



Innovation series

No. 14

The Integrated Household Leaky Bucket

**Building financial and economic literacy by
doing: A simple guide to help smallholder
farmers separate their farm and household
revenues and expenses**

**Gord Cunningham, Lisa Elena Fuchs, Victoria Atieno Apondi,
Kipkorir, Langat Cosmas, Levi Alfred Orero Owiti**

December, 2018

**INNOVATIVE
PRACTICE**

**A Companion Guide to *Producer-led Value Chain Analysis: the
missing link in value chain development***



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INTERNATIONAL INSTITUTE
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The Coady International Institute
St. Francis Xavier University
PO Box 5000
Antigonish, NS
Canada B2G 2W5

Phone: (902) 867-3960
Phone: 1-866-820-7835 (within Canada)
Fax: (902) 867-3907
Web: www.coady.stfx.ca
Email: coady@stfx.ca

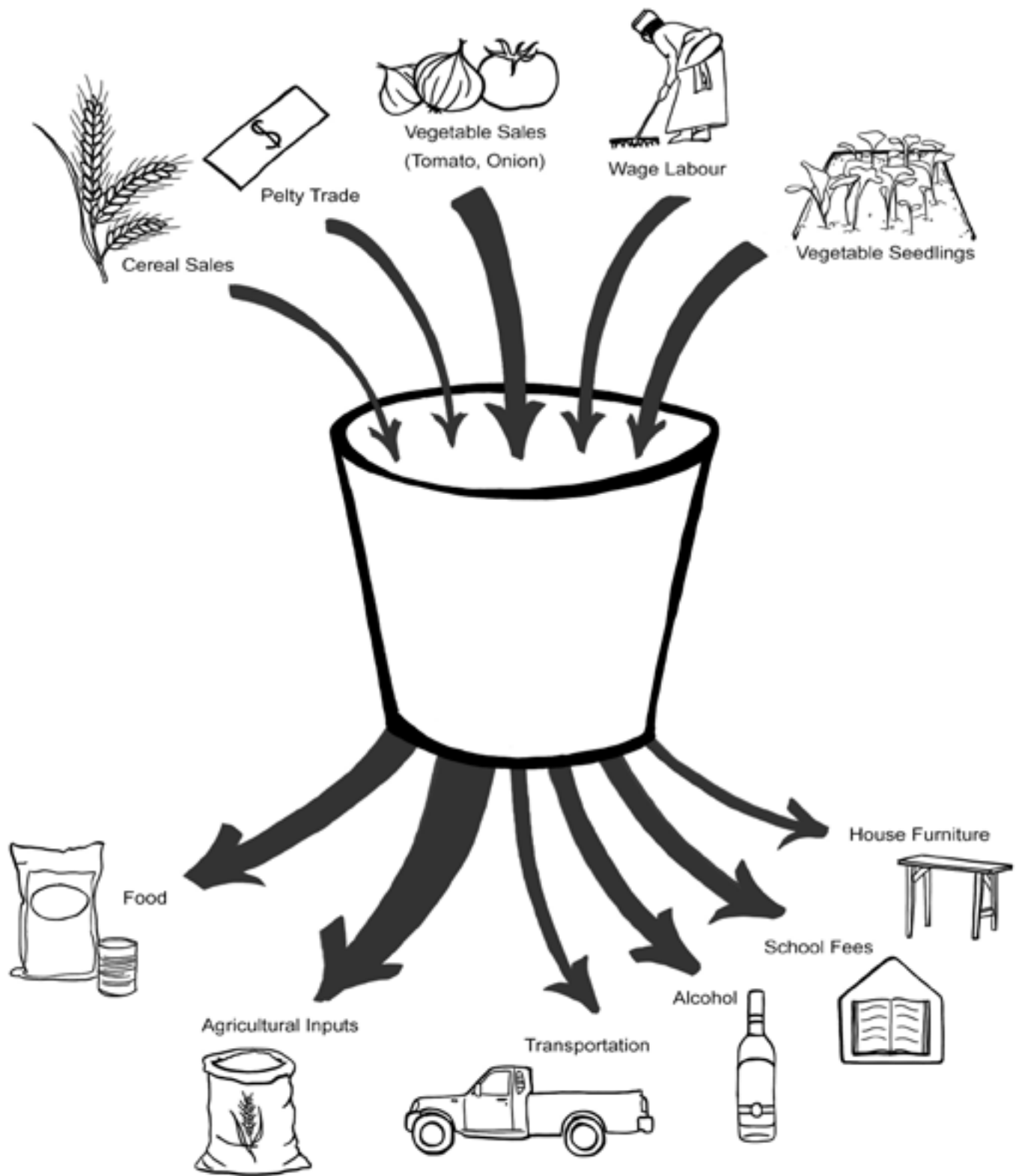


Table of Contents

Background and Introduction to this Guide	1
Purpose of the On-Farm, Off-Farm and Integrated Household Leaky Buckets:	2
Informed Consent	3
Section 1	4
Instructions for Facilitating an On-Farm Household Leaky Bucket:	4
Section 2	9
Instructions for Facilitating an Off-Farm Household Leaky Bucket:	9
Section 3	12
Instructions for Facilitating an Integrated Household Leaky Bucket	12

