loss and waste issues.

Responsibilities
The Secretariat, together with the Steering Committee, is ultimately responsible for the successful development, launch, and adoption of the FLW Protocol.

The Secretariat will:
- Draft the FLW Protocol development strategy, project plan and scope of work, ensuring timely completion of deliverables.
- Convene participants in the FLW Protocol development process, who are identified in conjunction with the Steering Committee.
- Facilitate and coordinate meetings of the Steering Committee and other stakeholder groups.
- Draft written inputs into the Steering Committee and Technical Working Group processes, including background on relevant research and methodologies, issues and challenges and key decisions to be made by each group.
- Serve as a member of the Steering Committee with respect to decision-making processes and approval of the draft and final FLW Protocol documents.
- Convert draft written material from the Technical Working Groups into a final version of the FLW Protocol and ensure consistency of tone and style throughout.
- Organize the FLW Protocol review and piloting process.
- Lead on developing external communications, which will include preparing publicly available updates to be shared with all interested stakeholders.
- Create and maintain a web presence for the FLW Protocol. This web presence will include a public-facing portion (describing the FLW Protocol, inviting participation, posting drafts for review) and a private portion where the Steering Committee and/or Technical Working Groups can exchange information and perspectives as part of their work.
- Facilitate final development, launch, and adoption of the FLW Protocol.
- Raise budget to ensure funding of WRI’s Secretariat role, fund workshops and support participation of external stakeholders, where needed.

Commitment
The Secretariat will commit to a team of 3 staff coordinating and participating in calls and planned meetings, conducting outreach, and holding ad-hoc meetings as needed to execute its work.
B. Steering Committee

Purpose
Approve FLW Protocol drafts and final document. Provide strategic and technical leadership and guidance throughout the FLW Protocol development process.

Composition
The founding members of the FLW Protocol Steering Committee are the Consumer Goods Forum (CGF), Food and Agriculture Organization of the United Nations (FAO), FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies), United Nations Environment Programme (UNEP), World Business Council for Sustainable Development (WBCSD), and Waste and Resources Action Programme (WRAP). WRI, as Secretariat, will also serve as a member of the Steering Committee.

These organizations collectively represent a mix of global, private and public sector interests and include deep expertise on food loss and waste. Any additional members will be selected upon consensus of the current Steering Committee members and should fill gaps identified in the representation of key stakeholders or geographies. The Steering Committee should be composed of no more than ten organizations.

Responsibilities
Steering Committee members will approve the draft and final FLW Protocol and will serve as key strategic and technical advisors throughout the protocol development process.

More specifically, the Steering Committee will:
• Provide input on the FLW Protocol governance structure, development strategy and project plan.
• Provide guidance and approval on the scope of the Technical Working Groups and topics to be addressed.
• Recommend and recruit participants for the Technical Working Groups and other stakeholder groups
• Play a role in one or more Technical Working Groups (optional; at Steering Committee member discretion).
• Review draft materials developed by the Technical Working Groups for comment and approval.
• Resolve issues that are unable to be settled within a Technical Working Group, following a consensus-based approach.
• Provide input into and final approval of the FLW Protocol publication. Steering Committee member logos will be displayed on the final FLW Protocol publication and any FLW Protocol online components.
• Support broad adoption and use of the FLW Protocol.
• Recommend and/or participate in pilot testing the draft FLW Protocol to test practicality and provide feedback for improvement (optional; at Steering Committee member discretion).

Commitment
Steering Committee members are requested to make a two-year commitment (2014 through 2015) to participate. This is expected to involve:
• One 1-2 hour teleconference averaging every 3 months in 2014 and 2015.
• One in-person meeting per year (aligned with pre-existing events where a critical mass is already present).
• Timely response to reviewing materials and email correspondence, and ad hoc teleconference meetings as necessary.
C. Technical Working Groups

Purpose
Develop the technical content of the FLW Protocol.

Composition
Each Technical Working Group will consist of five or more experts from diverse stakeholder groups (e.g., government, academia, business, NGOs) with technical background in quantitative or qualitative aspects related to measuring food loss and/or waste. Representatives of Steering Committee organizations (or their members) may also participate in Technical Working Groups.

There will be several Technical Working Groups charged with developing the technical details and guidance that form the content of the FLW Protocol. The scope of each Technical Working Group will be determined based on where sufficient distinctions exist. Groups could be distinguished by the type of food loss/waste involved, where in the food value chain the loss/waste occurs, and/or the similarity of data sources and estimation methods. Such criteria, for example, might result in one Group focused on food losses at the agricultural level, a second on mid-stream food waste, and a third on consumer waste. The scope of each Technical Working Group will be defined by early February.

