USAID
FROM THE AMERICAN PEOPLE

PARTICIPANT FINANCIAL ANALYSIS FOR RESILIENCE FOOD SECURITY ACTIVITIES

February 2023

This publication is made possible by the support of the American People through the United States Agency for International Development (USAID) and was prepared by Integra Government Services International LLC for the Learning, Evaluation, and Analysis Project (LEAP III) Activity.

PARTICIPANT FINANCIAL ANALYSIS FOR RESILIENCE FOOD SECURITY ACTIVITIES

Technical Guidance and User-Document

Contract Title:	LEAP III: Learning, Evaluation, and Analysis Project
Contract Number:	GS-10F-083CA / 7200AA18M0004
Activity Number:	LEAP III 2021 - 1009.1051
Submitted:	February 28, 2023
Contractor:	Integra Government Services International LLC 1156 15th Street NW, Suite 800 Washington, DC 20005 Limestone Analytics LLC (Subcontractor)
USAID Office:	Bureau for Humanitarian Assistance
COR:	Erin Shutty, eshutty@usaid.gov
Authored by:	Kristen Schubert (Limestone Analytics) Bahman Kashi (Limestone Analytics) Shahryar Afra (Limestone Analytics)

TABLE OF CONTENTS

ACRONYMS

BHA	Bureau for Humanitarian Assistance
IGA	Income Generating Activity
IP	Implementing Partner
PFA	Participant Financial Analysis
RFSA	Resilience Food Security Activities
USD	US Dollar

1.0 BACKGROUND AND DEFINITIONS

This technical guidance helps implementing partners (IPs) conduct Participant Financial Analysis (PFA) of livelihood interventions as part of Resilience Food Security Activities (RFSAs). The purpose of this guidance is to be a reference manual for activity designers and researchers in understanding the PFA requirements and how the PFA can inform decisions to prioritize livelihoods, as well as suggestions for additional considerations, best practices, and tips to ensure consistency and quality. This technical guidance also includes sample calculations, which can be used as a template. This document fits into PFA analyses as follows:

PFA - Initial Financial Analysis	Is required as part of the application to justify that each proposed livelihood intervention is expected to increase participants' incomes in a simplified manner.
PFA - Refined Financial Analysis	In the refinement phase, which affects the awardee and begins during award implementation, more specific data and calculations might become necessary for the PFA - all are explained in this technical guidance document. This must be presented at the Culmination Workshop.
Optional PFA in implementation	During the refinement year or later (i.e., during implementation), specific questions may arise that PFAs could be tailored to answer. This *optional* analysis is covered in a separate document titled "Optional Uses for Applying Participant Financial Analysis During the RFSA" (available as an accompanying resource).

The PFA - Initial Financial Analysis in the pre-award phase is meant to be a simple yet helpful exercise to confirm that proposed livelihood interventions will benefit the activity participants financially. PFA may also help prioritize those livelihoods and interventions based on profitability for the farmer/worker/entrepreneur. There is no expectation of completing a more sophisticated analysis than outlined in this technical guidance, but IPs are welcome to do so if they find it useful.

This guidance provides IPs with simple yet valuable guidance to complete the PFA requirement in the application and refinement phase and even further during the implementation. It also provides ideas for further analysis where they make sense and is feasible. Conducting PFA does not require economic or financial analysis expertise, and none of the referenced tools are mandatory. IPs can apply different tools to answer questions about the financial attractiveness of each livelihood intervention (including tools not mentioned in this document).

OBJECTIVES OF PFA

PFA - Initial Financial Analysis: PFA (pre-award) during the RFSA application is to ensure that each livelihood intervention will make the direct participants (i.e., farmer/worker/entrepreneur) better off financially than they would be without the intervention. PFA can help livelihood and intervention

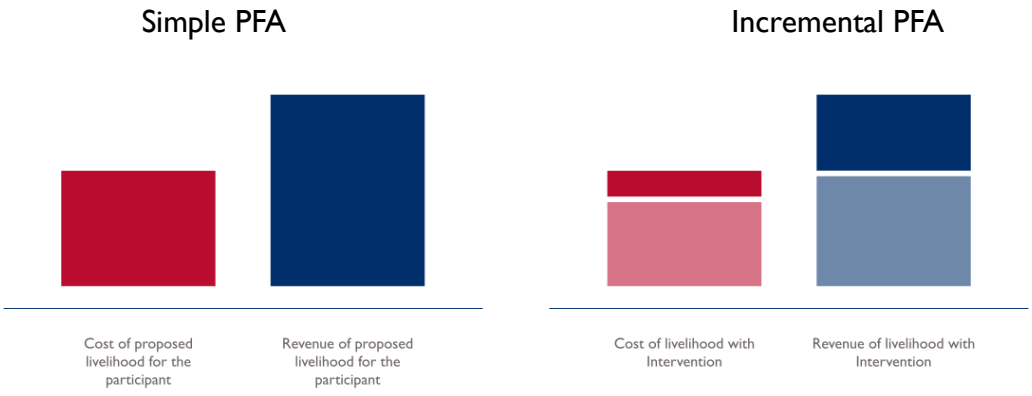
selection and prioritization from a financial attractiveness perspective in a simplified manner. PFA does not address other relevant considerations such as risk, climate, undernutrition, and poverty.

PFA - Refined Financial Analysis: Successful applicants will require more detailed financial calculations for livelihood interventions post-award phase during the RFSA refinement year. The refined financial analysis goes deeper into the assumptions behind each intervention and aims to answer specific questions that may arise during the refinement year. IPs may want to additionally explore specific questions such as targeting, adoption, scaling, assessing sustainability, and affordability. Specific, optional uses for PFA have been provided as an accompanying resource to understand how to use PFA to examine specific design questions more closely (as optional analysis).

PFA during the implementation phase: During the implementation phase after the refinement year, IPs may be asked to update their PFA at any point as better data becomes available or as interventions become more specific.