Table of Illustrations

ICRAF On-Farm Household Leaky Bucket (ICRAF template)	5
On-Farm Leaky Bucket with Calculations	6
Another example of an On-Farm Leaky Bucket from a farmer's own notebook.....	7
Picture taken by ICRAF Field Staff of On-Farm Leaky Bucket using a template supplied by ICRAF in the Middle Nyando Valley, Kenya	7
Example of Digital Leaky Bucket.....	8
Off-Farm Household Leaky Bucket (ICRAF template)	10
Picture taken by ICRAF field staff of an Off-Farm Household Leaky Bucket	11
The Integrated Leaky Bucket.....	12

Background and Introduction to this Guide

This guide is meant for organizations that see smallholder farmers as actors in their own right, not just subjects or beneficiaries of their projects. It is based on the premise that smallholder farmers who see farming as a way of life are also interested in seeing farming as a business. It is based on the further assumption that smallholder farmers are capable of learning basic business skills that help them separate and track their farm and household revenues and expenses, and that they will use this knowledge to make better business decisions. It is hoped that the tools included in the guide – the **On-Farm, Off-Farm** and **Integrated Household Leaky Buckets**, can be adopted or adapted by government and non-government organizations that support smallholder farmers.

This guide is the product of 6 years of action-research in Kenya with more than a thousand smallholder farmers. The action-research that led to the production of this guide was carried out by the World Agroforestry Centre¹ (ICRAF). The World Agroforestry Centre (ICRAF) is a centre of scientific excellence that harnesses the benefits of trees for people and the environment. Leveraging the world's largest repository of agroforestry science and information, ICRAF develops knowledge practices, from farmers' fields to the global sphere, to ensure food security and environmental sustainability.

ICRAF has been looking for methods to help smallholder farmers see the short, medium and long-term benefits of agroforestry. The **Integrated Household Leaky Bucket** is one of the tools that was developed, tested and adopted to this end. The Coady International Institute and Comart Foundation were partners in this journey to find ways for smallholder farmers to develop the business skills needed to both grow their individual businesses and working collectively for the betterment of their communities.

¹ www.worldagroforestry.org

Purpose of the On-Farm, Off-Farm and Integrated Household Leaky Buckets:

For the farmer: to produce simple annual “income statements” for the farm and the household; to help separate and monitor farm revenue and expenses from general household revenue and expenses; and to make better decisions on the allocation of resources.

For an organization using this guide to support smallholder farmers: to be able to better inform their work with smallholders, and to be able to better track changes in income and expenditures at both the farm and household levels by using farmer-generated data. If farmers are willing to give informed consent to share data from their leaky buckets, this data can be aggregated to allow any organization that provides support to a group of farmers to measure aggregate annual changes in farm and household income and thus calculate the approximate return on investment for their project or program.

If your organization is also using the [Producer-led Value Chain Analysis Facilitator's Guide](#) then the commodity ledgers used by farmers will provide the revenue and expenses information for each commodity in the **On-Farm Household Leaky Bucket**.



Informed Consent

If your organization wants to have access to farmer-generated data then you will need to be very clear about why you want to use their data and the level of confidentiality you can promise. You will also have to secure farmers' "informed consent". The informed consent process used by ICRAF in the western Kenya action-research project on which this guide is based is provided below.

Sample Informed Consent Form

1. We are [names] and are helping with research for ICRAF, the World Agroforestry Centre.
2. We collect this data in the context of assessing the impact of the Triple A project that is implemented in your area. This is the [number of years the data has been collected] round of data collection.
3. All information collected in this survey is confidential and your name will be kept anonymous.
4. Your participation will have no direct effect on our working relationship with you.
5. Your participation is voluntary, and if you are uncomfortable, you can end the interview at any time.
6. Please feel free to ask any questions you might have.

Does the household provide consent?

