



**REPORT ON TRAINING OF TRAINERS WORKSHOP ON METHODOLOGY FOR FOOD LOSS ASSESSMENT IN TARGETED VALUE CHAINS, ZIMBABWE**

**Cresta Lodge, Harare 1 – 5 October 2018**



**by**

**Brighton M. Mvumi and Tafireyi Chamboko**

**University of Zimbabwe**

**October 2018**

## Table of Contents

<b>List of abbreviations &amp; acronyms</b> .....	4
<b>Acknowledgements</b> .....	4
<b>Executive Summary</b> .....	5
<b>1. Introduction</b> .....	7
<b>1.1. Background</b> .....	7
<b>1.2. Training Objectives</b> .....	8
<b>2. Training Approach and Process</b> .....	9
<b>3. Workshop and Participant Evaluation</b> .....	9
<b>4. Proceedings</b> .....	10
<b>4.1. Workshop Participants</b> .....	10
<b>4.2. Participants Expectations</b> .....	10
<b>4.3. Session 1: Introductions and Opening Ceremony (Day 1)</b> .....	11
<b>4.4. Session 2: General context of postharvest losses (PHLs) (Day 1)</b> .....	11
<b>4.5. Session 3: FAO Methodology of Food Loss Analysis for Case Studies (Theoretical Phase) (Days 1 &amp; 2)</b> .....	12
<b>4.6. Session 4: FAO Methodology of Food Loss Analysis - Case Studies (Practical Phase) (Day 3)</b> .....	15
4.6.1. Uganda Case Study: Beans (Presented by Cedric Mutyaba).....	15
4.6.2. Malawi Case study: Groundnuts (Presented by Charles Singano).....	16
4.6.3. Rwanda Case study: Tomatoes (Presented by Dr Fidel Niyitanga) .....	17
4.6.4. Zimbabwe Case study: Milk (Presented by Tafireyi Chamboko).....	17
4.6.5. Zimbabwe Case study: Maize and Sorghum (Presented by Prof. Brighton Mvumi) ..	17
<b>4.7. Sessions 5 &amp; 6: Implementation and Field trip to Mbare Market in Harare (Day 3 and 4)</b> .....	18
4.7.1. Value Chain analyses – Mbare Case Studies .....	18
<b>5. Participant performance in course tests</b> .....	22
<b>6. Training evaluation based on the evaluation form</b> .....	23
<b>6.1. Overview</b> .....	23
<b>6.2. Training and Training Materials Evaluation</b> .....	24
<b>6.3. Facilitators Evaluation</b> .....	24
<b>6.4. New Things Leant by Participants</b> .....	25
<b>6.5. What participants liked best about the Training Workshop</b> .....	25
<b>6.6. What did not go well during the workshop?</b> .....	25
<b>6.7. Recommendations for future workshops</b> .....	26
<b>6.8. Additional comments on the training</b> .....	26

<b>7. Training evaluation based on the plenary evaluation of the participants expectations and workshop objectives .....</b>	<b>27</b>
<b>7.1. Participants' expectations.....</b>	<b>27</b>
<b>7.2. Workshop objectives .....</b>	<b>27</b>
<b>8. Scoring of participants based on the participation in plenary and final selection of core team .....</b>	<b>28</b>
<b>8.1. Scoring of participants.....</b>	<b>28</b>
<b>8.2. Final selection of core team.....</b>	<b>28</b>
<b>8.3. Perspectives on how best the methodology maybe streamlined.....</b>	<b>28</b>
<b>9. Conclusions and recommendations .....</b>	<b>30</b>
<b>Bibliography.....</b>	<b>31</b>
Annex I: Training programme on the FAO methodology for food loss analysis in targeted value chains - East and Southern Africa.....	32
Annex II: Training of Trainers Workshop on the FAO Methodology for food Loss Analysis in Targeted Value Chains - Pre- and Post-Training Test.....	36
Annex III: Tool for Training Workshop Evaluation .....	38
Annex IV: Full List of Participants.....	40
Annex V: Welcome speech by the Acting Vice Chancellor, University of Zimbabwe .....	42
Annex VI: Speech by Patrick M. Kormawa, the FAO Subregional Coordinator for Southern Africa & Country Representative for EsWatini, Lesotho & Zimbabwe .....	45
Annex VII: Detailed results of the training workshop evaluation based on the evaluation form.....	48
Annex VIII: Synthesised Summary of the Food and Agriculture (FAO) Training of Trainers by a Representative of the participants.....	52
Annex IX: The Workshop in Pictures .....	54

## List of abbreviations & acronyms

APHLIS	African Post Harvest Losses Information System
AU	Africa Union
BCR	Benefit Cost Ratio
CLP	Critical Loss Point
FAO	Food and Agriculture Organization of the United Nations
FLA	Food Loss Assessment
FSC	Food Supply Chain
IRR	Internal Rate of Return
LLP	Low Loss Point
PHL	Postharvest Loss Assessment
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
TOT	Training of Trainers
UZ	University of Zimbabwe

## Acknowledgements

We are grateful to FAO for funding the training workshop, and assisting in organizing transport for the field trip; FAO/AU for assisting in the identification of participants, Shaw Mlambo, Macdonald Mubayiwa and Tinashe Nyabako for rapporteuring and providing backup support. We thank EMkambo in Zimbabwe for hosting the Workshop participants during the field trip to Mbare Public Market for agricultural commodities. We acknowledge the kind cooperation of the market authorities, traders and vendors at Mbare Market during the interviews by participants. The University of Zimbabwe is acknowledged for providing administrative and logistical support.

The workshop resource-persons were: Ms Shingirai Mupindu (Independent Consultant, Gender and Rural Development), Mr. Tafireyi Chamboko (University of Zimbabwe), Dr Mireille Totobesola Barbier (FAO Rome), Mr. Cephas Taruvinga (FAO/AU) and Prof. Brighton Mvumi (University of Zimbabwe). Except for the first one, the resource-persons also facilitated some sessions of the workshop.

The following participants are gratefully acknowledged for sharing their country experiences in conducting the Food Loss Analysis: Dr. Fidele Niyitanga on tomatoes (Rwanda); Mr. Charles Singano on groundnuts (Malawi), Engineer Cedric Mutyaba on beans (Uganda); Mr Tafireyi Chamboko on milk (Zimbabwe) and Prof Brighton Mvumi on maize and sorghum (Zimbabwe).

## Executive Summary

A training of trainers programme was conducted from 1 to 5 October 2018 by the University of Zimbabwe through a Letter of Agreement with FAO. The broad objective of the training programme was to train participants (academia, practitioners, researchers, policy-makers, extension staff, NGOs and technicians) to analyse food losses using a methodology developed by FAO. The training was conducted against the backdrop of the United Nations Agenda 2030 and specifically Sustainable Development Goals (SDG) 12.3 - *by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including postharvest losses*, and the Malabo target of *reducing postharvest losses by 50 % by 2025*. These target clearly necessitates a specific focus on developing strategies and implementing actions to measurably reduce the levels of postharvest loss in countries.

The specific objectives of the training were:

1. To improve participants' understanding of the causes of food losses, their magnitude and socio-economic impact.
2. Develop a shared understanding of the four main steps of the food loss assessment methodology.
3. To equip participants with skills to use the Food Loss Analysis Methodology to determine losses in targeted food supply chains.
4. To briefly share selected Case Study results and experiences of food loss assessments conducted in East & Southern Africa.
5. To improve participant understanding of mainstreaming social and environmental issues in food loss assessments.

The training workshop drew a total of 24 participants from East and Southern Africa region (including Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe) of which 6 were female. The workshop opening remarks were delivered by representatives of the University Executive and the FAO Subregional Coordinator for Southern Africa & Country Representative for EsWatini, Lesotho and Zimbabwe.

To enhance participation and learning, the training programme included a field trip to the largest public market in Harare, Mbare Musika where the participants observed market activities and interviewed stakeholders for some of the targeted FSCs. A multi-pronged approach was adopted to evaluate the workshop including: Pre- and Post-course tests; Overall Training Workshop Evaluation using a standard form; Scoring against Participants Expectations; Scoring against Workshop Objectives. At the end of the exercise, at least 5 experts with best prospects as a pool of regional technical expertise was identified based on the performance in the pre- and post-course tests coupled with extent of active contributions by participants (assessed based on a scoring system) during the proceedings. The identification of the pool of the best trained trainers was done by the resource persons at the end of the training workshop.

The participant performance based on tests showed an overall gain of 27% in knowledge, which is considered reasonable recognizing that postharvest science and technology is a fairly new subject for most participants. The overall rating of the training workshop indicated

that a majority of participants rated the training workshop very highly, with about 82% rating it with a score of 5 and 18% with a score of 4 (1 = lowest rating; 5 highest rating).

The Outputs of the training workshop were:

- A core group of 24 postharvest experts, originating largely from East and Southern Africa, trained in the use of the FAO food loss analysis methodology, with the participation and support of FAO.
- At least 5 of the experts with best prospects identified as a pool of technical expertise for further similar work in the sub-region.

To ensure the methodology is streamlined or operationalised, policy-makers need to be convinced about this methodology so that it is inbuilt into government and non-state organisations' policies and strategies. To this effect, one-day meetings need to be organized targeted at policy-makers to introduce the FLA methodology. The methodology also needs to be mainstreamed into tertiary curricula in order to create and increase technical expertise in food loss analysis within the broader context of postharvest loss reduction. This will ensure buy-in and facilitate budgetary allocations by nations or institutions on food loss analysis studies. It is also critical that FAO continues to provide technical backup support to nurture and mentor the cohort of trained trainers. One strategy is to assist interested countries to develop proposals to mobilise resources to conduct further in-country trainings and studies.

The key conclusions and recommendations from the training of trainers workshop are:

- The training evaluation indicates that most of the participants' expectations were met and that all the workshop objectives were largely achieved.
- The best performers were identified and could form part of future training teams.
- Participants indicated the need to increase the duration of the workshop (up to 2 weeks) so that participants have an opportunity to practice and participate in field level activities to gain experience. At least one or two days should be dedicated to field visits to evaluate and assess specific FSCs
- Although the training, training materials and facilitators were rated highly, participants suggested a follow-up with further training and practical implementation at individual country level.
- Resources need to be mobilized at all levels to facilitate in-country trainings. Participants were encouraged to go back to their countries and prepare proposals for submission to various funding agencies including FAO.

# 1. Introduction

## 1.1. Background

Food losses refer to the decrease in edible food mass throughout the different segments of the supply chain that aims to provide food for human consumption. Food losses take place at production, postharvest, processing, distribution and retail stages in the food supply chain.

Food losses and their prevention have an impact on the environment, food and nutrition security for poor people, food quality and safety, and economic development. The exact causes of food losses vary from place to place and are very much dependent on the specific conditions and local situation in a given country. Currently, the magnitude of food losses have been assessed, and most of the causes of food losses have been identified. While it is acknowledged that food losses are significant, the assessments are extremely rough, and have not been conducted using a standardised methodology, making comparison and benchmarking very difficult. In addition, quantities of food loss per cause are still unknown. For these reasons, it has been difficult to identify interventions that will result in significant reductions in losses at critical points in the food supply chain.

Improving the efficiency of the food supply chain could help to bring down the cost of food to the consumer and thus increase access, while ensuring greater post-harvest benefits to the farmers and processors. Given the magnitude of food losses, making profitable investments in reducing them and improving the efficiency of the food supply chain could help to bring down the cost of food to the consumer, increase access to food, while improving economic returns to farmers and other value chain actors. If eventual cost reductions can be translated into price reductions, then poor consumers stand to benefit in terms of nutrition, food security and livelihoods. Food loss reduction contributes to food availability.

FAO, through their national and development partners, have developed a standard methodology for food loss assessment (FLA) for use in any selected food supply chain (FAO, 2016). The Methodology has been used in a number of countries in sub-Saharan Africa and on different Food Supply Chains but it was observed that users and would-be users of this methodology are not yet confident in using the approach. In addition, it was observed that there is need to for systemic application of the methodology which required more players to come on board.

In support of the FAO Objective: *Evidence-based food loss and waste reduction programs are developed at national, regional and global levels* the University of Zimbabwe was engaged through a letter of agreement to provide training services in food loss analysis East and Southern Africa to build a core team of trained expertise in the region who will implement the FAO Food Loss Analysis Methodology and possibly team up to further train other stakeholders in particular countries or sub-regions.

With the context of United Nations Agenda 2030 and specifically SDG 12.3 - SDG target 12.3 - *by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including postharvest losses*, and in order to meet the Malabo target of reducing postharvest losses by 50 % by 2025, there is clearly the need for a specific focus on developing strategies and implementing actions to measurably reduce the levels of postharvest loss in countries. This, however, warrants an understanding of the magnitude of these losses, and the underlying causes of these losses in prioritized food supply chains.