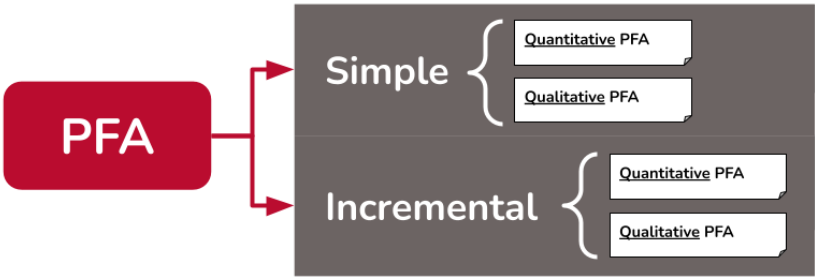
SIMPLE VS INCREMENTAL PFA

PFA can take a simple or incremental approach. The simple approach focuses on the financial flows of the livelihood for the participants who adopt it. In contrast, the incremental approach focuses on marginal gains and losses compared to current practices.



QUALITATIVE VS QUANTITATIVE PFA

PFAs can be qualitative or quantitative. **Qualitative PFA** is an assessment of potential livelihoods without any calculations. Specific numerical figures are not required in this analysis. **Quantitative PFA** includes numerical figures (and) percentages and reports financial measures. Both simple and incremental PFAs can be quantitative or qualitative. Therefore, there are four possible PFA approaches: simple quantitative, simple qualitative, incremental quantitative, and incremental qualitative.



TENTATIVE VS DEFINITIVE LIVELIHOODS

During the application stage, livelihoods can be tentative or definitive. **Tentative livelihoods** are the ones that IPs may or may not engage with if they get the award. These livelihood interventions will need additional research during the refinement year, or even beyond, before making a final decision. **Definitive livelihoods** are the livelihood interventions implemented in the first year of programming. For the RFSA application stage, BHA requires using Qualitative PFA for tentative livelihoods and Quantitative PFA for definitive livelihoods.

PRACTICED VS NEW LIVELIHOODS

Livelihoods can be practiced or new. **Practiced livelihoods** are those that the participants currently practice (e.g., farming peanuts, which can be improved but is not a new livelihood). **New livelihoods** are the ones that are new to the participants (e.g., a new trade skill such as shoemaking). For the RFSA application stage, BHA requires Incremental PFA for practiced livelihoods and Simple PFA for new livelihoods.

REQUIRED PFA TYPE DURING THE APPLICATION STAGE

All four types of PFA could be relevant for the application stage. New livelihoods require simple PFA, while practiced livelihoods must undergo incremental PFA. The PFAs for tentative livelihoods can be qualitative, while quantitative PFA is required for definitive livelihoods.

PFA Type	Tentative → *QUAL*	Definitive → *QUANT*
New → *SIMPLE*	Qualitative Simple	Quantitative Simple
Practiced → *INCREMENTAL*	Qualitative Incremental	Quantitative Incremental

ACCOMPANYING PFA RESOURCES

There are several associated resources to help IPs develop PFA calculations and integrate these findings into their design and implementation. You may find links to these resources in the footnote. Accompanied resources are as follows:

- **Incremental PFA Example (Spreadsheet):** This file includes quantitative incremental PFA example for your reference. The spreadsheet is useful for seeing how the calculations are done and can also be a helpful template for IPs for their own Incremental PFAs.
- **Tool for Presenting Quantitative PFA Results (Spreadsheet):** This file provides a template for IPs to aggregate their quantitative PFA results for definitive livelihoods in one place. It automatically creates the graphs IPs can use in their reports or during the Culmination Workshop to satisfy the PFA requirement during the application phase and refinement year.
- **Optional Uses for Applying PFA During the RFSA:** This is a series of additional technical How-To notes to help IPs apply the PFA to livelihood activities.
- **Simple Profitability Tool**: You may refer to the BHA Simple Profitability Tool for Livelihoods located on the USAID website[1].
- **Asynchronous Training on PFA:** This guidance provides a series of asynchronous courses with detailed instructions for carrying out a PFA.

[1] https://www.usaid.gov/document/bha-simple-profitability-cba-tool-livelihoods

2.0 HOW TO PERFORM PFA DURING THE RFSA APPLICATION PHASE

BHA requires that IPs detail their understanding of the financial impact of livelihood interventions, where the primary purpose is to increase income. PFA - Initial Financial Analysis requires investment costs, net income, and simple risk analysis for each tentative and definitive livelihood intervention. Tentative livelihoods require a qualitative PFA, while definitive livelihoods must be analyzed quantitatively. Whether proposed livelihoods are "new" or "already practiced," a simple or incremental PFA should be conducted, respectively. Successful applicants will require more detailed financial calculations for livelihood interventions during the Refinement Phase (PFA - Refined Financial Analysis). All livelihoods would be considered definitive at the refinement stage. All PFAs during the refinement year are quantitative and require calculations.

The PFA is done from the perspective of a typical RFSA farmer, worker, or entrepreneur for each intervention. Please use reasonable cost and revenue estimates depending on the type of participant you intend to work with. The IPs may consider disaggregating a PFA by the farmer/worker/entrepreneur type or geographic region if there are sufficient differences. Disaggregation may be helpful when these differences can result in significant variations in the expected revenue or costs. IPs do not need to conduct a PFA at an aggregate level (scaling the intervention to include all potential direct participants).

The PFA is looking for two specific estimates per intervention: (1) the upfront investment costs and (2) the net income (or net revenue). Qualitative PFAs rely on comments about the investment costs and net income. For quantitative PFAs, both figures should be calculated in US Dollars. If interventions are expected to be delivered together (e.g., agriculture extension packages promoting weeding and drought-resistant seeds), please estimate the investment costs and net income for the combined intervention.

Note that the PFA proposes several shortcuts to more sophisticated analyses. Among these, we recommend ignoring the value of all non-cash items except for unpaid labor (in an incremental PFA). This means there is no need to put a value on recycled seeds or commodities collected from the forests. We also conduct the PFA using current prices; this analysis does not account for inflation or require discounting future values. However, if the RFSA is in a context with hyperinflation, be careful that all prices and exchange rates in the analysis are from the same year or period.