YES / NO

Section 1

Instructions for Facilitating an On-Farm Household Leaky Bucket:

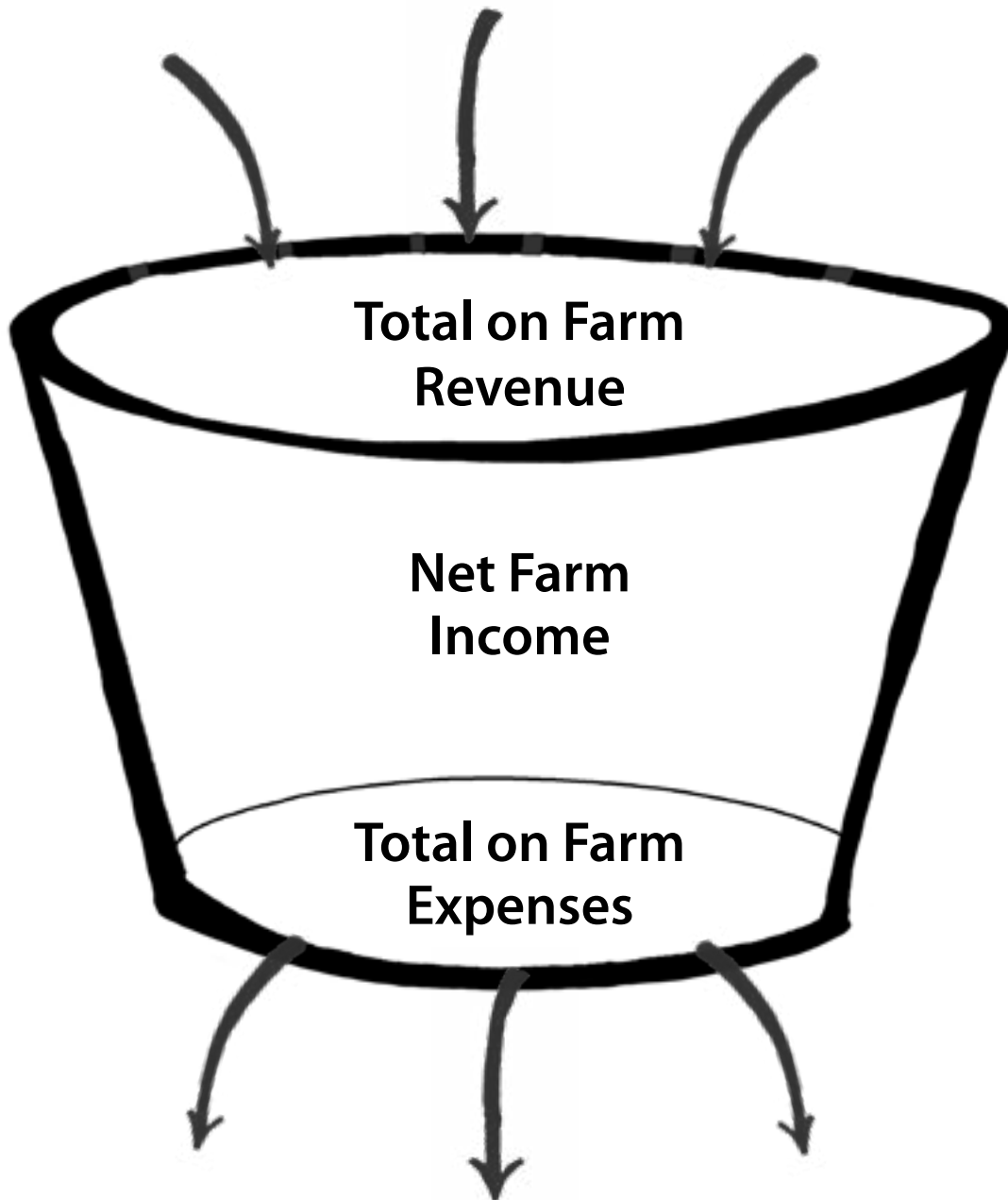
Explain the purpose of the farm leaky bucket to the farmer. The **On-Farm Household Leaky Bucket** is the first step in producing an integrated (**On-Farm and Off-Farm**) **Household Leaky Bucket**. If the farmer's community has been exposed to an Asset-based and Citizen-led Development (ABCD) process, then she/he may be familiar with a community and even a **Commodity Leaky Bucket** (see **Producer-led Value Chain Analysis guide**). If the farmer has been already been working with a **Commodity Leaky Bucket**, then she/he may also be compiling ledgers for one or more commodities. If this is the case, then the commodity ledgers will contain the revenue and expenditure data for each commodity arrow in the **On-Farm Household Leaky Bucket**. Explain that this leaky bucket tool is designed to help her/him calculate their farm revenue and expenses, information that is critical for her/him to run their farm as a business.