The FAO food loss analysis methodology has been tested in a number of developing countries for identifying the critical loss points in food supply chains and in quantifying the levels of postharvest losses as a basis for strategy development toward piloting and scaling up actions to reduce food losses.

The proper use of the methodology necessitates, first and foremost, skilled and trained capacity in postharvest management as well as capacity in the statistical sampling and measurement, along with expertise on gender and social issues.

A training workshop was therefore organized by the Department of Soil Science & Agricultural Engineering in the Faculty of Agriculture of the University of Zimbabwe (UZ), and funded by the Food and Agriculture Organization of the United Nations (FAO).

With support from FAO, UZ undertook the following activities:

- Designed a 5-day TOT programme, including at least one field visit, to train regional participants on the use of the FAO Food Loss Analysis Methodology.
- Implement the TOT programme in collaboration with FAO.
- Devise a scoring system for evaluating the capacities of invitees to constitute a pool of trainers in the sub-region.
- Through the administration of pre- and post-training tests, as well as observations during the Workshop, recommend to FAO, 5 of the most outstanding participants.

The Expected Outputs of the training workshop service provider were:

- A core group of at least 20 postharvest experts, originating largely from East and Southern Africa, trained in the use of the FAO food loss analysis methodology, with the participation and support of FAO.
- At least 5 of the experts with best prospects identified as a pool of technical expertise for further similar work in the sub-region.

## **1.2. Training Objectives**

The broad objective of the training programme was to train participants (academia, practitioners, researchers, policy-makers, extension staff, NGOs and technicians) to analyse food losses using FAO's assessment methodology.

The specific objectives of the training were:

1. To improve participants' understanding of the causes of food losses, their magnitude and socio-economic impact.
2. Develop a shared understanding of the four main steps of the food loss assessment methodology.
3. To equip participants with skills to use the Food Loss Analysis Methodology to determine losses in targeted food supply chains.
4. To briefly share selected Case Study results and experiences of food loss assessments conducted in East & Southern Africa.
5. To improve participant understanding of mainstreaming social and environmental issues in food loss assessments.



## 2. Training Approach and Process

The training was conducted using the FAO Methodology document version November 2016 with support of other sources or information. The training focussed on the four main steps of the Methodology which are: screening, survey, sampling (load-tracking) and solution identification. Presentations were initially made by one of the FAO/AU representatives in the workshop to provide an overview of the global scenario in terms of Food Loss and Waste, and then the UZ team presented the methodology for food loss analysis in targeted value chains in East and Southern Africa.

The overall training programme explained:

- Postharvest losses (PHLs), their causes and postharvest systems in Africa and the different ways of analysing and estimating losses other than the FAO methodology;
- The main steps of the loss assessment methodology; including gender mainstreaming;
- The detailed activities that should be carried out under each step;
- Data required for all the tables in the reports, the sources, and how to complete the tables;
- The report synthesis;
- The report structure;
- Lesson-learning on practical application of the methodology on different food supply chains (FSCs) and in four different countries; and
- Different approaches of evaluating the training workshop.

The participants were trained over a 5-day period following a set training programme (see Annex I). Facilitation was highly interactive through use of power point presentations, group work and presentations, and plenary discussions. To enhance participation and learning, the training programme included a field trip to the biggest public market in Harare, Mbare Musika where the participants observed market proceedings and interviewed stakeholders for some of the targeted FSCs. The findings were reported by respective group members in plenary. The detailed proceedings of the 5 day workshop are given in the next section.

Flash disks containing all presentations on the FLA were given to participants. The Dean of the Faculty of Agriculture, Professor Charles Mutisi issued the participants with certificates of participation on behalf of the University of Zimbabwe and FAO.

## 3. Workshop and Participant Evaluation

A multi-pronged approach was adopted to evaluate the workshop including:

1. **Pre- and Post-course tests** which were administered at the beginning and at the end of the training, respectively (Annex II). Each participant wrote both tests. This provided an opportunity for measuring the knowledge gain or loss by individual participants.
2. **Overall Training Workshop Evaluation:** A form was developed (Annex III) and used by participants at the end of the workshop to assess and rate a number of parameters including:

- The training process and training materials
  - Training workshop facilitators
  - New things learnt by the participants
  - Aspects that went well and those that didn't
  - Recommendations for future training workshops
3. **Participants Expectations:** A scoring system was developed and applied to the participants expectations from the workshop. This was done at the end of the workshop
  4. **Workshop Objectives:** An exercise similar to Number 3 (above) was done on workshop objectives.
  5. **Identification of at least 5 experts with best prospects as a pool of regional technical expertise:** A scoring system of individual participants based on their active contributions during the proceedings. This was done by the resource persons at the end of the training workshop.

## 4. Proceedings

### 4.1. Workshop Participants

A five-day Food Loss Analysis Methodology training workshop was carried out at Cresta Lodge, Harare from the 1<sup>st</sup> to 5<sup>th</sup> October 2018. The objective of the training was to capacitate participants with relevant skills and knowledge for conducting food loss analysis along various food supply chains using the FAO-designed methodology incorporating social, economic and gender issues (FAO, 2016). The training workshop drew a total of 24 participants from East and Southern Africa region (including Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe) (Annex IV) of which 6 were female.

### 4.2. Participants Expectations

Participants were requested to share their expectations of the training workshop at the start of the training proceedings. The following summarizes the expectations of participants in the five day training workshop:

1. To learn new innovations, sound methodologies and calculations of assessing postharvest losses in cereals.
2. To learn experiences from other countries on management of postharvest losses.
3. To gain knowledge of the FLA methodology, its applicability in different value chains and the criteria for selecting target value chains.
4. To gain understanding of causes of food losses, their magnitude and socio-economic impact.
5. To know the role that FAO will play in rolling out the trainings in participating countries.
6. To gain knowledge to carry out surveys of postharvest losses and compile data on postharvest losses.

### 4.3. Session 1: Introductions and Opening Ceremony (Day 1)

The workshop started with welcome remarks by the Pro-Vice Chancellor of the University of Zimbabwe, Professor P. Mashiri on behalf of the Acting Vice Chancellor, Professor P. Mapfumo (see full speech Annex V). This was followed by the official opening by Dr Patrick Kormawa (FAO Resident Representative for Southern Africa, and country Representative for Eswatini, Lesotho and Zimbabwe), whose speech was presented by Dr Berhanu Bedane (see full speech Annex VI).

### 4.4. Session 2: General context of postharvest losses (PHLs) (Day 1)

The session consisted of four presentations from Mr Cephas Taruvinga from FAO/AU, Prof. Brighton Mvumi (x2), UZ; Dr Mireille Totobesola Barbier, FAO Headquarters in Rome.

General information on post-harvest losses (PHLs), postharvest systems, major causes of PHLs of food in SSA and potential solutions (Mr Cephas Taruvinga & Prof. Brighton Mvumi)

Issues/comments raised or discussed in the plenary following the presentations included:

- Is overfeeding a food waste?
- Is food not intended for human consumption thrown away a food loss?
- Why would increase in global warming result in other areas being suitable for agriculture especially in Asian countries whilst others become unsuitable for agriculture?
- Why was the planning step not emphasized on the FAO methodology since it is an important step for success of a project?
- Why were there so much postharvest losses in cereal grains in Tanzania in 1983?
- Time of harvesting and need for strong political will is important to reduce post-harvest losses although it was not really emphasized in the presentation.

Introduction to PHLs evaluation methods: objectives, concepts and general approaches to evaluations; Overview of the FAO Analysis Methodology of PHLs (Dr Mireille Totobesola Barbier)

- What is the cost to the countries that have already measured postharvest losses using the FAO methodology?
- Why are we saying indicative, what is required to improve the methodology?
- What is the time required to complete the study and the time-frame before the data can be updated?
- What is the reporting frequency for the indicators, and who is the responsible person in each country?
- The crops selected include cotton, but not tomatoes. What was the criteria for the selection of the crops to be assessed?
- Are there standard questionnaires for collection of data as scenarios may differ in countries and per crop?

African Postharvest Loss Information System (APHLIS) for estimating PHLs (Prof. Brighton Mvumi)

- Study of Postharvest and APHLIS is complex therefore need for training at various levels.

- Need for awareness on APHLIS in various African countries.
- What is required if one needs to input information in APHLIS? Procedures and link person in the country.
- How meteorological information is gathered.
- Developments of APHLIS. Working on nutritional loss assessment and assessment of legumes. No horticulture at the moment.
- Sponsorship for APHLIS should start coming from Africa, not Europe.

#### 4.5. Session 3: FAO Methodology of Food Loss Analysis for Case Studies (Theoretical Phase) (Days 1 & 2)

The session focused on the theory of the FLA and was supported by 5 modules covering:

- Introduction to Loss Assessment
- Preliminary Analysis Phase (Screening)
- Loss Analysis Investigation Phase (Survey)
- Load Tracking and Sampling
- Search for solutions (synthesis) and Reporting.

The session also covered the following cross-cutting topics:

- Exploitation of case study results: Proposal for National Strategies for PHL reduction in selected FSCs
- Gender and Social Issues in FLA
- Environmental Issues in Food Loss Assessment

The following sub-sections reports on issues and comments raised and discussed during each presentation.

##### Introduction to Loss Assessment (Mr. Taruvinga)

- Need to continue training same people to ensure capacity building.
- Only five countries properly reported on the AU Malabo declaration, what may be the cause?
- Are the targets for postharvest loss reduction already set?
- How can a concept note be produced to lobby for funds from our respective governments to assess losses and offer mitigation?
- Countries import large quantities of grain. That justify the need for assessment of losses and offering mitigation measures.

## Loss Analysis Investigation Phase (Survey)

Comment	Response
<ul style="list-style-type: none"> <li>The selection criteria for food value chains is recommended to focus on “crops of significant production” and if looking at smallholder production doesn’t this eliminate some crops which are not significantly grown?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>When we talk about productivity, what does it mean in the context of postharvest?</li> </ul>	<ul style="list-style-type: none"> <li>The amount of produce after harvesting.</li> </ul>
<ul style="list-style-type: none"> <li>In South Africa, there are challenges in distributing food to schools such that some food is delivered when it has reached the expiry dates. How can the FAO methodology for food loss be used in this case to reduce these losses?</li> </ul>	<ul style="list-style-type: none"> <li>Usually these problems arise because the government is the one controlling the transportation and distribution of the commodities and there is no incentive for them to do so. However, if this is being done by a private sector player, the value chain would be well commercialized and efficient since there is an incentive for them.</li> </ul>
<ul style="list-style-type: none"> <li>Can the FAO methodology for food loss analysis be used in tracking losses in disaster risk management since there are a lot of losses due to transportation and distribution of donor aid food?</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>The tool can be used in different contexts however, what is needed is to adapt it to suit the particular value chain. Difficulties are faced mainly when tracking low volumes e.g. a 20kg of rice. The longer the chain the better it becomes for load tracking</li> </ul>

## Load Tracking and Sampling

Comment	Response
<ul style="list-style-type: none"> <li>How do you get rid of the bias in sampling and load tracking?</li> </ul>	<ul style="list-style-type: none"> <li>Label e.g. the crates and select randomly using random numbers to get the crates for sampling.</li> </ul>
<ul style="list-style-type: none"> <li>When a commodity is to be tracked between for example two countries, what engagement rules are in place to avoid bias or cheating?</li> </ul>	<ul style="list-style-type: none"> <li>There is need for two teams, one at loading and one at the exit in the destination. For export trade, there are government rules e.g. quarantine measures.</li> </ul>
<ul style="list-style-type: none"> <li>Who should be responsible for compensation when there is load deterioration at the end of the value chain?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>How often should a load be tracked until it reaches its terminal destination? If it is not often, is it still load tracking?</li> </ul>	<ul style="list-style-type: none"> <li>There are difficulties in tracking e.g. long season varieties or commodities which are held back at the market waiting for demand and prices to rise.</li> </ul>
<ul style="list-style-type: none"> <li>If you are load tracking in smallholder farmers you can replicate the samples. However, there are cases when you need to incorporate issues like male/female headed households, are these still replicates or a different batch which should be analysed separately?</li> </ul>	<ul style="list-style-type: none"> <li>The samples need to be stratified. If you think there can be differences between groups of men and women etc.</li> </ul>