Two tools are available for quantitative PFAs. An Excel template[3] is provided for structuring the underlying calculations of an Incremental PFA. For simple PFAs, you may use the Simple Profitability Tool on the USAID website[4]. Quantitative PFAs produce the following estimates:

- **Investment Costs**: What initial investment costs are likely for the farmer or worker/entrepreneur (such as time spent in training, investing in new equipment, and other start-up costs)? This should be a figure in USD and includes investments of participants' money and time spent on this activity.

- **Net revenues:** What is the impact of the interventions on participants' profit, or how much will they earn using promoted practices in a typical year? Please outline the net revenues in USD for a "typical year." The typical year is likely to be when the farmer or worker/entrepreneur maximizes their revenues after adopting all changes from the intervention.

- **Net incremental revenues:** What is the incremental impact of the interventions on participants' income, or how much more will they earn beyond their income using current practices in a typical year? Please outline the net incremental revenues in USD for a "typical year." The typical year is likely to be when the farmer or worker/entrepreneur maximizes their revenues after adopting all changes from the intervention.

[3] This Excel template is called the "Participant Financial Analysis Guidance Examples", available as an accompanying resource.

[4] This Excel template is called the "BHA Simple Profitability CBA Tool for Livelihoods", located on the USAID website and is available as an accompanying resource.

INVESTMENT COSTS

What are the initial investment costs required of the farmer or worker/entrepreneur to engage in this intervention? The investment costs in this guide refer to initial investments farmers and workers/entrepreneurs make with their own money and time required for long-term changes. These are likely to be at the onset of their participation in the intervention and a one-time expense.

Here are some common examples:

- Equipment for irrigation
- Improved housing for animals
- New machinery such as a thresher
- Fish pond establishment, and
- Wheelbarrows
- Capital investments in equipment to start a business such as sewing machines, tools, and trading licenses
- Time spent in training or installing equipment (only relevant for incremental PFA)

When performing an incremental analysis: IPs will need to account for the cost of any labor for the initial investments, whether hired or unpaid. New interventions often require extra time from the direct participants. Although often this time is not paid for in a cash transaction, IPs need to consider the value, or **opportunity cost of labor**, of this time. For unpaid labor, considering IPs are mostly working with indigent households, this is best valued by the hourly or daily wage rate in the area for unskilled labor and multiplied by the number of hours or days required for each person to participate in the investment. For paid labor, simply use the wages for this intervention. Please note that being unemployed does not translate to no opportunity cost.

When performing simple profitability analysis: In addition to the investment costs incurred by the participant, the simple profitability tool requires listing the value of items/grants given by the project. This information helps the simple profitability analysis estimate the viability from an aggregate (investment) perspective. The opportunity cost of labor or the owner is not considered in this analysis.

How to calculate the investment costs? The investment cost calculation could be structured as follows:

Investment *Possible items listed below*	**Number of units**	**Price per unit**	**Total amount invested** *(number of units * price per unit)*
Training costs/fees			**$**
Equipment			**$**
Tools			**$**
Machines			**$**
Trading licenses			**$**
Installation			**$**
Materials			**$**
Time spent in training (if applicable)	*days/hours*	*Opportunity cost of labor (e.g. daily wage rate)*	**$**
Other (please describe)			**$**
GRAND TOTAL			*Summarize all cells above*

IPs do not need to consider ongoing maintenance costs for equipment/materials in the calculations, but this is an important consideration for sustainability planning after the refinement year.

NET INCOME (SIMPLE PFA)

The objective is to estimate profit (net revenue) for each livelihood activity. Note the typical year is replaced with "season" in the simple profitability tool. The objective remains the same as the task is to estimate the net income from the perspective of a complete cycle of repeatable business activities. Depending on the nature of the activity, this cycle can be a season, a year, or any other period. IPs must calculate the ongoing costs and deduct them from revenues per period to estimate the net revenue. If the result is positive, the business can be profitable for that period. Examples of ongoing costs and revenues are provided below based on the simple profitability tool.

Ongoing costs per season: Regular inputs or raw materials, labor (not including the owner), spare parts and repairs for equipment, transportation, shop rental, marketplace fees/dues, storage, recurrent registration or licensing, electricity, and perhaps depreciation for expensive equipment.

Revenues per season: Usually from sales. Make realistic assumptions (talk to current business owners) and estimate cautiously (a new business will take a while to get sales).

Besides the net revenue, the simple profitability analysis tool estimates the break-even time, which simply reveals how long profits take to be greater than the startup costs.

Name of Activity	Animal Fattening/Finishing		
Length of Business Season	2 month(s)		
Value of Startup Costs (Cash or In-Kin	**Quantity**	**Unit Cost**	**Total Cost in USD**
Sheep	2	$ 80	$ 160
Goats	3	$ 48	$ 144
Fodder, by kilo	161	$ 0.80	$ 129
Wheelbarrow and other items	1	$ 20	$ 20
Total Startup Costs			**$ 453**
Ongoing Costs Per Season (2 months)	**Quantity**	**Unit Cost**	**Total Cost in USD**
Restock Fodder (by kilo)	245	$ 0.80	$ 196
Veterinary Costs	-	-	$ 30
Restocking Sheep	2	$ 80	$ 160
Restocking Goats	3	$ 48	$ 144
Transport to market, round-trip	3	$ 7	$ 21
Market Fees	1	$ 5	$ 5
Total Ongoing Costs Per Season (2 months)			**$ 556**
Revenues Per Season (2 months)	**Quantity**	**Unit Price**	**Total Sale Price in USD**
Sales of Sheep	2	$ 161	$ 322
Sales of Goats	3	$ 96	$ 288
Total Revenues Per Season (2 months)			**$ 610**
Profit (Net Revenue) Per Season (2 months)			**$ 54**
Time to Break-Even		8.4	seasons
Number of seasons per year		5	seasons
Total Annual Profit			**$ 270**
Average Daily Profit			**$ 0.74**

NET INCOME (INCREMENTAL PFA)

This analysis compares the projected changes to costs and revenues (or benefits) of a livelihood with and without USAID's intervention. This is called an **incremental analysis** and allows us to understand how much more income the farmer/worker will have, compared to current practices, as a result of the intervention while also considering the incremental costs necessary to achieve that increase in income. This can be done when the livelihood is practiced, and the comparison is possible.