Instructions:

1. Please fill in the **On-Farm Household Leaky Bucket** with pencil to allow you to make corrections.
2. The **On-Farm Household Leaky Bucket** allows you to list all sources of farm income and farm expenses for your household in the past year.
3. **Farm Revenue** can include income from sales of farm produce and products (crops and livestock, sale of firewood and trees).
4. If the farmer has produced ledgers for any commodity, ask her/him to use this information for both revenue and expenditure.
5. Start with **Farm Expenses** (arrows at the bottom of the bucket). These expenditures can be operational (land preparation, cost of seeds, fertilizer, transport, labor etc.) or investment-oriented (machinery, equipment, tree nursery, chicken sheds, building, land purchase), or others. Please indicate the various **prices and quantities** at which you bought your inputs [(e.g. NPK fertilizer: 1 kg x 350 KES (Kenyan Shillings) (KES = 350 KES)].
6. Repeat this process for each commodity you produce.
7. Next calculate your **Farm Revenues** (the arrows at the top of the bucket). Your revenue arrows for each commodity are essentially the total of all sales you made of this commodity (e.g. calves: 1st sale of livestock - 2 animals x 5,000 KES = 10,000 KES, 2nd sale of livestock – 3

animals at 6,000 KES = 18,000 KES). This often requires thinking through the commodity cycle (i.e., in the case of a crop - from land preparation to seeding, the addition of fertilizers, weeding, harvest, transport and sale).

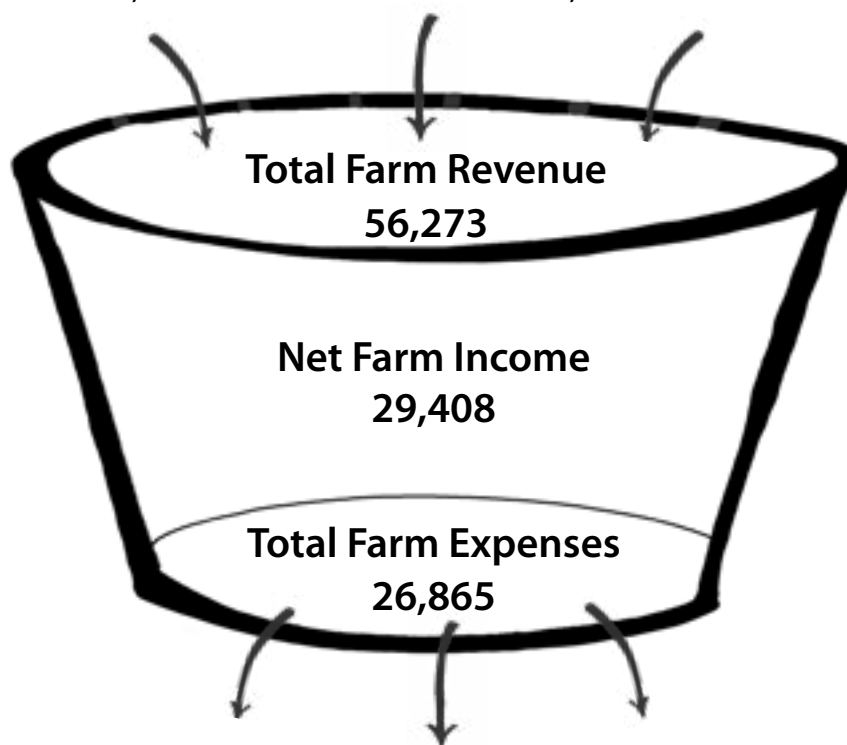
8. Please calculate your **Net Farm Income** for the year by subtracting your **Total Farm Expenses** from your **Total Farm Revenue**.



On-Farm Household Leaky Bucket (ICRAF template)

On-Farm Leaky Bucket with Calculations

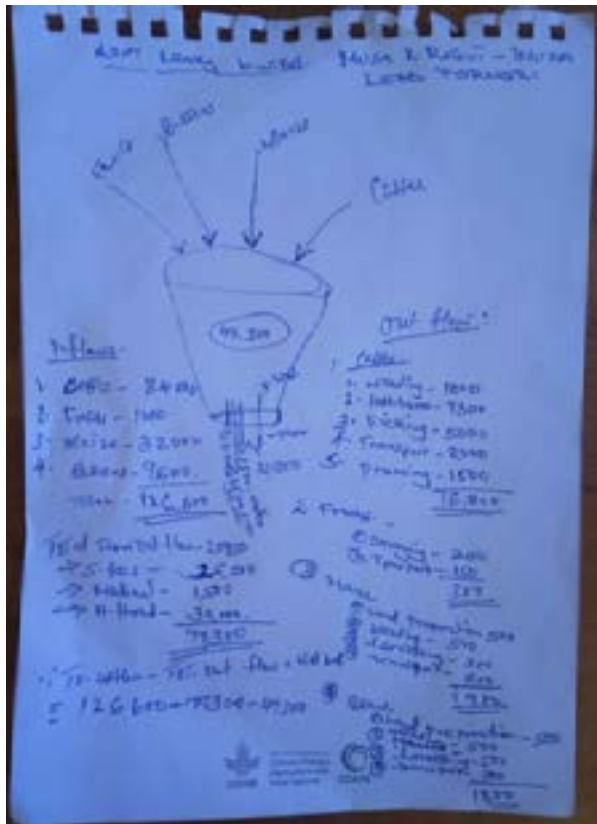
Seedlings	#	Price	Total	Onions	#(kg)	Price	Total	Tomatoes	#(kg)	Price	Total
<u>1st Sale</u>	180	9	1,620	<u>1st Sale</u>	160	90	14,400	<u>1st Sale</u>	50	180	9,000
<u>2nd Sale</u>	100	11	1,100	<u>2nd Sale</u>	80	100	8,000	<u>2nd Sale</u>	25	240	6,000
<u>3rd Sale</u>	20	14	280	<u>3rd Sale</u>	143	111	15,873				
Total			3,000	Total			38,273	Total			15,000