## Search for solutions (synthesis) and Reporting

Comment	Response
<ul style="list-style-type: none"> <li>What happens if there are sunk costs in load tracking?</li> </ul>	<ul style="list-style-type: none"> <li>It shows that the project has failed.</li> </ul>
<ul style="list-style-type: none"> <li>For one to identify a critical loss point, what amount of losses should have been incurred?</li> </ul>	<ul style="list-style-type: none"> <li>All segments with losses above 1%. Below 1% is called low loss point (LLP).</li> </ul>
<ul style="list-style-type: none"> <li>Does IRR show profit? If there is no profit in IRR what does it mean?</li> </ul>	<ul style="list-style-type: none"> <li>IRR does not show profit. It is different from the BCR. IRR only shows resource use efficiency (IRR-Internal Rate of Return)</li> </ul>
<ul style="list-style-type: none"> <li>If anything above 1% is considered a critical loss point, doesn't that mean every point will be a critical loss point since in Africa most value chains losses are above 1%?</li> </ul>	<ul style="list-style-type: none"> <li>We should not sum up the losses at the different stages because accumulated losses will become high and unrealistic.</li> </ul>
<ul style="list-style-type: none"> <li>In the cost benefit tables presented, there were yearly costs but the crops are seasonal and in other countries there are two seasons per year, should these be harmonized?</li> </ul>	<ul style="list-style-type: none"> <li>Harmonize and average for the year</li> </ul>

## Exploitation of case study results: Proposal for National Strategies for PHL reduction in selected FSCs

Comment	Response
<ul style="list-style-type: none"> <li>You have recommended a number of policy issues but how does one follow up to see if these issues are put into government policies?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>In terms of replication in load tracking of maize, did you recruit some farmers or it was the whole village in Murehwa?</li> </ul>	<ul style="list-style-type: none"> <li>There were four replicates for each of the districts Murehwa, Guruve, Gokwe etc.</li> </ul>
<ul style="list-style-type: none"> <li>What would be the starting point for someone who has not done the FAO loss analysis methodology?</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>There must be demand first. Go to the ministry responsible and ask where we are in terms of these issues and then contact the FAO network if you want your country to participate.</li> </ul>
<ul style="list-style-type: none"> <li>In some cases the policies are there but then how does one take it up to have viable funded projects running in a country?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>Sometimes there are political hindrances that extension staff will end up not reporting the real losses for political reasons that might affect or expose the ministry/country, how do you deal with these issues?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

## Gender and Social Issues in FLA

Comment	Response
<ul style="list-style-type: none"> <li>Referring to the presentation on focus group discussions, how do you really pick out who should be involved and who should not for example when the number of people is too high?</li> </ul>	<ul style="list-style-type: none"> <li>Consider the target group or who mostly does what you are looking at and if it is women then structure the discussion in a way that women will be able to express themselves e.g. by separating gender.</li> </ul>
<ul style="list-style-type: none"> <li>In the gender and social issues presentation, it was mentioned that there is now a women's bank in Zimbabwe, is it only for women and what about men and youth?</li> </ul>	<ul style="list-style-type: none"> <li>There is one for women and another one for the youth. They can access credit without having collateral.</li> </ul>
<ul style="list-style-type: none"> <li>Muslim women are not allowed to leave home and attend focus group discussions for example, how then do we ensure women participation in such scenarios?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

### 4.6. Session 4: FAO Methodology of Food Loss Analysis - Case Studies (Practical Phase) (Day 3)

In this session, selected countries were asked to share their practical experiences in applying the Methodology to specific FSC, with the workshop participants. This was followed by discussion sessions in which a number of issues and comments were raised by the participants. The following subsections highlight the issues and comments generated by each cases study.

#### 4.6.1. Uganda Case Study: Beans (Presented by Cedric Mutyaba)

Comment	Response
<ul style="list-style-type: none"> <li>There are a lot of losses in fruit and vegetables in Ethiopia, how can we calculate the impact on the environment when these are dumped?</li> </ul>	<ul style="list-style-type: none"> <li>Carbon released by the waste can be calculated and equated to environmental impacts +greenhouse gases.</li> <li>Environmental impacts are not only greenhouse gases emission but also the quality of air that people breath would affect their health</li> </ul>
<ul style="list-style-type: none"> <li>There were two teams involved in load tracking in the case study presented, what did you do to harmonize the data and did that change the critical loss points?</li> </ul>	<ul style="list-style-type: none"> <li>It was necessary to have two teams because there are two seasons in a single year.</li> </ul>
<ul style="list-style-type: none"> <li>How did you constitute the team that did the work and what was the selection criteria for the district where the load tracking was done?</li> </ul>	<ul style="list-style-type: none"> <li>Postharvest specialist, Gender and socio-economics specialist using FAO guidelines.</li> </ul>
<ul style="list-style-type: none"> <li>It was mentioned in the presentation that grain was bought from farmers but it was left under the same farmers for load tracking in storage and once grain changes</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

ownership, farmers' management becomes poor because it is no longer their grain. How did you maintain quality under these scenarios?	
<ul style="list-style-type: none"> <li>How many readings and replicates were taken at harvesting?</li> </ul>	<ul style="list-style-type: none"> <li>24*3 sub counts</li> </ul>
<ul style="list-style-type: none"> <li>At the end of the trials, did you do a cost/benefit analysis of the solutions introduced?</li> </ul>	<ul style="list-style-type: none"> <li>A cost benefit analysis was done.</li> </ul>
<ul style="list-style-type: none"> <li>Critical and low loss points were all above 1% but from what we have learnt low loss points are below 1% how did you come up with that criteria?</li> </ul>	<ul style="list-style-type: none"> <li>2% was low loss point and above 2% was considered a critical loss point.</li> </ul>
<ul style="list-style-type: none"> <li>Why is it that adoption is always low even after such successful experiments?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

#### 4.6.2. Malawi Case study: Groundnuts (Presented by Charles Singano)

Comment	Response
<ul style="list-style-type: none"> <li>Social issues were not coming out well in the presentation, did you look at the social issues in detail?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>There was a mention of pesticides affecting women, do they only affect women, what about men?</li> </ul>	<ul style="list-style-type: none"> <li>Both are affected but women are more exposed because of high involvement in most tracking stages.</li> </ul>
<ul style="list-style-type: none"> <li>From the four loads that you were tracking, was there a manifestation of having gender disaggregation so that it can link the results to gender aspects?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>Load tracking was only from the field to the home stead and why not upto the market?</li> </ul>	<ul style="list-style-type: none"> <li>The market period was very short hence load tracking could not be done.</li> </ul>
<ul style="list-style-type: none"> <li>Were the tests on aflatoxins done on groundnuts and what were the results?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>Why were the losses aggregated?</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>The losses for each stage are there, however, at the end they were aggregated.</li> </ul>
<ul style="list-style-type: none"> <li>In most cases farmers use retained seed in groundnut production, in your experiments did you also check seed germination as a quality parameter after the load tracking?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>



#### 4.6.3. Rwanda Case study: Tomatoes (Presented by Dr Fidel Niyitanga)

Comment	Response
<ul style="list-style-type: none"> <li>Why did you choose only one crop for load tracking and not many crops?</li> </ul>	<ul style="list-style-type: none"> <li>One load can be sufficient to track and also this was due to budget constraints.</li> </ul>
<ul style="list-style-type: none"> <li>Why did you decide to go with the long supply chain and not the short supply chain since you mentioned there were two chains?</li> </ul>	<ul style="list-style-type: none"> <li>Load tracking is more efficient when the supply chain is long so that we get enough data at the different stages.</li> </ul>
<ul style="list-style-type: none"> <li>Since harvesting factors contribute a lot to postharvest losses in tomatoes, were factors such as time of harvesting and transportation considered in reducing the losses during load tracking?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>Why didn't you compare the short and long supply chains in your load tracking which could also give some indications of some critical loss points?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>What I considered a loss is fed to animals and these animals are later sold, is it still a loss in this case?</li> </ul>	<ul style="list-style-type: none"> <li>If the food is still within the food chain it is not considered a loss.</li> </ul>

#### 4.6.4. Zimbabwe Case study: Milk (Presented by Tafireyi Chamboko)

Comment	Response
<ul style="list-style-type: none"> <li>At what stage was the criteria presented put into place?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>Why were the milk deliveries only done during the rainy season?</li> <li>What insurance packages can be put into place to protect smallholder farmers under climate change?</li> </ul>	<ul style="list-style-type: none"> <li>Production is high during the rainy season.</li> </ul>
<ul style="list-style-type: none"> <li>If now there is a women's bank in Zimbabwe which extends financial loans to women, yet the land is owned by the man, what can be done to protect the women who is left to work on the farm enterprise?</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<ul style="list-style-type: none"> <li>What are the solutions for mastitis that came from the project?</li> </ul>	<ul style="list-style-type: none"> <li>Farmer training</li> </ul>

#### 4.6.5. Zimbabwe Case study: Maize and Sorghum (Presented by Prof. Brighton Mvumi)

The discussion points included:

- On the national validation workshop mentioned, can you explain their importance in producing authentic data from the field trials or surveys?
- How can we convince our policy makes (Mozambique) to recognize the dangers of the

- larger grain borer so that similar experiments as conducted in Zimbabwe can be done?
- South Africa is looking to implement the warehouse receipt system will you help us on that?
- Is there room for graduates and extension staff from South Africa to participate in the Zimbabwe experiments so that they catch up since it is relatively new to them?
- Recommendations of trainings targeting community leaders, how about including religions to preach postharvest?
- What is being used to treat the larger grain borer in Zimbabwe and Mozambique where it has been reported as a problem whereas in neighbouring counties like Swaziland we have not heard of it?

#### 4.7. Sessions 5 & 6: Implementation and Field trip to Mbare Market in Harare (Day 3 and 4)

As part of the preparation for the field trip, the workshop participants were randomly divided into 4 commodity groups of about 5 members each focusing on maize, bananas, tomatoes and potatoes. Each group was asked to formulate tools (questions, checklists, observations) that they would use during the field trip.

A field trip to Mbare Market, the largest municipal/public agricultural market in the country, was organized for the group of participants to appreciate reality. At Mbare, the group was hosted by eMkambo whose offices are within the Mbare Municipal Offices. Harare Municipality works closely with eMkambo. In specific commodity groups, participants toured the market and administered the checklists previously developed. Participants also observed processes and practices at Mbare Market. After the field trip, the team went back to the training venue and had plenary feedback in the afternoon.

##### 4.7.1. Value Chain analyses – Mbare Case Studies

###### **Bananas**

*Key findings were:*

- Market Place is open place-no shelter(exposed to sun)
- Products lying all over
- Soft bags for packaging, not well covered
- No proper storage facility, no cold chain
- Ripening boxes lying on the ground
- Seasonality( exposure to heat spoils the bananas)
- Damaged bananas lying all over
- More Women participating in the ripening process
- Loading and off loading is mainly dominated by men
- Transportation from farms to the road side is done by women
- Hilly terrain makes transportation difficult, thus donkeys are roped in
- Marketing of bananas is not really a good business, its only for survival
- Over 350km to the market
- Mixing of variety

### *Critical Loss Points:*

- Transportation: Long distances, unreliable, bad roads which are inaccessible during the rainy season, charges for loading and offloading
- Ripening: No proper facilities are used. Rented cardboard boxes are being used.
- Packaging – the polypropylene bags causing bruising of the fruits

### *Suggested improvements*

- Processing plants should be nearer to the site of production
- Infrastructure should be improved in terms of sanitation, hygiene
- Use of solid bags for packaging instead of soft bags
- Construction of stands in the markets
- Construction of modernized ripening facilities

### *Plenary comments*

- Critical loss point at selling at the market; losses incurred due to rotting since the bananas are exposed to the sun
- There is need for equitable access to new facilities to both men and women in banana value chains e.g refrigerated trucks
- There are two supply chains; one incurs higher losses but less transportation costs whereas the other one has low losses but high transportation costs

## **Potatoes**

### *Key findings were:*

- Produce largely transported by trucks
- Gender: 50:50 (men to women)
- Loading and offloading dominated by men
- Observed that there no pallets to prevent direct contact with the floor. The respondent said this was to avoid rodents. It was also observed that potato pockets were stacked very high thus pockets at the bottom sustained compression
- Losses during rainy seasons – 25 to 30 bags/week causing economic loss worth \$237.50 - \$285/week
- Unreliable supply
- No varietal preference
- Utilization of potatoes: staple and chips
- Storage period: normally between 1 to 2 weeks
- Customers: no specific customers as trader sell to everyone who come.
- Packaging, grading and weighing of potatoes are done by farmers on-farm and traders solely rely and trust on the farmer on quality and quantity aspects. No price difference between grades.

### *Critical Loss Points:*

- Potential CLP at storage stage due to compression pressure from stacking

### *Suggested improvements*

• Weak market organization	• Strengthen marketing organization
• Technological issue (speedpoint)	• Linkages for technology acquisition
• Illegal vendors	• Policy intervention
• Supply not fresh and clean	• Capacitate farmers – construction of storage sheds • Use pallets at the bottom of potato bags and maintain hygiene to make sure that rodents do not infest the produce

- Marketing infrastructure should also be upgraded to be conducive to traders and buyers.

### *Plenary comments*

- What are the uses of bought potatoes, who buys, what losses are recorded, when and how can they be minimised?