This calculation is only required for a **typical year** of operation or a typical growing season (if there are multiple growing seasons in a year) using the best available data or assumptions. A "typical" year would be one in which the changes from the intervention are fully realized (all expected behaviors have been adopted, and access to resources and markets is fully realized). This may be years after the intervention; for example, for interventions that promote new trees or vines that may take years before the first harvest, use a year in which the full benefits of those investments are expected.

Approach the incremental analysis as a partial budget analysis: only include those revenues and costs impacted by the intervention. This analysis does not consider the revenues or costs in the business that are left unchanged.

How to calculate the incremental analysis? What will impact the farmer/worker's future revenues and ongoing costs? This is done by calculating the net revenue (or net income) for the **intervention scenario** by subtracting costs (or cash outflows) from gross revenues (or cash inflows). Do the same for the current practices of the farmer/worker (referred to as the **current practices scenario** in this document). Finally, subtract the net revenues in current practices from the net revenues in the intervention scenario; this is called the net incremental revenue and can be calculated using either of the two following approaches:

Approach 1	*Intervention scenario net revenues= gross revenues with intervention - costs with intervention* *Current practices scenario net revenues= gross revenues with current practices - costs with current practices* ***Net incremental revenue =*** ***Intervention scenario net revenues - current practices net revenues***
Approach 2	***Net incremental revenue =*** ***(gross revenues with intervention - costs with intervention) - (gross revenues with current practices - costs with current practices)***

This equation results in **net incremental revenue,** which is a crucial decision criterion for the intervention. This figure should be a positive number, meaning farmers are financially better off with the intervention than in current practices. In other words, they will benefit financially from this intervention

in a typical year. If the figure is negative, farmers would be financially worse off with the intervention than they would have been with current practices. If an intervention with negative net incremental revenue is proposed, it must have a strong justification. An example could be the case where a farmer might participate in an intervention that is financially inferior but provides better health or nutrition for the household members.

The net incremental revenue differs from the gross margin analysis commonly used in livelihood activities. Calculating all marginal/variable costs to production is unnecessary, as in a gross margin analysis. However, only estimate those costs expected to change due to the intervention. And unlike a gross margin analysis, there is no need to calculate the value of unpaid labor, if labor is not expected to be impacted as part of the intervention. A deeper discussion is included below on what costs need to be included.

WHAT COSTS SHOULD BE INCLUDED IN THE INCREMENTAL ANALYSIS?

Economic livelihood activities are a production process where inputs are used to create products or services for sale or consumption. Interventions impact these production processes by changing their costs and revenues. All production costs expected to change due to the intervention need to be considered in the Participant Financial Analysis. This could include variable costs that increase or decrease depending on how many commodities or products a farmer, worker, or entrepreneur produces (e.g., a farmer's storage costs will increase as her yields increase). Relevant production costs could also include fixed costs that do not change, regardless of how much the farmer or worker produces. For example, suppose an intervention introduces small-scale irrigation systems that require users to pay a regular water fee. In that case, this is a **recurring** cost new to the farmer due to the intervention and needs to be included in the incremental analysis. Examples of production costs are:

FARM RELATED EXAMPLES OF PRODUCTION COSTS	NON-FARM RELATED EXAMPLES OF PRODUCTION COSTS
Seeds, fertilizers, manure, pest and disease control, water, water fees, feed, veterinary care, transportation, storage, and labor*	Raw materials, items for resale, heating, lighting, water, transportation, and labor*

** see details on how to price labor above in the section on Investment Costs*

Please note that for interventions that promote wage labor (e.g., babysitters, cleaners, migration for employment), IPs do not need to value their labor as an input/cost.

Costs unaffected by the intervention do not need to be considered. For example, an intervention that proposes promoting improved seeds to the farmer will need to consider the cost of seeds with current practices and the costs for the improved seeds. However, if this intervention is unlikely to affect how

much fertilizer they applied, costs for fertilizer do not need to be considered. However, consider all direct and indirect costs of the intervention: improved seeds will likely increase yields, but this may also mean that labor will increase to harvest, transport, and sell this surplus yield.

Costs that are part of the initial investment and are not expected to recur in each year/season should not be included in this analysis (but should be part of the investment cost analysis described above).

IPs must understand the quantity used by the farmer or worker/entrepreneur and the market price for all relevant costs. These are multiplied to estimate the total cost value for each item.

WHAT REVENUES SHOULD BE INCLUDED IN THE INCREMENTAL ANALYSIS?

The revenues for farm-related interventions will likely come from their crop or animal production. Revenues include anything consumed by the household or sold on the market. Own consumption must be valued at the market price of the commodity or service. In non-farm-related interventions, revenue will come from the products they sell (e.g., petty trading, small enterprise sales) or their services (e.g., self-employment or wage labor activities). The income for the current practices and income with the proposed intervention must be estimated separately.

Any increase in yields/animal production/products or overall income must be identified in the analysis (e.g., indicate that yields are assumed to increase by 25 percent). There is no need to consider post-harvest losses or animal mortality unless the intervention proposes to reduce either of these losses, in which case the incremental difference in yield or production will change and needs to be reflected in the revenue assumptions.

There are other ways revenue may increase other than an increase in yields, animal production, or products, depending on the intervention. For example:

- Interventions may not target increased yields at harvest but try to reduce post-harvest losses. In this case, the revenue difference between the intervention scenario and the current practices equals the expected reduction in post-harvest losses.

- Interventions may aim for value addition by introducing early varieties or grading and sorting to get better prices on the market. In this case, incremental revenue is the difference between the price with the intervention scenario and the price with current practices multiplied by the quantity.

- Interventions may aim to improve the quality of the animal to achieve a higher market price rather than an increase in animal production. In this case, the revenue difference between the

intervention scenario and the current practices will be the higher market price multiplied by the amount of meat produced at a higher quality.

- Interventions may try to improve grasslands so that animals gain more weight. The value of this intervention is in the amount of weight the animals gain and the price for that incremental increase in weight (or the difference between the weight with the intervention and with the current practices).