Seedling Costs		Onion Costs		Tomato Costs	
Seed	500	Seed	1,680	Seedlings	2,000
Paid Labour	1,000	Paid Labour	2,010	Paid Labour	6,000
Transport	500	Fertilizers	4,600	Fertilizers	3,000
		Oxen	1,275	Transport	1,000
		Transport	300		
		Fuel	2,700		
		Maintenance	300		
Total Costs	2,000	Total Costs	12,865	Total Costs	12,000

The *On-Farm Leaky Bucket* includes the revenue and expenses for each farming activity. In this example the farmer calculates revenue and expenses for three commodities (onions, tomatoes and seedlings).

Alternatively field staff can get each farmer to produce her/his own **Farm Leaky Bucket** in whatever notebook or paper the farmer is comfortable using with numbers written on each flow. Field staff could take a picture of the farmers' bucket (see examples on the next page).

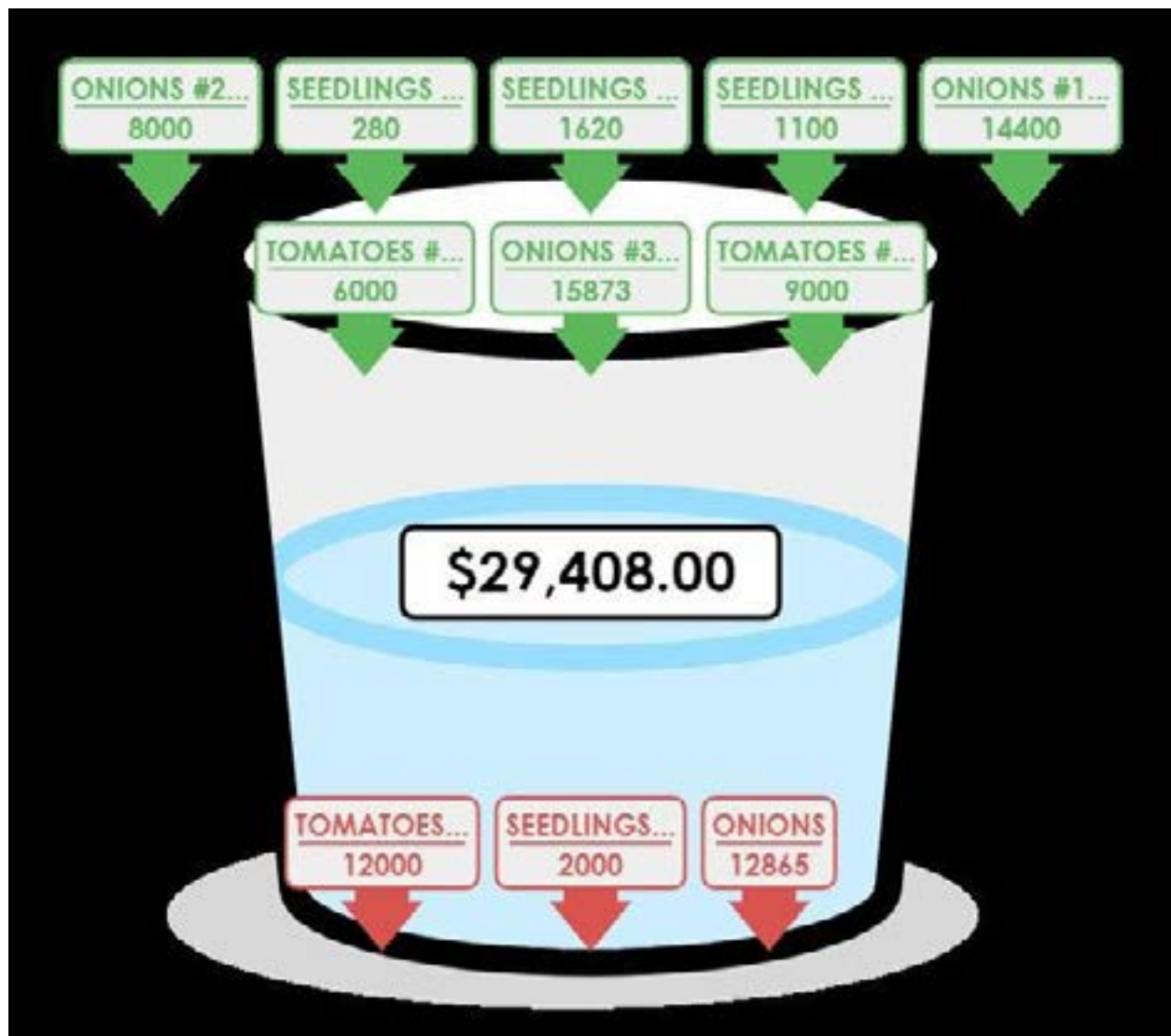


Another example of an **On-Farm Leaky Bucket** from a farmer's own notebook



Picture taken by ICRAF Field Staff of **On-Farm Leaky Bucket** using a template supplied by ICRAF in the Middle Nyando Valley, Kenya

At a later time, field staff can enter the information from the picture of the diagram drawn by the farmer into a digital form of the **On-Farm Household Leaky Bucket**, which can be found on Coady Institute's website: <https://coady.stfx.ca/digital-leaky-bucket/>. This information can also be transferred into a data base that will allow the organization supporting small producers to "roll-up" data on groups of farmers. This data can then be analyzed at various levels, including by group, age group, gender, commodity produced, specialization etc.