### **Maize**

#### *Key findings were:*

- The maize being traded was either bought from rural areas or was delivered by growers to Mbare.
- The product was transported on public buses because they were considered to be cheaper compared to hired vehicles when the load was not huge
- The cost of hired transport was \$1/tonne/km
- Most of the trading occurs in an open place without a roof
- The space inside the market is rented for \$6 per pallet size space and due to this high cost, female farmers prefer to sell from outside the market where they pay \$2 for the space per day
- Maize stocks in market were only kept for maximum of 2 weeks
- Male traders with higher volumes trade in volumes of up to 12 tonnes
- Men were dominant among the traders who traded inside the market
- Women traders were also doubling as farmers and were outside the market where space charges were cheaper
- Women winnow the grain and also pick spilled grain in the evening
- Spilled grain was collected by elderly women as payment for the cleaning service they did at the trading site and also provided source of food
- Women traders interviewed came with their children who were below 5 years to the market. These were exposed to all the heat of the day with no apparent shelter
- Labour charges for off-loading the grain were so high for the women because it was hard for them to do the work themselves so they resort to selling from out of the market where other costs such as space are cheaper

#### *Critical Loss Points:*

- Losses during transportation include spillage from torn bags and certain cases of accidental dropping of bags and theft

- There is a lot of exposure to environmental challenges like rain which affects the trading and quality of grain in the rainy season. The covering of grain by tarpaulins was not adequate to reduce grain from getting wet

#### *Suggested improvements*

- Building capacity of traders in pesticide use and safety.
- Build appropriate infrastructure for trading such as concrete slabs and storage sheds including ancillary structures that could facilitate participation of women traders with children (gender sensitive)
- Build capacity and skill of traders on available technologies for grain handling

#### *Plenary comments*

- Maize traders were trading outside the market place due to high volumes of their maize which cannot fit in a small area allocated by the council
- Farmers are not well organized
- Some traders use fumigants to control insects and rodents under tarpaulin sheets
- Some women buy grain using barter trade with cups and plates and bring it for sell at the market
- Moulds and spillages are the main causes of losses and approximately 40% losses are incurred during the rainy season since they market place is not covered

### **Tomatoes**

#### *Key findings were:*

- The bins for disposing tomato wastes are far. They request containers near by because if they go far to dispose waste , they will fail to care for their customers and sometimes miss them
- Illegal dumping of waste along the roads/walls nearby. If tomatoes go bad, they are thrown away and not recycled as other wastes
- Tomatoes are exposed to sun
- Tomatoes are packed well in cages even if have already deteriorated
- Pest damage (Insects and Fungi).
- Lack of cooling storage facilities
- No proper protection from flies, etc
- No grading and sorting
- Male dominance during transportation due hard labour to operate scotch carts and loading and off-loading. There is need to diversify transport facilities to accommodate gender sensitivity

#### *Critical Loss Points:*

- During rainy season, high fungal attack at the farm level which pushes prices up due to low supply and high demand. Health issues increase due to poor hygiene
- Inverse during the hot season. This is further exacerbated by increased supply
- Transportation: Roads are inaccessible during the rainy season as they are not all-weather

- Damage of tomatoes due to poor handling during transportation, at loading and off-loading the truck

### *Suggested improvements*

- Do not overload the truck, apply proper handling practices using lift forklifts (innovation at small scale level)
- Improve drainage system at Mbare, especially during the rainy season,
- Provide cooling facilities (including investment in cold transportation) during storage to maintain quality and extend shelf life
- Provide containers for waste disposal at Mbare and these should be located close to the traders
- The market should be structured based on commodities
- Need farmer's training in good postharvest management practices by Ministry of Agriculture
- Improved governance and organisation of the wholesale and marketing system
- Install effective draining system accompanied by introduction of water supply for cleaning Tomato
- Investment in market research and analysis (feasibility studies)

### *Plenary comments*

- Clients prefer the big juicy tomatoes. However, these have high losses due to high water content which makes them soft and have a lower shelf life compared to other varieties

## **5. Participant performance in course tests**

The average pre-course score was 29% which improved to average of 56% by the end of the course; giving an overall gain of 27% in knowledge (Table 1). The maximum score was 66% which rose to 78% giving a maximum gain of 50%. The mean minimum score was 4% which rose to 19% by the end of the training to give a gain of 5%. The average gain 27% is reasonable considering that postharvest science and technology was a completely new subject to a number of the participants.

Based on the post-training marks, the top 10 participants with highest marks were Ms Muyinza (Uganda), Mr Rushunju (Tanzania), Ms Dlamini (EsWatini), Mr Komu (Kenya), Ms Bandason (Malawi), Dr. Nyakudya, Mr Chenzara (Zimbabwe), Mr Mauricio (Mozambique), Mr Munangama (Zambia), and Messrs Mukuka (Zambia) and Singano (Malawi) (draw) with scores of 78, 78, 73, 73, 69, 68, 67, 67, 60, 59, 59 %; respectively).

**Table 1: Results of pre- and post-course tests written by course participants**

	<b>Surname &amp; First Name</b>	<b>Sex (M/F)</b>	<b>Organisation &amp; Country</b>	<b>Pre-training Test (%)</b>	<b>Post-training Test (%)</b>	<b>% Gain (Loss)</b>
1	Abel-Ratovo Henri Lucien	M	NARC-FOFIFA, Madagascar	17	57	40
2	Aduye Sibhat T.	M	Ministry of Agric and Natural Resources, Ethiopia	15	32	17
3	Bandason Elizabeth	F	Bunda, Luanar, Malawi	20	69	49
4	Chenzara Creighton	M	Ministry of Agriculture, Zimbabwe	48	67	19
5	Dlamini Phindile	F	Deputy Prime Minister's Office-NDMD, Eswatini	23	73	50
6	Komu Joseph Mutinda	M	Ministry of Agriculture, Kenya	66	73	7
7	Kuhlase Louis Musa	M	Ministry of Agriculture, Eswatini	18	48	30
8	Lebizazavao Velonjafy Nabab	M	Ministry of Agric and Livestock, Madagascar	4	49	45
9	Lephole Monica	F	MAFS-DAR, Lesotho	39	48	9
10	Mapena G. Ramokapane	F	DAR, Botswana	8	38	30
11	Mauricio Negas	M	Helvetas, Mozambique	26	67	40
12	Mthembu Nonhlanzeko	F	Department of Agric, Forestry and Fisheries, South Africa	20	51	31
13	Muatinte Bernardo	M	Eduardo Mondlane University, Mozambique	17	53	36
14	Mukuka Ivor	M	Zambia Agric Research Institute, Zambia	40	59	19
15	Munganama Egbert Ngosa	M	Ministry of Agriculture, Zambia	33	60	28
16	Mutyaba Cedric	M	MAAIF-NARO, Uganda	41	54	13
17	Muyinza Harriet	F	MAAIF-NARO, Uganda	63	78	15
18	Naholo Elias	M	Ministry of Agric, Namibia	14	19	5
19	Ngwenyama Patrick	M	University of Zimbabwe, Zimbabwe	25	x	x
20	Niyitanga Fidele	M	University of Rwanda, Rwanda	34	52	18
21	Nyakudya Elijah	M	University of Zimbabwe, Zimbabwe	30	68	38
22	Rushunju Benny Gratton	M	Ministry of Agriculture, Tanzania	44	78	33
23	Sadoti Makwaruzi	M	Ministry of Agric, Tanzania	29	44	15
24	Singano Charles	M	Department of Agric Research Services, Malawi	33	59	25
			<b>Mean</b>	<b>29</b>	<b>56</b>	<b>27</b>
			<b>Max</b>	<b>66</b>	<b>78</b>	<b>50</b>
			<b>Min</b>	<b>4</b>	<b>19</b>	<b>5</b>

x = Did not write the post-course test

## 6. Training evaluation based on the evaluation form

### 6.1. Overview

A total of 22 participants performed the training workshop evaluation on the last day of the five day training session. The evaluation consisted of closed and open ended questions. The pre-coded questions required the participants to assess the training, training materials and facilitators on a scale of 1 to 5, where 1 was the lowest and 5 was the highest. Open ended questions comprised the rest of the evaluation and required participants to give their opinions and views on new things they had learnt during the workshop, what they liked best about the workshop, what did not go well during the training and provide recommendations for future workshops including any additional comments that participants had. The overall rating of the training workshop indicates that the majority of participants rated the training workshop very highly, with about 82% rating it with a score of 5 and 18% with a score of 4.

The following sub-sections summarize the detailed evaluation of the specific components.

## 6.2. Training and Training Materials Evaluation

Participants were requested to rate a number of indicators on the training and training materials on a scale of 1 to 5, where 1 was the lowest and 5 the highest (Annex VII; Table 2). The majority of the participant's ratings were in the 5 and 4 categories, indicating an overall good rating for the various indicators the participants were requested to assess. In terms of the first indicator on whether the training objectives were met, about 91% rated this with a score of 5, while about 9% rated this with a score of 4. This indicates that participants generally felt the objectives of the training as set out in the workshop programme were generally met to the satisfaction of the majority of participants. In terms of the second indicator of whether the content and scope met the expectation of participants, the results show that about 54.5% rated this with a score of 5, while about 45.5% rated this with a score of 4. In terms of participants acquiring valuable skills and knowledge, the rating with a score of 5 was about 77% and 86%, respectively, indicating that participants felt they had acquired valuable skills and knowledge during the training workshop.

The majority of the participants also indicated the training was well organized (about 68% rated this with a score of 5 and about 32% with a score of 4). Participants generally felt the quality of training was generally very good with rating of about 77% (score 5) and about 23% (score 4). The lesson delivery was rated mostly very highly with rating of about 77% (score 5), about 14% (score 4), and about 9% (score 3). In terms of whether the training had a good balance between theory and practice, about 59% of the participants rated this with a score of 4, while about 23% (rated score 5) and 18% (rated score 3). The score of 3 indicates the average number of participants who generally felt, on average there was no good balance between theory and practice. The workshop duration was mainly scored ratings of 4 (about 41% of participants) and ratings of 3 (about 32% of participants), with about 23% rating the duration with a score of 5. About 5% of participants rated the workshop duration with scores of 2. This clearly indicates there was no general consensus among participants on the adequacy of the workshop duration, although on average the majority rated this to be average and above average.

The training materials were rated highly by the participants. In terms of the presentations being easy to understand, 54.5% rated this a score of 5 and 45.5% with a score of 4, which are mainly above average. In terms of whether the presentations covered the subjects adequately, about 64% rated this with a score of 5, about 32% with a score of 4 and about 5% with a score of 3.

## 6.3. Facilitators Evaluation

Training workshop facilitators were assessed and rated on a number of indicators. The participants highly rated the facilitators on the basis of the first indicator which was whether the facilitators were knowledgeable, to which about 96% (rated score 5) and about 4% (score 4). In terms of whether the facilitators were clear and effective, about 86% rated score 5 while about 14% rated score 4. Generally, the participants felt the facilitators managed the sessions well with rating of about 73% (score 5) and 27% (score 4). Most of the participants also felt the facilitators answered the questions asked completely and clearly with rating of about 73% (score 5) and 27% (score 4). The facilitators were generally rated as having encouraged participation (86% score 5 and 14% score 4). The rating on whether the pace of the sessions was well managed was about 59% (score 5), about 36% (score 4) and about 5% (score 3). The details of the results are in Annex VII; Table 3.



#### 6.4. New Things Learnt by Participants

The training evaluation had an open-ended question that asked participants what new things they had learnt during the training workshop. The 22 participants who completed the evaluation forms indicated the following as the main new things they had learnt during the training workshop (responses are summarised in Annex VII; Table 4):

- The FLA methodology (about 27% of responses)
- Mainstreaming gender, social and environmental issues in postharvest losses (about 27% of responses)
- Social entrepreneurship at EMkambo (at Mbare Public Market) (about 9% of responses)
- The FAO methodology, particularly the load-tracking and mainstreaming social and environmental issues (about 9% of responses)
- The economic impact and magnitude of food losses in Africa and globally and the commitment by the United Nations and the African Union to reduce losses (about 9% of responses).

#### 6.5. What participants liked best about the Training Workshop

Another open ended question included in the evaluation requested participants to indicate what they liked best about the training workshop. Participants gave a number of responses and these included:

- The fact that the presentations were on point in terms of new knowledge on how to conduct food loss analysis (18% of response)
- The interactive participation of all participants (18% of responses)
- The fact the training was well organized and had participants from various countries (18% of responses).
- The practical part of the workshop where participants went out and talked to people in the Food Supply Chains (FSC) at Mbare Musika (14% of responses).

Other issues liked best by participants indicated included the presentations made during the training from other countries that were already using the methodology (9% of responses), integration of theory and practice (9%), choice of facilitators and training venue was well done (4.5%), good training environment and active participation, and case studies from Zimbabwe on Dairy loss assessment (4.5%, respectively) (Annex VII; Table 5).