- Off-farm interventions may help a small entrepreneur access a machine that saves her time in producing that product; it may be that she does not produce any more products, and therefore her revenue will not change with the intervention (although her costs for labor are expected to decrease).

Add up all sources of income that are relevant to this intervention. For example, an intervention to increase the size of sheep herds will mean more meat and wool from new sheep, both of which have financial value to the farmer.

RISK

Interventions can be both risky and promising. Likewise, interventions can also be low-risk and not promising. Here are some common examples:

- There could be a slow start, with low (incremental) revenues, because of a gradual learning process, establishing relationships for buyers in markets, growing bargaining power for farmers within supply chains, slow-growing trees/vines or other crops that take time to reach their harvest potential, building a clientele for income generating activities (IGAs), etc.
- Certain investments promoted by the intervention may need periodic maintenance on equipment, infrastructure, etc. This may not happen yearly, but it will happen in the future.
- Certain costs may be expected to change over time; for example, cassava farmers will need to replace their stems every 3-4 years.
- Specific risks could include: dependence on government regulation/policies, crops particularly vulnerable to drought, unclear if crop surplus can be absorbed in an area, unstable market prices for certain products, etc.

There are many risks and uncertainties when identifying exact figures for the variables in the PFA. For example, climate change may mean IPs cannot rely on historical yield trends. Try to use conservative figures, or those not overly optimistic, whenever there is doubt. If IPs are interested in thinking more carefully about risks and income possibilities under different scenarios, please see the Optional Uses for Participant Financial Analysis for guidance on how to do this using the PFA.

HOW TO INTERPRET THE RESULTS OF THE PFA

At a minimum, the PFA is meant to ensure that each income-generating intervention is financially attractive (revenues greater than costs for a typical period). This is to justify the selection of the intervention from a financial perspective. IPs should examine the results of their analysis as follows:

- Consider the **investment costs** that were also calculated. Investment costs need to be manageable for the participants. How do these compare to the net revenues that farmers/workers/entrepreneurs will experience over time? It may depend on the participants' savings level, but as a quick way to think about this, the investment costs should not be much more than the net revenue of a typical year. This would take the participant more than one year (or one growing season) to pay off their investments. If the investment costs are considerably higher than the incremental incomes, the participant may take a while to pay off their investment costs. As one can imagine, this is a heavy burden for the extremely poor and chronically vulnerable. This is useful information for considering who the participants ought to be: High investment costs, especially those high compared to the net incremental revenue, may be better for participants who are relatively better off financially than the very poor.

- **Net incremental revenues** should be above 0 USD (i.e., a positive number). This means that the farmer/participant can sustain the operation. In incremental PFA, positive net incremental revenue means the participant is better off than in a typical year, even if their ongoing costs increase. The higher their net incremental revenues, the larger the impact the intervention will have on their income. Although financial benefits are just one of several other considerations in designing an intervention (e.g., climate sensitivity, nutritional value, helping disadvantaged women or youth populations), carefully consider interventions where the participants would be worse off financially than before the intervention. Interventions with a negative net incremental revenue should be rejected or closely examined during the refinement phase.

Leading up to the Culmination Workshop: Net incremental revenues, or net revenue in the case of simple PFA, should inform how IPs prioritize livelihood interventions leading up to their Culmination Workshop. The highest net incremental or net revenues indicate that the participant has the most financial gain. This indicates that the intervention will have the greatest ability to enable the participants to produce or purchase quality food, an essential measure of food security. However, there is no expectation from BHA that this analysis is the only consideration when prioritizing livelihoods. Financial impact also needs to be balanced against which interventions are low-risk and affordable, while also promoting other objectives under the RFSA. Objectives to be considered are community priorities, exposure to shocks, the relevance of the livelihood to the targeted groups, feasibility, integration with other RFSA components, complexity and sustainability, and environmental impacts.

EXAMPLES

EXAMPLE 1: DECORATIVE HANDICRAFT PRODUCTION (NEW TENTATIVE LIVELIHOOD - QUALITATIVE SIMPLE PFA)

- **Intervention**: Promoting decorative handicraft production among women.
- **Background**: Due to the high demand for handicrafts by tourists in this region, handicraft production can become a good source of income for women. Currently, the production quality could be better, and no appropriate handicraft markets are available in this region for tourists. We plan to promote improved production of handicrafts through a series of training and to dedicate a well-constructed market for artisans to produce and present their products.
- **Investment Costs**: The average artisan will participate in 5 days of training. Potential artisans will require to buy essential tools. Investing in such tools can be done gradually as they get more experienced.
- **Simple Qualitative Analysis**: Raw materials are generally cheap and available through the local market. Artisans can start with a low inventory and increase it as required based on the availability of financial resources. Artisans can produce and present handicraft production in dedicated kiosks at a relatively low rental price.

EXAMPLE 2: CHICKEN PRODUCTION (PRACTICED TENTATIVE LIVELIHOOD - QUALITATIVE INCREMENTAL PFA)

- **Intervention**: Promote improved production practices for chickens.
- **Background**: The aridity of the intervention area makes livestock production a promising livelihood, as crop production can be very uncertain. Indigenous chickens are the third most important type of livestock in this region and are particularly important for the extremely poor. Females typically manage poultry. We plan to promote improved production practices for chickens, including improved housing, vaccinations, control of internal and external parasites, minimizing inbreeding, and supplementary feeding. Additionally, we will introduce improved indigenous breeds; the Boschveld free-range chicken is an improved dual-purpose, fast-growing breed resistant to local diseases and pests.
- **Investment Costs**: Two days of training, focused on improved knowledge and breed selection, animal health, feeding practices (use of high protein feed to increase yields), and housing (basic construction for the hens using local materials).
- **Qualitative Incremental Analysis**: Families sell hens during the year, but the current weight is below average. The price for indigenous chickens is roughly half of the improved breeds due to

lower quality. Improved practices will increase the weight per hen and the price per kg. Additional veterinary costs (vaccines and parasite treatment) are also expected.