Example of **Digital Leaky Bucket**

Field staff could present back to the farmer the digital version of her/his bucket. Until the farmer is completing ledgers for each commodity a **Digital Leaky Bucket** could suffice as an approximate income statement for the farm, which may help when applying for a loan.

Section 2

Instructions for Facilitating an Off-Farm Household Leaky Bucket:

The **Off-Farm Household Leaky Bucket** allows the farmer to calculate the non-farm revenue and expenses flowing into and out of her/his household. The separation of on-farm and off-farm revenue and expenses is important so that the farm can be operated as a business. Similarly, if the producer has a non-farm business that contributes to household revenue and expenses then a separate leaky bucket could be produced for that business. If the farmer has been keeping ledgers for the commodities, she/he is producing on the farm, she/he should also be encouraged to begin keeping ledgers for any non-farm business activities.

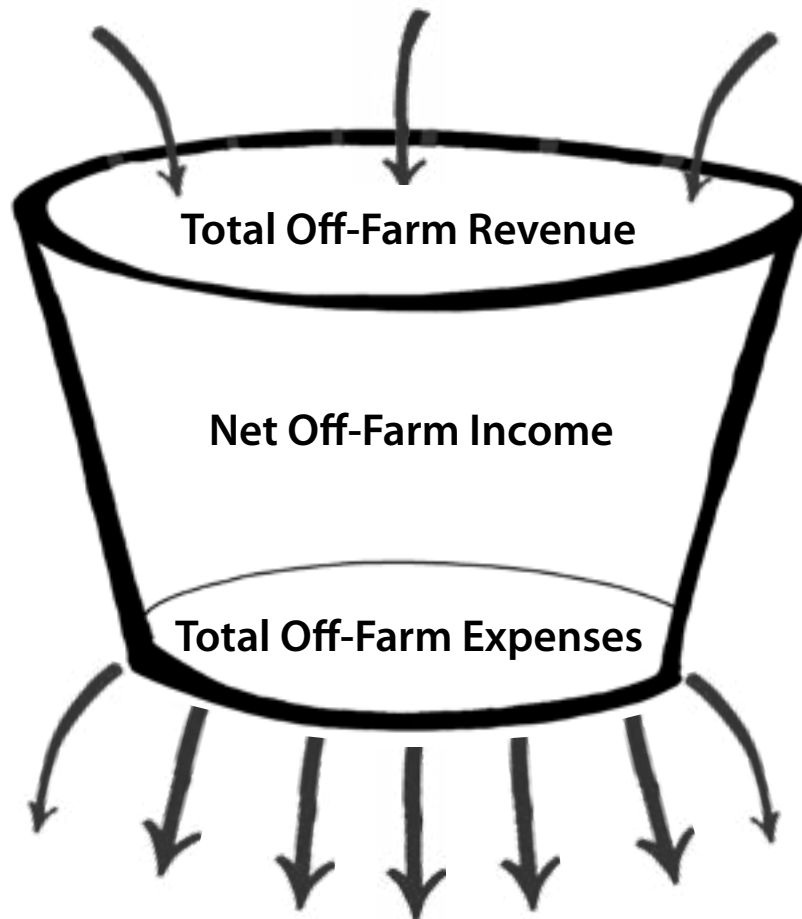
Explain the purpose of the **Off-Farm Household Leaky Bucket** to the farmer. This tool allows the farmer to summarize her/his non-farm household revenue and expenses. He or she will have already completed an **On-Farm Household Leaky Bucket** and so will be familiar with the process. Explain that this leaky bucket will help her/him to better understand and be better able to track changes in non-farm household revenues and expenditures which can be very useful for household budgeting and decision making.