#### 6.6. What did not go well during the workshop?

This was one of the open ended question that requested participants to assess some of the issues that had not gone well during the training. of the participants indicated that

- Time-keeping or management during the training workshop did not go well (about 32% of responses).
- Time was too short to cover everything (13.6% of responses)
- The statistical topic on the workshop programme could not be presented during the workshop (9.1%)

Others included less exposure to food loss activities in the field (4.5%) and administration of funds for payment to the participants needs improvement (4.5%). There were also participants who would did not complete this question and therefore missing responses (13.6%) and some who wrote not applicable (9.1%) (Annex VII; Table 6).

### **6.7. Recommendations for future workshops**

Participants gave a number of responses to the question on what they recommended for future workshops. The results are summarised in Annex VII; Table 7 and include the following recommendations:

- Increase training time e.g. to 2 weeks to provide room for practices, observation in the field and comparison with other approaches of food loss assessments (31.8% of responses);
- At least one or two days should be dedicated to visits to evaluate and assess specific FSCs (31.8%);
- More case studies from other countries to gain more hands-on experience for the postharvest loss assessments (9.1%);
- More practices (9.1%); and
- Time management (4.5%).

### **6.8. Additional comments on the training**

The last question in the training evaluation form requested participants to highlight any additional general comments they had. About 18% indicated they had no additional comments and the response was left blank. The participants who responded highlighted a number of additional comments that can be summarized as falling into the following general categories:

- Follow-up mechanisms for implementation of postharvest loss assessment studies in participants individual countries;
- Although the training was well organized, there was need to link the participants with FAO country offices for further engagement and implementation of country plans; and
- There generally was a need for more time to be allocated to the training so that it included more field sessions to provide participants with field level practice.

The detailed results are summarized in Annex VII; Table 8.

## 7. Training evaluation based on the plenary evaluation of the participants expectations and workshop objectives

### 7.1. Participants' expectations

Table 9 presents a summary of the participants' expectations before commencement of the workshop, the score allocated to each expectation at the end of the workshop, and the respective remarks captured during the plenary. The average score was 3.3 out of 4 or 83.3% which is very good though weighed down heavily by the score on Expectation no. 5 where participants expected to have a clear roadmap on the role of FAO in rolling out the training programme. The facilitators explained that the onus rests with those who have been trained to prepare concept notes/proposals for further training to submit to funding agencies including national governments, FAO and AU. The training provided will identify a core team of trainers who can carry on the training in southern and Eastern Africa where required provided the resources are availed.

### 7.2. Workshop objectives

The objectives that were presented at the beginning of the workshop and assessed at the end of the workshop in plenary to determine the extent to which the objectives had been met from the participants' perspectives. The average score was 3.6 out of 4 or 90% (Table 10) which exceeds the very good level indicating that the workshop objectives were largely met.

**Table 9: Evaluation based on Workshop Expectations from Participants**

Expectation	Score*	Remarks
1. To learn new innovations, sound methodologies and calculations of assessing postharvest losses in cereals	3	Very good. The calculations still need to be practiced. No new innovations picked from the workshop. Participants were in the dark when they wrote the expectations; they were unaware of the content of the workshop
2. To learn experiences from other countries on management of postharvest losses	4	Excellent
3. To gain knowledge of the FLA methodology, its applicability in different value chains and the criteria for selecting target value chains	4	Excellent
4. To gain understanding of causes of food losses, their magnitude and socio-economic impact	4	Excellent. It was more theoretical than practical hence it would seem simple but it is complicated.
5. To know the role that FAO will play in rolling out the trainings in participating countries	1	Poor. What follow-up will FAO make in the participating counties? If we go back to our countries and report about the workshop, what do we say FAO will do?
6. To gain knowledge to carry out surveys of postharvest losses and compile data on postharvest losses	4	Excellent

\*On a scale of 0 to 4: 0 = Not covered, 1 = Poor, 2 = Good, 3 = Very Good, 4 = Excellent

**Table 10: Evaluation based on Workshop Objectives**

<b>Objective</b>	<b>Score</b>	<b>Remarks</b>
1. To improve participants' understanding of the causes of food losses, their magnitude and socio-economic impact	4	Excellent
2. Develop a shared understanding of the four main steps of the food loss assessment methodology	3	Very good Practicals are still needed.
3. To equip participants with skills to use the Food Loss Analysis Methodology to determine losses in targeted food supply chains	3	Challenges are the practical issues even though the knowledge was imparted. More practicals are needed, we don't need to stop from here. We also need cases from other countries like Asia not just Africa.
4. To briefly share selected Case Study results and experiences of food loss assessments conducted in East & Southern Africa	4	Excellent
5. To improve participant understanding of mainstreaming gender and environmental issues in food loss assessments	4	Excellent The gender presentation was not given enough time yet these issues were very important in the discussions.

*\*On a scale of 0 to 4: 0 = Not covered, 1 = Poor, 2 = Good, 3 = Very Good, 4 = Excellent*

## **8. Scoring of participants based on the participation in plenary and final selection of core team**

### **8.1. Scoring of participants**

The participants were scored by the key resource persons on a scale of 1 to 5 (with 1 = poor; 5 = excellent) based on participation during the workshop (eg responding to questions, contributing to discussions/presentations, asking questions for understanding etc) (Table 11).

### **8.2. Final selection of core team**

Based on a combination of post-course performance and active participation in the workshop, the best trainees were (in descending order): Ms Muyinza (Uganda), Mr Rushunju (Tanzania), Ms Bandason (Malawi), Dr. Nyakudya (Zimbabwe), Mr Mauricio (Mozambique), Mr Munangama (Zambia), Mr. Mukuka (Zambia) and Mr. Singano (Malawi). However, Ms Dlamini (EsWatini) and Mr Komu (Kenya) scored highly in the post-course test but only got 3 each in the scoring of the active participation (Table 11), which was not good enough.

### **8.3. Perspectives on how best the methodology maybe streamlined**

Although the 4S framework of the methodology seems quite straightforward to follow, the main sections that give participants problems in following and understanding without practical participation and application are the Sampling (load tracking) and the Solution finding (in particular the calculations). Problems in loading tracking in some cases comes from defining the load, how the participants are expected to sample and follow the load as it moves along the FSC. Use of examples that are relevant to the participants' context generally helps in understanding but generally, load-tracking needs to be simplified in a form

that is understandable by participants. In terms of solution finding, the main sections that are difficult to understand for participants who are not economists is the budget calculation for food loss reduction. In particular, the indication that the economic feasibility should be based on at least 10 years of operation of the proposed improvements. This requires further explanations for participants not familiar with the concepts of time-value of money and discounting over a time period.

To ensure the methodology is streamlined or operationalised, policy-makers need to be convinced about this methodology so that it is inbuilt into government and non-state organisations' policies and strategies. To this effect, one-day meetings need to be organized targeted at policy-makers to introduce the FLA methodology. However, this needs to be done in the context of the broader understanding of the importance and contribution of postharvest loss reduction to food and nutrition security. The methodology also needs to be mainstreamed into tertiary curricula so as to create and increase technical expertise in food loss analysis within the broader context of postharvest loss reduction. It is the duty of the trained trainers to spearhead these processes as alluded to by the representative of the participants in the closing remarks (Annex VIII). This will ensure buy-in and facilitate budgetary allocations by nations or institutions on food loss analysis studies. It is also critical that FAO continues to provide technical backup support to nurture and mentor the cohort of trained trainers. One strategy is to assist interested countries to develop proposals to mobilise resources to conduct further in-country trainings and studies. It is also important that the best trained trainers identified in the current Workshop, team-up and assist each other to provide in-country training. This way it helps to consolidate the learning and practice and help boost their confidence.

**Table 11: Results of scoring trainees based on active participation during the workshop**

	<b>Surname &amp; First Name</b>	<b>Sex (M/F)</b>	<b>Organisation &amp; Country</b>	<b>Score</b>
1	Abel-Ratovo Henri Lucien	M	NARC-FOFIFA, Madagascar	3
2	Aduye Sibhat T.	M	Ministry of Agric and Natural Resources, Ethiopia	3
3	Bandason Elizabeth	F	Bunda, Luanar, Malawi	4
4	Chenzara Creighton	M	Ministry of Agriculture, Zimbabwe	3
5	Dlamini Phindile	F	Deputy Prime Minister's Office-NDMD, Eswatini	3
6	Komu Joseph Mutinda	M	Ministry of Agriculture, Kenya	3
7	Kuhlase Louis Musa	M	Ministry of Agriculture, Eswatini	3
8	Lebizazavao Velonjafy Nabab	M	Ministry of Agric and Livestock, Madagascar	2
9	Lephole Monica	F	MAFS-DAR, Lesotho	3
10	Mapena G. Ramokapane	F	DAR, Botswana	4
11	Mauricio Negas	M	Helvetas, Mozambique	5
12	Mthembu Nonhlanzeko	F	Department of Agric, Forestry and Fisheries, South Africa	5
13	Muatinte Bernardo	M	Eduardo Mondlane University, Mozambique	4
14	Mukuka Ivor	M	Zambia Agric Research Institute, Zambia	4
15	Munganama Egbert Ngosa	M	Ministry of Agriculture, Zambia	4
16	Mutyaba Cedric	M	MAAIF-NARO, Uganda	5
17	Muyinza Harriet	F	MAAIF-NARO, Uganda	4
18	Naholo Elias	M	Ministry of Agric, Namibia	2
19	Ngwenyama Patrick	M	University of Zimbabwe, Zimbabwe	3
20	Niyitanga Fidele	M	University of Rwanda, Rwanda	4
21	Nyakudya Elijah	M	University of Zimbabwe, Zimbabwe	5
22	Rushunju Benny Gratton	M	Ministry of Agriculture, Tanzania	4
23	Sadoti Makwaruzi	M	Ministry of Agric, Tanzania	5
24	Singano Charles	M	Department of Agric Research Services, Malawi	5

## 9. Conclusions and recommendations

Based on the proceedings, the following conclusions and recommendations can be made:

- The training evaluation indicates that most of the participants' expectations were met and that all the workshop objectives were largely achieved.
- The best performers were identified and could form a pool of experts for future training teams.
- Participants indicated the need to increase the duration of the workshop (up to 2 weeks) so that participants have an opportunity to practice and participate in field level activities to gain experience. At least one or two days should be dedicated to field visits to evaluate and assess specific FSCs
- Although the training, training materials and facilitators were rated highly, participants suggested a follow-up with further training and practical implementation at individual

- country level.
- Resources need to be mobilized at all levels to facilitate in-country trainings. Participants were encouraged to go and prepare proposals for submission to various funding agencies including FAO.

Based on previous and current experience, the facilitators recommend the following to improve the methodology:

- Simplify, as much as possible, the section on sampling (load tracking) so that participants are able to follow what is expected during the load-tracking part of the methodology.
- Though logistically tricky, increase time allocation for Sampling section to allow for field exercises eg observe a tomato harvesting operation and follow the load to the market. A fast-moving FSC chain is likely to provide a good learning opportunity.
- The solution finding and the calculations needs to include examples on how participants are expected to calculate the indicators of the feasibility of the solution, in particular how to perform the discounting and to calculate the BCR or IRR.

## **Bibliography**

FAO, 2016. Methodology Food Loss Analysis: Causes and Solutions: Case studies in the Small-scale Agriculture and Fisheries Subsectors. November 2016. Save Food - Global Initiative on Food Loss and Waste Reduction. FAO, Rome.