EXAMPLE 3: HONEY PRODUCTION (NEW DEFINITIVE LIVELIHOOD - QUANTITATIVE SIMPLE PFA)

Participants will be trained to begin a beekeeping business. These participants may have many backgrounds in their current practices, and it is challenging to assume a common current practice and find incremental costs and revenues. Furthermore, since these individuals are switching entirely from one business to another, all their inputs will change, and there will be no accurate estimations for incremental analysis. Therefore, a simple profitability analysis should be performed by IPs for this intervention.

- **Intervention**: Promoting beekeeping enterprises.
- **Investment Costs**: As part of this intervention, traders are expected to participate in three training days. Using the local unskilled daily wage rate of 1.1 USD, the opportunity cost of this time is 3.3 USD per person. The farmers will also purchase five beehives (60 USD), a smoker (10 USD), and buckets for honey collection (9 USD). Total: USD 82.30
- **Simple Profitability Analysis**: With the beekeeping intervention, the participants could earn income from selling honey at 563.00 USD.
- Beekeepers must purchase supplemental feeding for the bees, costing 30 USD annually. Beekeeping will require 183 days of labor each year. These days are valued at the unskilled daily wage rate of 1.1 USD for a total increase in labor costs of 143 USD. Other input annual costs for beekeeping include smoker fuel (10 USD) and empty containers (30 USD). Total: USD 271.30
- **Net revenues**: USD 291.70 per year

EXAMPLE 4: MAIZE PRODUCTION (PRACTICED DEFINITIVE LIVELIHOOD - QUANTITATIVE INCREMENTAL PFA)

With the implementation of climate-smart agriculture, yields are expected to increase 25 percent by the third year of the program, in line with experience in this area with other donor programs. This change occurs because the farmers are switching from local variety seeds to drought-tolerant seeds that are expected to improve yields in both average rainfall years and years with little water. Additionally, labor is expected to increase for improved planting and tilling and harvest of the increased yields. The design team believes only the cost of seeds and labor will change in this case due to the intervention. Inputs like fertilizer or transportation are not expected to change. Therefore, there is no need to quantify and estimate such inputs.

- **Intervention**: Drought-tolerant maize and improved planting and tilling practices.
- **Investment Costs**: The average farmer will participate in 5 days of training. The local unskilled daily wage rate is $1.10. The opportunity cost of time is then $5.50. Farmers will be encouraged to buy ripper tines with attachments for $25 and 2 hoes for weeding for 20 USD in the first year. Total: USD 50.50
- **Incremental Analysis**: Yields are expected to increase by 25% (by the third year), creating 80 kg more maize. The maize price is currently $2.69. Revenues will increase by $215.20 per year.
- Labor is expected to increase by ten days for improved planting, tilling, and harvesting ($11 more each year). Farmers currently recycle 10 kg of local seed varieties for planting, which costs $26.90. Drought-tolerant seeds cost $4 per kg (seed costs increase by $13.10). Costs will increase by $24.10 per year.
- **Net incremental revenues**: $191.10 per year

3.0 HOW TO PERFORM PFA DURING THE RFSA REFINEMENT YEAR

HOW DOES THIS COMPARE TO OTHER REFINEMENT YEAR ANALYSIS?

This PFA complements other analyses IPs will be required to consider as part of their refinement year, such as value chain analysis or other market analyses. This section discusses two other common analyses in the refinement period and how information from these analyses could help complete the PFA to understand the potential income of the livelihood intervention for the target participants.

A **value chain analysis** is one of several market systems approaches with a broader focus than the PFA. Value chain analysis seeks to understand the firms that operate within an industry—from input suppliers to end market buyers; the support markets that provide the industry's technical, business and financial services; and the business environment in which the industry operates. This is compared to the PFA, which focuses only on the farmer or worker/entrepreneur, which is just one stakeholder in the value chain. However, the prices along this value chain influence the farmer/worker/entrepreneur.

The value chain analysis can help understand if there will be a sufficient supply of inputs in the market to scale the intervention. It can also analyze if there will be sufficient demand in the end market will be for an increased supply of commodities, products, or services. The information from value chain analysis can be tied into the PFA. Additionally, power dynamics along the value chain will influence the price the farmer or worker/entrepreneur will receive for their commodities, products, or services. A value chain analysis can help inform the price structure of inputs and sales for the target participants and their profitability in the basic PFA.

IPs may also consider a **market systems resilience study**. These studies tend to be similar to the value chain analysis explained above but with a heavier focus on the interconnections along the value chain and their vulnerability to shocks and stresses. As with the value chain analysis, this is a much broader focus. The results of this study may be useful for understanding the risks that are unique to the commodities, products, or services promoted in each intervention and how that might affect the profitability and vulnerability of the farmer or worker/entrepreneur.

INTRODUCTION TO HOW-TO NOTES

- **Optional Uses for Applying PFA During the RFSA**: This is a series of additional technical How-To notes[5] to help IPs apply the PFA of livelihood activities towards design questions that may become particularly relevant during the design or implementation of the RFSA. These questions include:
    - How do I compare intervention or design options?
    - What is the right level of treatment or dosing for this intervention?
    - What is required to scale this intervention?
    - How can the PFA inform M&E indicator targets?
    - How do I consider the exposure to risk in these interventions?
    - Will there be issues of affordability over time or access to finance?
    - What is the impact on the household if they are engaging in multiple interventions?

  While updating or adapting PFA using these How-To notes may be valuable at any point during application, refinement, or implementation, it is not a requirement of BHA.

The annexes in this document provide practical tools for identifying and collecting data for the PFA as part of your formative and implementation research plans and fitting this exercise into the refinement year processes.

WHAT TO REPORT IN THE CULMINATION WORKSHOP FOR PFA

The refined PFA should be presented at the Culmination Workshop. It is up to the IP when and how those results fit best, likely when discussing the Theory of Change for the pillar focused on livelihoods. Including the PFA results in your research summaries sent to BHA before the Culmination Workshop may also make sense.

At the culmination workshop, IPs only need to present the refined investment costs and PFA results for each livelihood intervention. An Excel template and a suggested format for presenting the results are provided along with this guide.[6] IPs must be able to substantiate the analysis and underlying calculations if BHA requests.