Instructions:

1. Please fill in the **Off-Farm Household Leaky Bucket** with pencil to allow you to make corrections before you submit the form.
2. All adults in the household are encouraged to carry out this exercise together.
3. The **Off-Farm Leaky Bucket** allows you to list all sources and amounts of non-farm household revenue and expenses in the past year.
4. List all sources and amounts of **Off-Farm Revenue** (arrows at the top of the bucket). Common non-farm household revenues include: wages, salaries, remittances and non-farm business revenue.
5. List all types and amounts of non-farm expenditure (arrows at the bottom of the bucket). Common non-farm expenses include consumption items such as: food, clothing, furniture, other household goods, entertainment, donations etc. Some expenditures may be for investment in a non-farm business (i.e., equipment, supplies or investment in a building or space for the business etc.) or for investing in or building household assets (i.e., contributions to a village savings and loan association, other savings, insurance, improvements to the house, school fees for children's education or medical fees for household members

health etc.). The farmer may want to differentiate expenditures for consumption and investment using a different type of arrow.

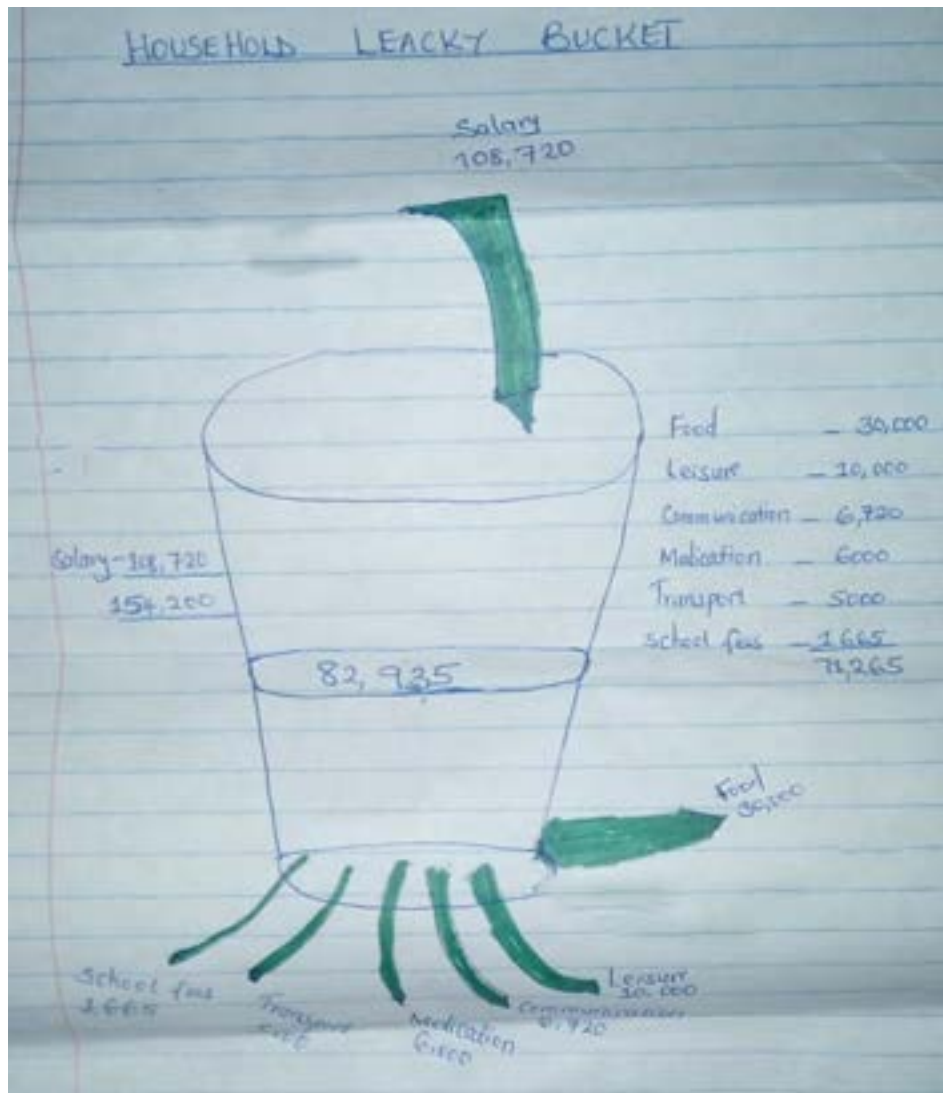
6. Please calculate your **Net Off-Farm Income** for the year by subtracting your **Total Off-Farm Expenses** from your **Total Off-Farm Revenue**.