## Annex I: Training programme on the FAO methodology for food loss analysis in targeted value chains - East and Southern Africa



### Training of Trainers Workshop on the FAO Methodology for Food Loss Analysis in Targeted Value Chains - East and Southern Africa

1 – 5 October 2018

#### Training Workshop Programme

TIME	TOPIC	LEAD
<b>Monday – 1/10/2018</b>		
08:00 – 08:45	Arrival and Registration	University of Zimbabwe (UZ)
<b>Session 1: Introductions and Opening of Workshop</b>		
08:45 - 09:00	Introduction of participants	UZ
09:00 - 09:20	University of Zimbabwe	A/Vice Chancellor, UZ
09:20 - 09:40	FAO Sub-Regional Coordinator for Southern Africa and Zimbabwe Representative	FAO
09:40-09:50	Workshop Objectives & Participants Expectations	Prof. Brighton Mvumi, UZ
09:50-10:00	<b>GROUP PHOTO</b>	UZ
<b>10:00-10:30</b>	<b>Tea/Coffee Break</b>	
<b>Session 2: General context of postharvest losses (PHLs)</b>		
10:30 – 11:00	Pre-training test to assess knowledge level of participants on Food Loss and Waste	UZ
10:30 -11:00	General information on post-harvest losses (PHLs): definitions, magnitude, and causes in Africa	Cephas Taruvinga, FAO/ AU
11:00-11:30	General presentation of postharvest systems and major causes of PHLs of food in SSA and potential solutions	Prof. Brighton Mvumi, UZ
11:30-11:50	Introduction to PHLs evaluation methods: objectives, concepts and general approaches to evaluations; Overview of the FAO Analysis Methodology of PHLs	Dr. Mireille Totobesola, FAO
11:50-12:10	Statistical Approaches to PHL Assessment	Grace Nicholas, LAWCRS (Not covered)
12:10-12:30	African Postharvest Loss Information System (APHLIS) for estimating PHLs	Prof. Brighton Mvumi, UZ
<b>13:00 – 14:00</b>	<b>LUNCH</b>	
14:00-14:20	General discussion	Dr. Mireille Totobesola, FAO
<b>Session 3: FAO Methodology of Food Loss Analysis for Case Studies (Theoretical Phase)</b>		
14:20-1500	Module 1: Introduction to Loss Assessment: - Justification for the training	Cephas Taruvinga, AU/FAO



	- Main steps of the methodology	
<b>15:00-15:30</b>	<b>Tea/Coffee Break</b>	
15:30-17:00	Module 2: Preliminary Analysis Phase (Screening) - Interview with resource persons - Analysis of secondary data - Reasoned choice of supply chains - Characterization of food losses in selected chains - Conclusion and planning of the next step	Prof. Brighton Mvumi, UZ
Session 3: FAO Methodology of Food Loss Analysis for Case Studies (Theoretical Phase) - <i>Continued</i>		
<b>Tuesday – 2/10/2018</b>		
08:00 - 08:15	Recap of previous day's proceedings	Participants
08:15 - 09:30	Module 3: Loss Analysis Investigation Phase - Observation - Interviews - Analysis of results: structure of the food supply chain (FSC) and risk factors - Questions / Discussions sharing experiences	Tafireyi Chamboko, UZ
09:30 - 10:00	Gender and Social Issues in FLA	Shinga Mupindu, Independent Consultant
<b>10:00-10:30</b>	<b>Tea/Coffee Break</b>	
11: 00- 13:00	<b>Module 4: Load Tracking and Sampling</b> - Choice of load - Unit of measurement - Sampling and monitoring - Quality analysis - Presentation of the results - Questions / Discussions and sharing experiences	Prof. Brighton Mvumi, UZ
<b>13:00 – 14:00</b>	<b>LUNCH</b>	
14: 00-15:00	<b>Module 5: Phase of search for solutions (synthesis) and Reporting</b> - Search for appropriate solutions to identified causes & Cost / benefit analysis	Tafireyi Chamboko, UZ
<b>15:00-15:30</b>	<b>Tea/Coffee Break</b>	
15:30-16:00	Environmental Issues in Food Loss Assessment	Prof. Brighton Mvumi, UZ
16:00 – 17:00	-Exploitation of case study results in the Proposal for National Strategies for PHL reduction in selected value chains - Questions / Discussions and sharing experiences	Tafireyi Chamboko, UZ  FAO
Session 4: FAO Methodology of Food Loss Analysis for Case Studies (Practical Phase)		
<b>Wednesday – 3/10/2018</b>		
08:00 - 08:15	Recap of previous day's proceedings	Participants
08:00 -10:00	Practical implementation of the study: Case studies - Cereal sector: maize & sorghum, Zimbabwe	Cephas Tarvinga, AU/FAO

	- Legume sector: beans – Uganda? - Questions / Discussions and sharing of experiences	
<b>10:00-10:30</b>	<b>Tea/Coffee Break</b>	
10:30- 12:30	Practical implementation of the study: Case studies ( <i>continued</i> ) - Horticulture – Rwanda? - Milk – Zimbabwe?	Dr. Mireille Totobesola, FAO
12:30-13:00	Information Sources and Sharing Network (CoP)	Dr. Mireille Totobesola
<b>13:00 – 14:00</b>	<b>LUNCH</b>	
<b>Session 5: Group work on implementation</b>		
14:00-14:15	Establishment of working groups: working groups by sub-sector (fruits and vegetables, root and tubers, cereals / legumes, products of animal origin - milk, meat)	Prof. Brighton Mvumi, UZ
14:15-15:00	Group work: Phase 1 In Commodity groups, participants compile draft Tables and Food Supply Chain Diagrams; Draft study tools	Participants
<b>15:00-15:30</b>	<b>Tea/Coffee Break</b>	
15:30-16:30	Group work Phase 1 (continuation)	Participants
16:30 -17:15	Plenary: presentation and discussion of the results of the group work Participants	Dr. Mireille Totobesola
17:15-17:30	Preparation of the final evaluation and the field visit	Prof. Brighton Mvumi, UZ
<b>Thursday – 2/10/2018</b>		
<b>Session 6: Field Visit</b>		
08:00 -13:00	Field visit - Cases of cereals: reception, storage and / or grain / seed processing units (demonstration of sampling, discussions on the monitoring of loads, evaluation of losses ... discussions with stakeholders) - Case of horticultural crops (1 or 2 products to be targeted): visits to markets or storage sites (demonstration of sampling, cargo monitoring, loss assessment ...) - Cases of legumes: reception, storage and / or grain / seed processing units (demonstration of sampling, discussions on the monitoring of loads, evaluation of losses ... discussions with stakeholders)	Prof. Brighton Mvumi, UZ

<b>13:00 – 14:00</b>	<b>LUNCH</b>	
14:00-15:00	Group work Feedback (Phase 2, discussions on the practical observations and constraints of implementation from a technical point of view (complexity, calendar), Economic, Gender/Social, Political and Environmental Use of draft data collection instruments developed - Major observations: successes, challenges, recommendations	Participants
	Plenary - Feedback on	
<b>15:00-15:30</b>	<b>Tea/Coffee Break</b>	
15:30-16:00	Group work (phase 2, continued)	Participants
16:00-17:00	Presentations of the results of Phase 2 of the group work	
<b>Friday – 5/10/2018</b>		
Session 7: Evaluation and Closing		
08:00-09:00	Summary and evaluation of the field visit	Participants FAO
09:00-10:00	Presentation on generic outline of the reports	Dr. Mireille Totobesola
<b>10:00-10:30</b>	<b>Tea/Coffee Break</b>	
10:30-11:00	Post-training Test to assess knowledge gained by participants on FLA Methodology	Prof. Brighton Mvumi, UZ
11:00-11:30	Overall Workshop Evaluation	Tafireyi Chamboko, UZ
11:30-12:30	Distribution of Certificates	UZ/FAO/AU
12:30 - 12:45	Recap of week's proceedings	Participant
12:45-13:00	Closing Remarks	FAO/AU
<b>13:00 – 14:00</b>	<b>LUNCH &amp; DEPARTURE</b>	

## Annex II: Training of Trainers Workshop on the FAO Methodology for food Loss Analysis in Targeted Value Chains - Pre- and Post-Training Test

1. Give an estimate of the amount and value of food lost globally? [1]
2. What is the difference between food loss and food waste? [2]
3. Which countries are likely to suffer food losses and why? [1]
4. Explain why it is necessary to undertake a loss assessment study? [2]
5. What is the target of the African Union Malabo post-harvest loss reduction goal? [1]
6. What is the focus of the **FAO Food Loss Analysis (FLA)** methodology? [2]
7. Does the FAO methodology use statistical approaches? Yes/No. Please explain briefly. [2]
8. What are the major components of the FLA? Please explain briefly the purpose of each component [8]
9. What are the expertise needed in a team to carry out FLA? [3]
10. What are the causes of losses at micro, meso, and macro levels? [3]
11. Giving 2 examples, explain how postharvest loss is affected by the environment? [2]
12. Giving 2 examples, explain how postharvest loss reduction strategies minimise environmental degradation. [2]
13. Give 2 implications of food loss and contamination
  - (i) At household level? [2]
  - (ii) At national level? [2]
14. In load-tracking, what constitutes a load? [2]
15. How do you measure losses at each stage along the value chain? [2]
16. Explain the importance of tracking and challenges associated with it [4]
17. What are the most challenging stages of the FLA and what are propositions to overcome these challenges? [2]
18. What are the most costly stage(s) of the FLA and how can it/they be carried out to improve efficiency? **This question is not to be marked. It is to collect feedback from participants who have implemented the methodology.**
19. What is the purpose of key informant interviews? [1]
20. What is the general recommended size of the group of stakeholders when conducting focus group discussions? [1]
21. What in your view are the main benefits of postharvest loss reduction strategies? [1]
22. What are the main costs of postharvest loss reduction strategies? [2]
23. Under what circumstances would we consider a postharvest technology to be profitable when using benefit cost analysis? [1]

24. How is the classification of causes of losses into micro, meso and macro relevant to the identification of solutions? [1]
25. What do you understand by “triangulation” in data collection in the food loss assessment studies? [1]
26. Why is triangulation important in food loss assessment studies? [1]
27. What is your understanding of social issues inclusion in the context of food loss analysis? [2]
28. Giving relevant examples, briefly explain how social issues affect food loss. [3]
29. When doing Literature review, sampling, data collection and analysis on food loss in targeted food value chains which key social issues about men, women, and youth would you analyse and/or include? [4]
30. Give 3 strategies related to social issues that you would suggest/adopt to reduce the impact of social issues on food loss in a selected food value chain? [3]

**TRAINING WORKSHOP ON FOOD LOSS ANALYSIS METHODOLOGY IN TARGETED VALUE CHAINS, EAST AND SOUTHERN AFRICA**

**Cresta Lodge, Harare 1 – 5 October 2018**

***Training Workshop Evaluation***

**1. Please check the boxes that indicate your rating of the training, training materials and facilitators. The score is from 5 (highest) to 1 (lowest)**

		5	4	3	2	1
<b>Training</b>	The workshop objectives were met					
	The content and scope met my expectations					
	I acquired valuable skills					
	I acquired valuable knowledge					
	The training was well-organised					
	Quality of training					
	Lesson delivery					
	Training had a good balance between theory and practice					
	Workshop duration					
<b>Training materials</b>	The presentations were easy to understand					
	The presentations covered the subject adequately					
<b>Facilitators</b>	The facilitators were knowledgeable					
	The facilitators were clear and effective					
	The facilitators managed the session well					
	The facilitators answered the questions asked completely and clearly					
	The facilitators encourage participation					
	The pace of the sessions was well managed					
	What is your overall rating of the workshop?					

**2. What new thing(s) did you learn?**

.....  
 .....  
 .....

**3. What did you like best about the workshop?**

.....  
.....  
.....

**4. What didn't go well during the workshop?**

.....  
.....  
.....

**5. What can you recommend for future workshops?**

.....  
.....  
.....

**6. Additional comments:**

.....  
.....  
.....

## Annex IV: Full List of Participants

### Training Workshop on Methodology for Food loss Analysis in Targeted Value Chains, East and Southern Africa

	Surname & First Name	Sex (M/F)	Organisation & Country	Email address	Mobile No.	Day1	Day2	Day3	Day4	Day5
1	Abel-Ratovo Henri Lucien	M	NARC-FOFIFA, Madagascar	<a href="mailto:abelratovo@yahoo.fr">abelratovo@yahoo.fr</a>	<a href="tel:+261331478515">+261 331478515</a>	X	X	X	X	X
2	Aduye Sibhat T.	M	Ministry of Agric and Natural Resources, Ethiopia	<a href="mailto:tsibhat@yahoo.com">tsibhat@yahoo.com</a>	<a href="tel:+251911917820">+251 911917820</a>	X	X	X	X	X
3	Bandason Elizabeth	F	Bunda, Luanar, Malawi	<a href="mailto:elizabandason@gmail.com">elizabandason@gmail.com</a>	<a href="tel:+265999520639">+265 999520639</a>	X	X	X	X	
4	Barbara Mathemera	F	FAO, Harare	<a href="mailto:barbara.mathemera@fao.org">barbara.mathemera@fao.org</a>	-	X	X	X		X
5	Berhamo Bedame	M	FAO, Harare	<a href="mailto:barhamo.bedame@fao.org">barhamo.bedame@fao.org</a>	-	X				
6	Cephas Taruvinga	M	FAO/AU, Ethiopia	<a href="mailto:cephas.Taruvinga@foa.org">cephas.Taruvinga@foa.org</a>	-	X	X	X		X
7	Chamboko Tafireyi	M	University of Zimbabwe, Agric Economics, Zimbabwe	<a href="mailto:chamboko@agric.uz.ac.zw">chamboko@agric.uz.ac.zw</a>	<a href="tel:+263772349599">+263 772 349599</a>	X	X	X	X	X
8	Chenzara Creighton	M	Ministry of Agriculture, Zimbabwe	<a href="mailto:creig83@gmail.com">creig83@gmail.com</a>	<a href="tel:+263772837859">+263772837859</a>	X	X	X	X	X
9	Dlamini Phindile	F	Deputy Prime Minister's Office-NDMD, Eswatini	<a href="mailto:phindiledlmn@gmail.com">phindiledlmn@gmail.com</a>	<a href="tel:+26876181089">+268 76181089</a>	X	X	X	X	X
10	Kamwendo Cliff	M	University of Zimbabwe		+263 772 914813	X				X
11	Komu Joseph Mutinda	M	Ministry of Agriculture, Kenya	<a href="mailto:mutindaxx2014@gmail.com">mutindaxx2014@gmail.com</a>	<a href="tel:+254720872083">+254 720872083</a>	X	X	X	X	X
12	Kuhlase Louis Musa	M	Ministry of Agriculture, Eswatini	<a href="mailto:klouismusa@yahoo.com">klouismusa@yahoo.com</a>	<a href="tel:+26876044842">+268 76044842</a>	X	X	X	X	X
13	Lebizazavao Velonjafy Nabab	M	Ministry of Agric and Livestock, Madagascar	<a href="mailto:velonjafynabab@yahoo.fr">velonjafynabab@yahoo.fr</a>	<a href="tel:+261343646894">+261 343646894</a>	X	X	X	X	X
14	Lephole Monica	F	MAFS-DAR, Lesotho	<a href="mailto:40molephole@gmail.com">40molephole@gmail.com</a>	<a href="tel:+26658922133">+266 58922133</a>	X	X	X	X	X
15	Mapena Gaorere Ramokapane	F	DAR, Botswana	<a href="mailto:mgeeramo@gmail.com">mgeeramo@gmail.com</a>	<a href="tel:+26771846900">+267 71846900</a>	X	X	X	X	X
16	Mauricio Negas	M	Helvetas, Mozambique	<a href="mailto:negas.mauricio@helvetas.org">negas.mauricio@helvetas.org</a>	-	X	X	X	X	X
17	Mlambo Shaw	M	University of Zimbabwe, Zimbabwe	<a href="mailto:shawmlambo@gmail.com">shawmlambo@gmail.com</a>	<a href="tel:+263772941226">+263 772941226</a>		X	X	X	X
18	Mthembu Nonhlanzeko	F	Department of Agric, Forestry and Fisheries, South Africa	<a href="mailto:nonhla88@gmail.com">nonhla88@gmail.com</a>	<a href="tel:0123196133">012 319 6133</a>	X	X	X	X	X