[5] This document is called "Optional Uses for PFA During the RFSA", available as an accompanying resource.
[6] This Excel template is called "Tool for Presenting the PFA Results", available as an accompanying resource.

4.0 DATA SOURCES

PFA is only as good as the information used in the analysis. Conducting PFA during the application phase is challenging, and limited data is available in the literature for many RFSA regions. That said, it may be possible to use realistic and accurate figures in the analyses by first relying on secondary sources and then fact-checking this with any primary sources, if possible. Sources of secondary information are listed below. The Annex provides recommendations for collecting primary data in your research SOWs.

SECONDARY SOURCES

Secondary sources are an easy place to start looking for data, although it is unlikely to find everything from these sources. Most of these suggested sources will be relevant for definitive livelihood interventions.

To begin, there are many value chain-specific reports available and likely in the country of interest (albeit perhaps not at the sub-national level). A couple of places to start may include:

- **USAID reports/data:** USAID has often been active in these countries, and activity reports are available on the Development Experience Clearinghouse, and data is available in the Development Data Library.

- **External reports/data:** Other donors and nongovernmental organizations may also have relevant reports, as well as academic or research institutions active in certain commodities. The Global Agricultural Research Data Innovation & Acceleration Network (GARDIAN) is the CGIAR flagship data harvester of thousands of these publications and datasets, which can search products by geography.

The following data sources may be useful in finding key data parameters for the PFA.

CURRENT AND HISTORICAL MARKET PRICES FOR KEY COMMODITIES IN THE COUNTRY OR REGION

- **FAO Producer Price Database:** This contains data on agriculture producer prices by country. These are farm-gate prices received by farmers for primary crops, live animals, and primary livestock products.

- **World Food Programme's Global Food Prices Database:** contains current and historical sub-national and market-level retail prices of select, basic commodities (e.g., cereals, oil, sugar,

pulses, nuts, livestock, cheese, milk, fruits, and vegetables). The database contains monthly data for 76 countries.

- **Famine Early Warning Systems Network (FEWSNET):** Price Bulletins and Price Watch reports provide quarterly market price information for staple crops specific to each country (e.g., rice, maize, wheat, soybeans, crude oil). This information is also available for a select number of countries in their major markets. Prices are primarily retail prices, although some wholesale prices are available.

- **National databases:** Some countries produce regular (weekly or monthly) reports on market prices, which may even be available at a sub-national level. Sometimes these are produced by the ministries of agriculture, economy, or statistical agencies.

DATA ON YIELDS AND QUANTITIES USED IN PRODUCTION PRACTICES

- Farm management handbooks or production practices handbooks.

- International Food Policy Research Institute (IFPRI) and the International Institute of Tropical Agriculture (IITA) may have very detailed reports on specific commodities.

- Ministries of agriculture will often publish average crop yields for major crops.

INPUT COSTS

Academic papers may have data on specific input costs in a country or region. This may especially be the case for heavily traded commodities. Additionally, the following resources may be helpful:

- **Wages:** Some statistics agencies will report on wage rates from their household surveys. Wage rate data may also be found in the World Food Programme's Global Food Prices Database for a subset of the countries as part of its market price database. Daily wages are differentiated by qualified labor and non-qualified, non-agriculture labor. This data is available at the sub-national level on a monthly basis.

- **Fertilizer costs:** AfricaFertilizer.org (AFO) has provided local retail prices (subsidized or commercial). This price is an average or modal price for the main fertilizer markets in sub-Saharan Africa. Average fertilizer application rates can also be found for several types of fertilizer.

PRIMARY SOURCES

IPs will likely need to rely more heavily on primary sources for quantitative data for the PFA. Even for definitive livelihood data in the literature, getting more specific information from individuals in the targeted region may be helpful. However, IPs will likely need to collect additional data to support a PFA of definitive and tentative livelihoods or the investment costs (see Annex for considerations for your research SOWs when collecting this data). Primary data collection will likely best fit your value chain or livelihood assessments. Some relevant data are collected in the baseline survey; however, the data for this survey tend not to be available before the Culmination Workshop and may not be relevant since it is a population-based survey rather than a targeted assessment of relevant farmers/workers/entrepreneurs active in the proposed livelihoods.

Interviews with the following individuals/organizations will be very useful for identifying information relevant to the PFA:

- Local agricultural colleges will have information on how local variants and improved commodities perform in the region's environment of interest. Remember that their yields are produced under ideal conditions, and these results may be too optimistic for the target participants.
- Local extension agents will likely be able to speak to current practices on the farm, market prices, and input prices.
- Local input suppliers can identify prices for key inputs.
- Smallholder farmers can speak to their current production practices, and especially information on the number of inputs they use, such as labor, seeds, fertilizers, etc.
- Local vocational schools or training institutions on average incomes for individuals who complete their programs. It may even be possible to get a sense of what professions many of these people have before entering these schools to understand the current practices scenario revenue for certain off- and non-farm IGAs.
- Individuals practicing the trades may be able to share revenues and cost information.

The Feed the Future Agricultural Indicators Guide[7] provides detailed information on collecting data on parameters useful in a PFA, specifically:

[7] Nelson, S. and A. Swindale, September 2013 (Rev. 2015), Feed the Future Agricultural Indicators Guide. Rockville, MD: Westat.

- Cash Input Costs - see Appendix 6 of the Feed the Future Agriculture Indicators Guide
- Labor Costs - see Appendix 7 of the Feed the Future Agriculture Indicators Guide

Considerations for collecting primary data in your research SOWs is provided in the Annex.

5.0 GLOSSARY OF KEY TERMS AND CONCEPTS

Current practices scenario: The scenario assumed to occur if an investment is not undertaken. In the context of this Participant Financial Analysis, this should be measured based on current practices. Other standard terms for this are the counterfactual or the without-intervention scenario.

Incremental PFA: The net financial difference between the farmer/worker's budget with USAID's intervention compared to the farmer/worker's budget in current practices (without USAID's intervention). Incremental PFA compares the projected costs and revenues (or benefits) of an intervention with the costs and revenues of the current practices or a status-quo scenario where USAID does not invest in that intervention. The incremental analysis allows analysts to determine if the intervention makes key stakeholders better off compared to their expected situation without USAID involvement.