Each Technical Working Group has a chairperson who leads and convenes the Group. The main requirement to be chosen as a Chair is to have experience with the content that will be covered by the Group and time available to fulfill the responsibilities noted below. WRI will assign one of its researchers to each working group to assist day-to-day with analysis and writing, as well as to summarize, circulate and post online meeting notes.

Responsibilities
Technical Working Groups develop the technical details and guidance that form the content of the FLW Protocol.

The Technical Working Group will, for the set of technical issues designated to the particular group, do the following when developing draft guidance:

- Define the scope of what to measure, units of measure, etc.
- Review relevant existing methods and practices, which includes reviewing the literature and interviewing other experts as needed.
- Recommend methods for quantifying food loss and waste (recognizing differences in available data and capacity between different organizations and regions).
- Recommend data sources and data gathering methods, including new or innovative ways to gather data where gaps exist.
- Conduct analyses to resolve any outstanding issues.
- Develop recommendations for the content of the FLW Protocol.
- Write draft text to be reviewed by the Steering Committee, which may include possibly contributing to sections of the FLW Protocol that cover a cross-cutting set of issues (for example, distinctions relevant between companies and countries, how to extrapolate data, etc.).
- Manage revisions and input received from External Review Group and other stakeholders.

The role of a Technical Working Group chair will be to:

- Provide technical leadership related to the scope of the Technical Working Group.
- Determine the frequency of meetings and manage agenda for meetings.
• Ensure that a complete draft text for the relevant chapter(s) of the Protocol is written (some portions might be written by the Chair while others may be “farmed out” to Technical Working Group members to write).
• Lead the decision-making process for the Technical Working Group, with the goal of achieving consensus on each aspect of the guidance provided.
• Participate in occasional calls with other Technical Working Group chairs to ensure alignment, where needed.

Commitment
Technical Working Group members are asked to make a two year commitment (2014 through 2015) to participate in the development and road testing process of the FLW Protocol. This is expected to involve:
• At least one conference call (1-2 hours) per month.
• 1-2 in-person meetings per year.
• Time to prepare and review materials (estimated to be approximately 5-15 hours per month), with some intense analytical and writing periods.

Workflow
The workflow of the Technical Working Groups will include three stages. Decisions made on what to include and how to address specific issues will feed into a drafting stage. Drafts will then be developed and reviewed by the Technical Working Group members in an iterative way.

1. Assessing Methods & Practices and Identifying Issues
• As a first step, the Technical Working Group will assess methods and practices related to its scope and identify outstanding issues.
• This will form the foundation for detailed outlines of each chapter in the FLW Protocol publication.
• The Technical Working Group will develop a work plan for addressing all issues in the established timeframe, including the responsibilities of each member (e.g., dividing up writing and reviewing responsibilities, dividing up the tasks by topic, the schedule of conference calls, etc.
• Technical Working Group members will identify all the key issues within a chapter that require a decision to be taken including issues that must be decided by other working groups.
• If needed, Technical Working Group members will draft options for each decision and the pros and cons of each approach, taking into account existing approaches used by other standards, methodologies, practices, etc.
• Technical Working Group members will discuss options and come to a consensus recommendation on the decision.
• When consensus can’t be reached, options will be presented to the Steering Committee for discussion and a recommendation.
• Once an issue decision has been made, either:
  o The section relevant to that decision can go to the drafting stage, or
  o The Technical Working Group will wait until all decisions have been made before commencing the drafting stage.
• The rationale for decisions will be reflected in meeting summaries that will be circulated as necessary to the Steering Committee and other Technical Working Groups.
2. Drafting Stage

- Depending on individual circumstances, drafts may be written by Technical Working Group chairs, WRI staff, or other Technical Working Group individuals/teams.
- Drafts may be either of entire chapters, all written by the same individual/team, or different sections in a chapter may be written by different individuals working on specific sections of a chapter. Each Technical Working Group may elect its own method.
- If a Technical Working Group chooses to delegate the drafting of sections to different individuals, then it is conceivable that some portions of the chapter will be in the drafting stage, others in the decision-making stage, and others in the reviewing stage.

3. Reviewing Stage

- Draft chapters will be available to Technical Working Group members online and distributed by email to the Technical Working Group members.
- Technical Working Group members will provide comments through online discussion forums and through conference calls, where Technical Working Group members will agree on revisions to the draft.
- The drafter (Technical Working Group chair, WRI staff, Technical Working Group team or individuals) will incorporate the feedback, revise the draft, and then disseminate again for additional review/approval.

**Technical Working Group Decision-Making**

The following provides guidance to the Technical Working Group members for how to approach critical issues.