19	Muatinte Bernardo	M	Eduardo Mondlane University, Mozambique	<a href="mailto:muatinteb@yahoo.com">muatinteb@yahoo.com</a>	<a href="tel:+258846476286">+258 846476286</a>	X	X	X	X	X
20	Mukuka Ivor	M	Zambia Agric Research Institute, Zambia	<a href="mailto:ivormukuka@gmail.com">ivormukuka@gmail.com</a>	<a href="tel:+260977565490">+260 977565490</a>	X	X	X	X	X
21	Munganama Egbert Ngosa	M	Ministry of Agriculture, Zambia	<a href="mailto:emunganama@yahoo.com">emunganama@yahoo.com</a>	<a href="tel:+260974963625">+260 974963625</a>	X	X	X	X	X
22	Mupindu Shinga	F	Gender and Rural Development Trust	<a href="mailto:gerude@africaonline.co.zw">gerude@africaonline.co.zw</a>	<a href="tel:+263773108893">+263773108893</a>	X	X	X	X	
23	Mutingwende Byron Adonis	M	Spiked online, Zimbabwe	<a href="mailto:bamutingwende@gmail.com">bamutingwende@gmail.com</a>	<a href="tel:+263774037020">+263774037020</a>	X				X
24	Mutisi Charles	M	University of Zimbabwe, Zimbabwe	<a href="mailto:mutisi@agric.uz.ac.zw">mutisi@agric.uz.ac.zw</a>	<a href="tel:+263772241579">+263772241579</a>	X				X
25	Mutyaba Cedric	M	MAAIF-NARO, Uganda	<a href="mailto:cjmutyaba@gmail.com">cjmutyaba@gmail.com</a>	<a href="tel:+256772592850">+256 772592850</a>	X	X	X	X	X
26	Muyinza Harriet	F	MAAIF-NARO, Uganda	<a href="mailto:hmuyinza2014@gmail.com">hmuyinza2014@gmail.com</a>	<a href="tel:+256772475281">+256 772475281</a>	X	X	X	X	X
27	Mvumi Brighton	M	University of Zimbabwe, Zimbabwe	<a href="mailto:mvumibm@hotmail.com">mvumibm@hotmail.com</a>	<a href="tel:+263772419983">+263772419983</a>	X	X	X	X	X
28	Naholo Elias	M	Ministry of Agric, Namibia	<a href="mailto:eliasnaholo@gmail.com">eliasnaholo@gmail.com</a>	<a href="tel:+264812334731">+264 812334731</a>	X	X	X	X	X
29	Ngwenyama Patrick	M	University of Zimbabwe, Zimbabwe	<a href="mailto:pngwenyama02@gmail.com">pngwenyama02@gmail.com</a>	<a href="tel:+263773387513">+263 773387513</a>	X	X	X		
30	Niyitanga Fidele	M	University of Rwanda, Rwanda	<a href="mailto:fniytanga@yahoo.fr">fniytanga@yahoo.fr</a>	<a href="tel:+250788624094">+250 788624094</a>	X	X	X	X	X
31	Nyabako Tinashe	M	University of Zimbabwe, Zimbabwe	<a href="mailto:tnyabako@gmail.com">tnyabako@gmail.com</a>	<a href="tel:+263733331309">+263733331309</a>	X	X	X	X	X
32	Nyakudya Elijah	M	University of Zimbabwe, Zimbabwe	<a href="mailto:elijahnyakudya@yahoo.co.uk">elijahnyakudya@yahoo.co.uk</a>	<a href="tel:+263777996298">+263 777996298</a>	X	X	X	X	X
33	Rushunju Benny Gration	M	Ministry of Agriculture, Tanzania	<a href="mailto:bqr22001@yahoo.co.uk">bqr22001@yahoo.co.uk</a>	<a href="tel:+255713496346">+255 713 496 346</a>	X	X	X	X	X
34	Sadoti Makwaruzi	M	Ministry of Agric, Tanzania	<a href="mailto:sadoti.makwaruzi@kilimo.go.tz">sadoti.makwaruzi@kilimo.go.tz</a>	-	X	X	X	X	X
35	Singano Charles	M	Department of Agric Research Services, Malawi	<a href="mailto:chasinga2001@yahoo.co.uk">chasinga2001@yahoo.co.uk</a>	<a href="tel:+265999307474">+265 999307474</a>	X	X	X	X	X
36	Totobesola Barbier Mireille	F	FAO, Rome, Italy	<a href="mailto:mireille.totobesola@fao.org">mireille.totobesola@fao.org</a>	-	X	X	X	X	X

**Workshop Speech by the Acting Vice Chancellor, Professor Pual Mapfumo on the Occasion of the opening of the:**

***Training of Trainers Workshop on the FAO Methodology for Food Loss Analysis in Targeted Value Chains - East and Southern Africa***

**DATE: MONDAY, 1 OCTOBER 2018**

**TIME: 0900 HOURS**

**VENUE: CRESTA LODGE, HARARE**

**SALUTATIONS**

The Master of Ceremony, Professor Brighton Mvumi, University of Zimbabwe

The FAO Resident Representative for Zimbabwe and Southern Africa XX

Representative of the FAO and Africa Union, Mr Cephaz Taruvinga

Representatives of FAO Rome Office and FAO Harare Office

The Dean of the Faculty of Agriculture, University of Zimbabwe

Distinguished Research Scientists and Development Practitioners here present

Senior Government Officials

Invited guests

Ladies and Gentlemen

I am pleased to be invited to give opening remarks at this *Training of Trainers Workshop on the FAO Methodology for Food Loss Analysis in Targeted Value Chains - East and Southern Africa*

Ladies and gentlemen, rain-fed smallholder agriculture in is currently the mainstay of rural household livelihoods and national economies in southern Africa including Zimbabwe, contributing over 90% of direct and indirect employment in the region. This is despite the multiple challenges traditionally facing agriculture within the SADC and COMESA regions. This renders our populations vulnerable to the negative impacts of climate change and variability. A combination of increasing droughts, poor seasonal rainfall distribution and increasing temperatures have made agricultural planning difficult for our farmers, especially the smallholders. This further adds to existing stress factors that include

inherently infertile soils, poor market and credit access against the background of HIV/AIDS impact on agricultural labour.

The little harvest that farmers achieve is often eroded by high post-harvest losses of up to 30% for cereals (much higher horticultural crops), thus undermining food and nutrition security in the Africa. I understand that this TOT is drawing participants from East and Southern Africa region (including Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe) who are largely involved in food technology/science or post-harvest management, and agricultural economics. This multi-disciplinarity is pivotal for strengthening regional integration in SADC and COMESA in line with Government of Zimbabwe policy and AU strategies.

I understand again, that the TOT is being conducted in the context of the Agenda 2030 and specifically SDG 12.3 - SDG target 12.3 - *by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including postharvest losses*, and in order to meet the Malabo target of *reducing postharvest losses by 50 % by 2025*.

For this to happen, there is clearly a need for a specific focus on developing strategies and implementing actions to measurably reduce the levels of postharvest losses in countries. This, however, demands an understanding of the magnitude of these losses, and the underlying causes of these losses in prioritized food supply chains. We need reliable data for effective national, continental and global planning

I am reliably informed that this training brings together people with different skills and that it harnesses the expertise of academia, development practitioners, farmers and national government departments of the countries here represented Zimbabwe to address the complex challenges associated with climate change and variability which are bedeviling our smallholder agricultural sector.

We hope that at some point after implementation of the knowledge gained in this training we will be able to convene another meeting to discuss the results of the skills impartation. I also hope that the project will facilitate further downstream capacity development of your compatriots back at your institutions in your countries.

We are grateful to the Food and Agriculture Organization of the United Nations (FAO) for providing financial support and technical assistance in this TOT. We have an excellent working relationship with FAO and this TOT will further strengthen other on-going FAO-supported initiatives.

The current intervention fits in very well with the University's Mission of providing high quality and innovative higher education training, research and services under the direction of highly competent and passionate academic staff, in line with the clients' needs to enable significant contribution to sustainable development. The University's Mission is being driven by a Strategic Plan which seeks to position the University of Zimbabwe as

an international research-focused institution contributing to global solutions to challenges facing mankind. Key thrusts for this Strategic Plan include Postgraduate Training and Innovative Research.

The University of Zimbabwe is a key research and training centre in Postharvest Science & Technology in Zimbabwe, Africa and beyond. The intervention builds on current and recent research by the proposed team to innovate new methods of managing post-harvest legume crop systems and working with smallholder farmers to improve their food and nutrition security and address cross cutting issues such as gender equity, access to markets, climate adaptation, sustainable agriculture and capacity development through both student and stakeholder training.

I am confident that the training will be professionally executed by the team with the support of all of us gathered here today. My administration is very supportive of the concept of broad-based partnerships and I am positive that with a high level of commitment, you will convert into functional platforms for the innovation we need.

I would like to acknowledge the organisers of this landmark training workshop Professor Brighton Mvumi (UZ) and his team, and the FAO team (Dr Totobesola Barbier, Mr Tarunga and Mrs Barbara Mathemera).

With these remarks, I have the pleasure of welcoming you to Harare and Zimbabwe as a whole. I hope you find time to see a bit of Harare during your short stay.

I thank you all

**During the opening of the regional workshop for training of trainers on FAO Food loss analysis methodology in Harare, 1<sup>st</sup> October 2018, Cresta Lodge, Harare, Zimbabwe**

The Acting Vice Chancellor of the University of Zimbabwe,

All Directors Present,

Senior Government Officers present

Post-harvest experts and partners

FAO colleagues

Members of the media

Ladies and Gentlemen.

It is a great privilege and honor to address you at this Regional Training of Trainers Workshop on the FAO Methodology for Food Loss Analysis.

Across the globe, approximately one third of the food produced and intended for human consumption, is lost or wasted at an estimated cost of one trillion dollars to the global economy. Recent studies estimate that annual global food losses account for 30 percent of cereal production, 40–50 percent of root crops, fruits and vegetables, 20 percent of oilseeds, meat and dairy products, and 30 percent of fish. These high levels of food losses are the result of inefficiencies in our food systems.

The reduction of food losses and waste (FLW) is essential in the creation of efficient value chains, which are the core of sustainable food systems that contribute to food security, nutrition, economic growth and environmental benefit.

According to a 2011 report by the World Bank, FAO and the Natural Resources Institute, grain losses in sub-Saharan Africa alone could be worth up to US\$4 billion a year – enough to provide the minimum food requirements of at least 48 million people.

With the context of Agenda 2030 and specifically SDG 12.3 - SDG target 12.3 - *by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including postharvest losses*, and in order to meet the Malabo target of reducing postharvest losses by 50 % by 2025, there is clearly the need for a specific focus on developing strategies and implementing actions to measurably reduce the levels of postharvest loss in countries.