Intervention scenario: The scenario is assumed to occur if an investment is undertaken as proposed.

Investment cost: The initial investment costs required of the farmer or worker/entrepreneur to engage in this intervention, including both their own and time.

Net incremental revenue: This is the key metric of incremental analysis. This is measured as the incremental difference between the revenues and costs in the intervention scenario and those in the current practices scenario. This should ideally be a positive number.

Simple PFA: The net financial (revenue) income for the farmer/worker's budget with USAID's intervention. PFA estimates the projected costs and revenues (or benefits) of an intervention. The simple analysis allows analysts to determine if the intervention results in a profit or not. This analysis also estimates the time to break even, total annual profit and average daily profit.

The opportunity cost of labor: In this context, this is the value of people's time in unpaid tasks that directly contribute to the intervention, such as time in training or time spent harvesting increased yields. This can be valued using the market price of labor.

Typical year/season (or any other period): When an operation is at maturity, such as when the farmer or worker has fully adopted all changes from the intervention and their investments as productive as expected.

ANNEX: MAPPING PFA INDICATORS TO COMMONLY COLLECTED INDICATORS IN THE REFINEMENT YEAR

COMMON PFA INDICATORS	COMMONLY COLLECTED IN THE BASELINE SURVEY	COMMONLY COLLECTED IN VALUE CHAIN ANALYSES
Yield (kg/ha)	✔	✔
Price per kg	-	✔
Volume of inputs (fertilizers. pesticides, irrigation, etc.)	-	✔
Unit price of inputs (i.e., fertilizers. pesticides, etc.)	-	✔
Use of mechanical and manual appliances, motorized grain mill, sprayers, etc.	-	✔
Use of irrigation	✔	✔
Size of area planted with a specific crop, herd size, etc. (ha)	✔	✔
Rental price of land, price per unit of the herd, etc.	-	✔
Family labor and salaried/formal labor (hours)	-	✔
Cost of post-harvest treatment, storage and value addition, grading, etc.	-	✔
Losses (post or pre-harvest) (kg)	-	✔
Daily labor wage (price per hour or day)	-	✔
Investment costs	-	-
Off-farm gross revenues	-	-

ANNEX: CONSIDERATIONS FOR RESEARCH SOWs

PFA aims to understand the profits of a business (revenues minus costs) in a simple way. This annex considers weaving PFA needs into other relevant research SOWs during RFSA.

Targeted stakeholders: Relevant interviewees will include potential RFSA participants and examine their current practices, as well as individuals who are already active in their livelihood in a way that the IP would like their RFSA participants to achieve (to measure the intervention scenario). If individuals are not active in a livelihood in the AOI or the targeted area, people from neighboring villages/areas may still provide useful information.

Interviewees will likely be most useful with farmers/workers/entrepreneurs; however, input suppliers, buyers, and intermediaries may be useful sources of information on prices. In-depth interviews will likely be the best tool for collecting data, although focus group discussions may also work.

Sample Size: A purposeful sample of a minimum of 8 farmers/workers/entrepreneurs or people actively working in each livelihood is ideal, although it is not statistically representative. Please target people operating in the livelihood at around the level expected for the RFSA participants (e.g. do not interview entrepreneurs with 50 employees if the goal is to help RFSA participants operate businesses with no employees). This should provide a sufficient indication of costs and revenues, although wide regional variation can be expected.

Targeted Data: The table below provides an indicative list of the types of variables required for PFAs of potential tentative and definitive livelihood interventions that the RFSA might support. The specific variables will depend on the value chains or economic activities supported by the intervention of interest. Data is only needed for the farmer or worker/entrepreneur; costs/revenues are not needed from other stakeholders (e.g. from input providers and intermediaries).

Table: Indicative list of indicators and example questions

COMPONENT	DEFINITE AND TENTATIVE LIVELIHOODS
Investment	To reach your current production level or gain your skills or other resources for this business, did you have to make any one-time investments for [*investment*]? If so, how much did you spend in total? *Investments:* training costs/fees, equipment, tools, irrigation system, improved housing for animals, new machinery such as a thresher, fish pond establishment, wheelbarrows, other materials, training costs/fees, amount of time spent in, trading licenses, installation, materials
Production characteristics	Size of area planted with a specific crop, size of the herd

Market prices (per unit)	What price did/could you receive for [*sold item*] on average in the last 12 months? *Sales item:* crops, animals, animal products, a unit of good or service provided. What was the average price for [input] in the last 12 months? *Possible inputs could include*: Crops/animals, seeds, fertilizers, manure, pest and disease control, water/fees, animal feed, leasing draft animals, veterinary care, raw materials, heating, lighting, transportation, daily wage rate for unskilled labor (for incremental analysis)
Quantities for commonly used inputs	What are the ongoing inputs to your work (if any)? How much [*input*] did you use in the past 12 months? *Possible inputs could include*: Seeds, fertilizers, manure, pest and disease control, water/fees, animal feed, draft animals, veterinary care, transportation, storage, and labor days/hours for the total planted area (including unpaid labor for incremental analysis), raw materials, items for resale, heating, lighting.
Revenue	Yields/total quantity produced, number/weight of animals sold, consumed, or given away, crop loss/animal mortality. What goods and/or services do you sell through your work? Total revenue from sales of goods or services or total quantity of goods sold
Additional questions	What type of seeds do you use? (OPV, Hybrid, Improved/certified seeds) Incremental Analysis: Before you were in the _____ business, what did you do before for work? What type of farm equipment do you use? (e.g. two-wheeled tractor, four-wheeled tractor, machine plow, ox plow, hand pump, diesel water pump, electric water pump, thresher, rice winnower, motorized insecticide pump) Incremental Analysis: Before you were in the _____ business, what did you do before for work? Can you estimate your annual profits in this work before you switch to your current business? (You may need to provide brackets for estimated profits)

These indicators may have to be adapted for different types of production (e.g., communal farming) or changed to ensure they are appropriate for the local context.