Off-Farm Household Leaky Bucket (ICRAF template)

Field staff can ask each farmer to produce her/his own **Off-Farm Household Leaky Bucket** with numbers written on each flow (see example on the next page).

As with the On-Farm Household Leaky Bucket, field staff could take a picture of the farmer's Off-Farm Household Leaky Bucket, enter the data into a digital leaky bucket, print it off and give a copy back to the farmer so that she/he has both the original leaky bucket she/her drew with a more professional looking digital bucket for their records.



Picture taken by ICRAF field staff of an Off-Farm Household Leaky Bucket

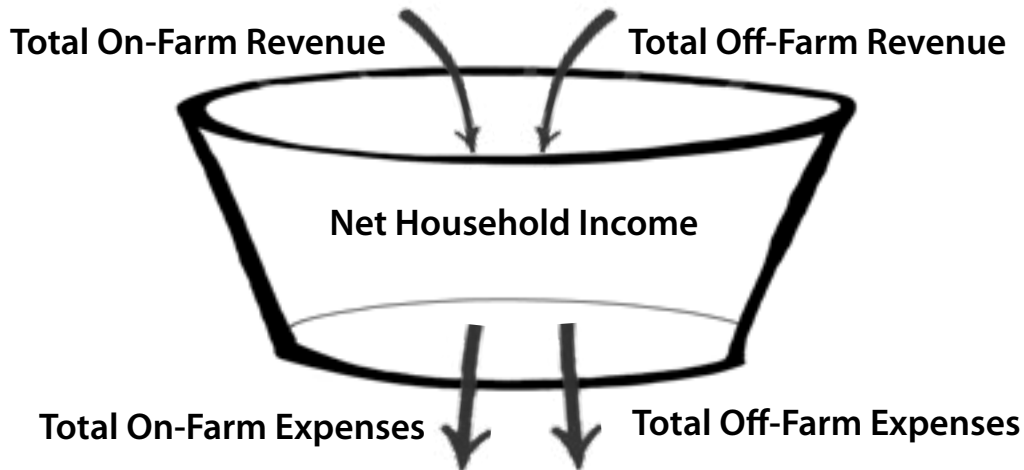
Section 3

Instructions for Facilitating an Integrated Household Leaky Bucket

The **Integrated Household Leaky Bucket** is the easiest leaky bucket to complete. There are only four arrows – two inflows and two outflows all of which have already been calculated by both the **On-Farm** and the **Off-Farm Leaky Buckets**.

Instructions:

1. Take **Total On-Farm Revenue** from the **On-Farm Household Leaky Bucket** and place this as an inflow arrow in the **Integrated Household Leaky Bucket**.
2. Take the **Total Off-Farm Revenue** from the **Off-Farm Household Leaky Bucket** and place this as an inflow arrow in the **Integrated Household Leaky Bucket**.
3. Take **Total On-Farm Expenses** from the **On-Farm Household Leaky Bucket** and place this as an outflow arrow in the **Integrated Household Leaky Bucket**.
4. Take the **Total Off-Farm Expenses** from the **Off-Farm Household Leaky Bucket** and place this as an outflow arrow in the **Integrated Household Leaky Bucket**.
5. Finally, subtract **Total Integrated Household Leaky Bucket Expenses** from **Total Integrated Leaky Bucket Revenues** to come up with **Net Household Income** and place this figure in the centre of the bucket.



The Integrated Leaky Bucket can be constructed simply by taking the total On-Farm Off-Farm Revenues and Expenses from the On-Farm Household Leaky Bucket and the Off-Farm Household Leaky Bucket

As with the **On-Farm** and **Off-Farm Household Leaky Buckets**, field staff can take a picture of the farmers' **Integrated Household Leaky Bucket** and when back at the office, enter the information from the diagram into a digital version of the household leaky bucket and then into a data base. Field staff could then present the digital version of the **Integrated Household Leaky Bucket** back to the farmer for her/his records.

The **Integrated Household Leaky Bucket** provides important data for farmers to make farm and household financial decisions. Other important financial information for farmers to track are the assets and liabilities of both the farm and the household. To this end, ICRAF and the Coady Institute have been working on a method of helping small producers distinguish farm (and also household) expenditures that are operational (or consumption oriented) and those that investment oriented. Specifically, this model distinguishes expenditure for investments (that has an expected future value) from consumption (that primarily has an immediate value). Investments are further subdivided in assets-building expenditure that leads to the accumulation of various types of physical assets (both farm and household assets) and operational expenditure that is required to keep various businesses running that do not lead to asset accumulation.

We are still testing approaches to doing this with smallholders in Kenya and expect to have another version of this guide (or an accompanying guide) that includes assets and liabilities later in 2019. Beyond providing farmers with a better basis for decision-making, deconstructing changes in expenditure and revenue both on-farm and off-farm further can also help external actors to analyze and understand changes in household behavior more comprehensively.

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