This workshop is organized in collaboration with the University of Zimbabwe in the framework of FAO Strategic Programme 4 on building capacity within countries to conduct food loss analyses, toward identifying the critical loss points and their underlying causes in food supply chains.

The FAO food loss analysis methodology has been used in a number of developing countries. The results of the studies using this methodology include recommendations on solutions that are feasible and sustainable in a given context for selected food supply chains, on policies and strategies that are conducive of food loss reduction, and served as basis for investment plans and scaling actions.

This workshop which targets East and Southern Africa is part of a series of TOTs that FAO carries out in collaboration with partner institutions. Similar workshops were conducted in Cameroon in May 2018 for African Francophone countries and in Morocco for the Near East and North Africa Region (NENA) held just last month in September.

As FAO has been designated the custodian agency for Target 12.3 and the Global Food Loss Index (GFLI) and supporting the AU PHL evaluation framework in under the FAO AU joint project supported by the Rockefeller Foundation ‘*Support to the African Union in the development of policies and strategies for country-specific plans to reduce post-harvest food losses*, participants will be informed on the complementarity of FAO Food loss analysis methodology, and the approaches at the continental and global levels.

This capacity building effort responds to an existing need. Indeed, according 2017 AUC Biennial Report on Malabo Declaration commitments on postharvest losses only five countries reported having collected data on PHL in their countries and are on track on the PHL indicators: Malawi, Mauritania, Rwanda, Togo and Uganda, meaning 76% of the continent (42 Member States) were not on track on the PHL indicator. According to the Director of the Department Rural Economy and Agriculture (DREA) during a regional workshop organized by FAO and AU in Nairobi in July 2018, lack of data on the indicator does not mean that there is no PHL, it indicates a major challenge with PHL management including monitoring and reporting in the majority of the AU Member States.

### **Ladies and Gentlemen,**

Before I close, allow me to remind the you of the workshop objectives which are

- To improve participants’ understanding of the causes of food losses, their magnitude and socio-economic impact;
- To develop a shared understanding of the main steps of the food loss analysis methodology developed by FAO;
- To equip participants with skills to use the Food Loss Analysis Methodology to determine losses in targeted food supply chains;

- To share selected Case Study results and experiences of food loss analysis conducted in East and Southern Africa; and
- To improve participants understanding of mainstreaming gender and environmental issues in food loss analysis.

I would like to thank the University of Zimbabwe, all participants, and partner institutions and organizations who have supported their participation including the Swiss Development and Cooperation Agency (SDC); and the organizers of this workshop including those behind the scenes.

Ladies and gentlemen, as I conclude, I wish you a successful workshop.

Thank you.

Annex VII: Detailed results of the training workshop evaluation based on the evaluation form

**Table 2: Training workshop summary of training and training materials evaluation**

Score 5 = Highest, 1 = Lowest	% Rating of Score (n=22)					
	5	4	3	2	1	Total
Training						
The workshop objectives were met	90.9	9.1				
The content and scope met my expectations	54.5	45.5				100
I acquired valuable skills	77.3	22.7				100
I acquired valuable knowledge	86.4	13.6				100
Training was well organized	68.2	31.8				100
Quality of training	77.3	22.7				100
Lesson delivery	77.3	13.6	9.1			100
Training had a good balance between theory and practice	22.7	59.1	18.2			100
Workshop duration	22.7	40.9	31.8	4.5		100
Training Materials						
The presentations were easy to understand	54.5	45.5				100
The presentations covered the subject adequately	63.6	31.8	4.5			100

Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)

**Table 3: Training Workshop Summary of Facilitators Evaluation**

Score 5 = Highest, 1 = Lowest	% Rating of Score (n=22)					
	5	4	3	2	1	Total
Facilitators						
The facilitators were knowledgeable	95.5	4.5				
Facilitators presentations were clear and effective	86.4	13.6				100
Facilitators managed the session well	72.7	27.3				100
Facilitators answered the questions asked completely and clearly	72.7	27.3				100
Facilitators encouraged participation	86.4	13.6				100
Pace of sessions was well managed	59.1	36.4	4.5			100
Lesson delivery	77.3	13.6	9.1			100
Training had a good balance between theory and practice	22.7	59.1	18.2			100
Workshop duration	22.7	40.9	31.8	4.5		100
Training Materials						
The presentations were easy to understand	54.5	45.5				100
The presentations covered the subject adequately	63.6	31.8	4.5			100

Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)



**Table 4: What new thing(s) did you learn?**

<b>What new thing(s) did you learn?</b>	<b>Frequency</b>	<b>Percent</b>
Had little knowledge on postharvest losses but now this workshop has widened my understanding	1	4.5
The methodology - is one component that lacked as postharvest specialist	6	27.3
FAO Food Loss Assessment Methodology in terms of Load tracking, and mainstreaming social and environmental issues	2	9.1
Calculations and use of results to make decisions on proposed solutions and strategies to reduce post-harvest losses	1	4.5
Social entrepreneurship at EMkambo	2	9.1
Mainstreaming gender, social, and environmental issues in postharvest losses	6	27.3
Reporting and better understanding of tables completion	1	4.5
Economic impact and magnitude of food losses in Africa and Globally and the commitment by the United Nations and the African Union to reduce losses	2	9.1
APHLIS data source	1	4.5
Total	22	100.0

*Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)*

**Table 5: What did you like best about the workshop?**

<b>What did you like best about the workshop?</b>	<b>Frequency</b>	<b>Percent</b>
The presentations were on point i.e. new knowledge on how to conduct food loss analysis	4	18.2
The practical part of the workshop - go out and talk to people in the FSC at Mbare Musika	3	13.6
The interactive participation of all participants	4	18.2
Good training environment and active participation	1	4.5
The presentations from other countries that were already using the methodology	2	9.1
Case studies from Zimbabwe on Dairy loss assessment	1	4.5
Well organized and had participants from various countries	4	18.2
Integration of theory and practice	2	9.1
Choice of Facilitators and training venue was well done	1	4.5
Total	22	100.0

*Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)*

**Table 6: What didn't go well during the workshop?**

<b>What didn't go well during the workshop?</b>	<b>Frequenc y</b>	<b>Percen t</b>
Missing	3	13.6
Time keeping or management	7	31.8
The statistical part of the workshop that could not be presented during the workshop	2	9.1
Time was too short to cover everything	3	13.6
Less exposure to food loss activities in the field	1	4.5
Everything went well	3	13.6
Not applicable	2	9.1
Administration of funds needs improvement	1	4.5
<b>Total</b>	<b>22</b>	<b>100.0</b>

*Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)*

**Table 7: What can you recommend for future workshops?**

<b>What can you recommend for future workshops?</b>	<b>Frequency</b>	<b>Percent</b>
Missing	2	9.1
Time management	1	4.5
Everything on the program must be all done during the workshop	1	4.5
More practices	2	9.1
Increase training time e.g. to 2 weeks to provide room for practices, observation in the field and comparison with other approaches of food loss assessments	7	31.8
At least one or two days should be dedicated to visits to evaluate and assess specific FSCs	7	31.8
More case studies from other countries to gain more hands-on experience for the postharvest loss assessments	2	9.1
<b>Total</b>	<b>22</b>	<b>100.0</b>

*Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)*

**Table 8: Additional comments**

<b>Additional comments</b>	<b>Frequency</b>	<b>Percent</b>
Missing	4	18.2
Participants to continue networking to broaden understanding	2	9.1
This workshop must continue to help others to be able to fight against food losses	1	4.5
Follow up of the practice in own countries	1	4.5
Congratulations to FAO, UZ and all the Team who were involved in the preparations of the workshop (Organization was very good and thanking the organizers)	3	13.6
Think of improving the methodology to generate statistical results	1	4.5
Two members should be nominated from each country constituting of government officer and academician	1	4.5
Need 2 weeks for Training the Trainer and more field sessions	2	9.1
Sight-seeing trips should be included in the Timetable and there should be an appreciation of these in the future	1	4.5
Training was well organized only felt there was no chance to practice the load tracking	1	4.5
Not applicable	1	4.5
More practice on economic computations	1	4.5
Please send our tickets before a week	1	4.5
Further training and follow up on level of implementation of the methodology required	1	4.5
Country level engagements with local FAO officials. Introduce participants via email to our Country FAO officers so it's easier to start communicating country plans	1	4.5
<b>Total</b>	<b>22</b>	<b>100.0</b>

*Source: Training Workshop Evaluation, Cresta Lodge, Harare, Zimbabwe (2018)*

## Annex VIII: Synthesised Summary of the Food and Agriculture (FAO) Training of Trainers by a Representative of the participants

### **Workshop on Food Post Harvest Loss and Waste (PHLW) held in Harare, Zimbabwe from the 1<sup>st</sup> to 5<sup>th</sup> of October 2018**

Nonhlanzeko Mthembu (MPhil)

Assistant Director: National Extension Reform and Policy Development

Ministry of Agriculture, Forestry and Fisheries (DAFF)

Republic of South Africa

---

Developing countries have a mandate that expands its reach far beyond the call of duty. Treaties and multilateral agreements are signed such as the Malabo Declaration to commit member states to invest in national food security (i.e availability, accessibility, preparation and utilisation of food). This touches on broader socio-economic parameters embedded in multicultural diversity, economic hardships and gender inequalities of today's society.

It comes therefore, as no alarm that member states have made great strides towards increased production and are capable of becoming export players with the world. Disappointing however, is to learn of the Post Food Harvest Loss and Waste dynamic which plagues the Food Supply Chain (FSC) costing billions of dollars resulting in further poverty, malnutrition and ill-health in developing countries.

The FAO-UN collaborative efforts are indeed recognised and acknowledged by us all here today as this training workshop potentially seeks to reverse PHLW and increase interventions that are gender sensitive but also contribute to better production practices, strengthened cooperative governance through Public-Private Partnerships (PPP) and encourage member states to report on this global phenomenon.

In the interest of summarising the weeks' discussions, such can be noted:

1. As a precursor to policy and programme development, is intensive planning through screening and surveying the applicable FSC
2. Research and Innovation in PHLW founded on both Qualitative and Quantitative evidence-based assessments
3. The need for gender equality and recognition of its impact on socio-economic and cultural norms cannot be over emphasised. This requires investment in innovations that come to the relief of the burdens faced by women and youth in agriculture

4. Investment at micro, meso and macro level through national and international collaborative institutional mechanisms
5. Peer Learning for the purposes of information sharing practices. Hence the participation in the FAO Community of Practice which is an interactive platform for knowledge generation, synthesis and distribution on the subject matter.

In closing, we are the light in the dark for our countries. Justice and the realisation of basic human rights to food for future generations rests in our hands.

Annex IX: The Workshop in Pictures



**The Workshop Introduction**



**The Workshop Opening**





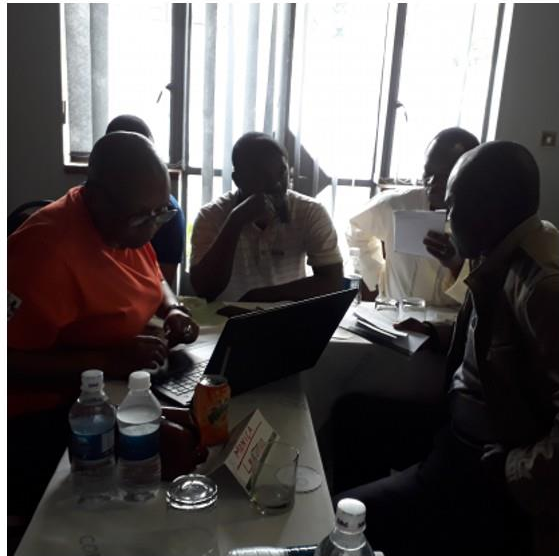
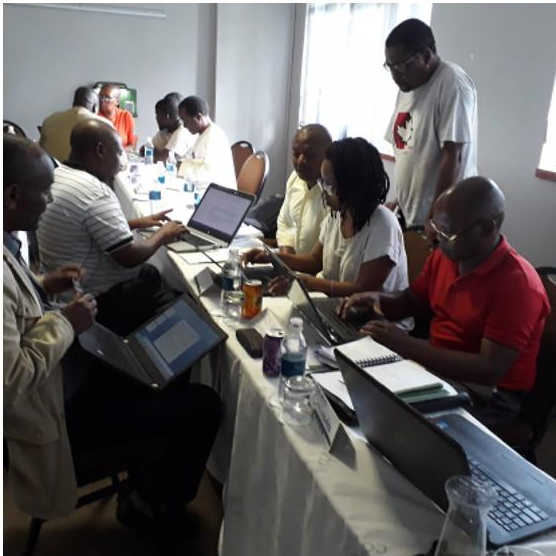
**The Workshop Sessions**



**The Field Visit to Mbare Musika Public Market in Harare**



**The Field Visit to Mbare Musika Public Market in Harare**



**Participant groupwork after Field Visit to Mbare Musika Public Market in Harare**



**The Certification Ceremony**