- If there is broad agreement on a single best practice approach:
  - Recommend a single approach
- If support is split between two or more best practice approaches:
  - Offer a choice of approaches or a hierarchy with guidance on how to select
- If there is no agreement on any generic best practice approaches:
  - Provide best practice case studies as examples, or
  - Offer no guidance or case studies - address qualitatively
- If the group agrees the issue should not be addressed in the guidance:
  - Provide rational for omission in guidance

All efforts should be made to achieve consensus on each aspect of the guidance. If the Technical Working Group is unable to reach a consensus, the group will provide the Steering Committee with a set of options for review and recommendation, indicating the relevant pros and cons of each option.
D. External Review Group

**Purpose**
Provide input into and support use of the FLW Protocol.

**Composition**
The Group will consist of stakeholders interested in food loss and waste, including representatives from academia, business, government, and non-governmental organizations. The Secretariat will seek to ensure that there is diversity in terms of geography and stage of the value chain where food loss and waste occurs.

**Responsibilities**
The External Review Group will provide independent perspectives on the FLW Protocol, particularly feedback on the draft guidance. The Steering Committee and Technical Working Groups will engage the External Review Group on a rolling basis throughout the FLW Protocol development process, leveraging email group lists and pre-existing meetings of relevant stakeholders to provide updates and gain insights.

At the discretion of the individual participant, members of the External Review Group will be invited to contribute in one or more of the following ways:

- Recommend desired content and functionality of the FLW Protocol.
- Provide feedback on draft FLW Protocol methods and text. Comments from the External Review Group will be incorporated at the discretion of the Technical Working Groups, for approval by the Steering Committee members.
- Support use and adoption of the FLW Protocol.
- Suggest outreach and engagement opportunities.

**Commitment**
Members of the External Review Group are expected to participate in one or more of the ways noted above. If providing feedback on draft FLW Protocol text, it is anticipated that formal feedback will be requested at one or two intervals over an eighteen-month period. Written feedback in the form of line edits to a Word document that will be distributed electronically is one possible way in which feedback will be collected.

Members of the External Review Group also will be invited to participate in ad hoc in-person meetings and/or occasional one-hour conference calls or webinars where the Secretariat (and available Steering Committee members) summaries FLW Protocol development progress. In-person meetings will be held during pre-existing events where a critical mass of stakeholders will already be present.
E. Pilot Testers

Purpose
Apply the draft FLW Protocol to validate and test practicality and provide feedback for improvement.

Composition
Similar to the External Review Group, these stakeholders include representatives from academia, business, government, and non-governmental organizations.

The Secretariat will seek to ensure that there is diversity among Pilot Testers in terms of geography and stage of the value chain where food loss and waste occurs. The Secretariat, Steering Committee and relevant Technical Working Groups will identify and agree upon the Pilot Testers. The Secretariat will facilitate coordination with the Pilot Testers.

Responsibilities
The Pilot Testers provide feedback on the emerging FLW Protocol to ensure it meets user needs.

Pilot Testers will:
- Provide input on what the FLW Protocol should look and feel like.
- Road test the draft FLW Protocol—with technical assistance from the Secretariat and/or selected members of the Steering Committee or Technical Working Group—to ensure that it can be practically implemented.
- Provide detailed, constructive feedback about areas for improvement.
- Be willing to serve as case studies to be included in the final FLW Protocol publication.

Commitment
The Pilot Testers will commit to testing the draft FLW Protocol and providing comprehensive feedback based on a pre-determined set of requirements. The estimated amount of time required will be determined as the drafting of the FLW Protocol gets underway.
**IV. TIMELINE**

Table 2 summarizes the proposed timeline for development of the FLW Protocol.

**Table 2. Timeline**

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<th>Activities</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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<tr>
<td></td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
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<tr>
<td>Announce FLW Protocol process</td>
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<tr>
<td>Confirm Steering Committee and governance</td>
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<tr>
<td>Define scope of Technical Working Groups</td>
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<tr>
<td>Send call for participation for Technical Working Groups and External Review Group</td>
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<tr>
<td>Develop draft content (Technical Working Groups)</td>
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<tr>
<td>Identify pilot testers</td>
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<tr>
<td>Complete first full draft of FLW Protocol</td>
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<tr>
<td>Pilot test draft FLW Protocol</td>
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<tr>
<td>Gather feedback from External Review Group</td>
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<tr>
<td>Revise draft FLW Protocol</td>
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<tr>
<td>Publish FLW Protocol version 1.0</td>
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<tr>
<td>Provide public updates on progress of FLW Protocol development (quarterly emails, webinars, conference presentations)</td>
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The aspired launch of the FLW Protocol (version 1.0) is September 2015. This timing corresponds with the annual United Nations General Assembly meeting, during which we hypothesize that the UN may release post-2015 development goals, one of which would be on “food security and nutrition” and might have a target on reducing post-harvest food loss and waste. Having a measurement methodology published by then would dovetail with the announcement of the target. Likewise, this timing corresponds with the projected timing for publication of the EU FUSIONS measurement standards.