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# INDICATORS TO MEASURE THE ECONOMIC SUSTAINABILITY AND PATRONAGE VALUE OF AGRICULTURAL COOPERATIVES: RESEARCH AND RECOMMENDATIONS

March 2016
This publication was produced for review by the United States Agency for International Development. It was prepared by SSG Advisors, LLC.

Cover photos: Shutterstock.

This publication was produced for review by the United States Agency for International Development by SSG advisors, through Contract #AID-OOA-C-15-00139.

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# ACRONYMS

CDP – Cooperative Development Program
CDP/G - Cooperative Development Program/Guatemala
DEC – Development Experience Clearinghouse
FACTS – Foreign Assistance Coordinated Tracking System
FTF – Feed The Future
M&E – Monitoring and Evaluation
MIL – Master Indicator List
NCBA CLUSA – National Cooperative Business Association Cooperative League of the U.S.A.
OCDC – U.S. Overseas Cooperative Development Council
OECD – Organization for Economic Cooperation and Development
OIG – Office of Inspector General
PIRS – Performance Indicator Reference Sheet
PM&E – Participatory Monitoring & Evaluation
SMART –Specific, Measurable, Attainable, Relevant, and Time Bound
SPICED – Subjective, Participatory, Interpreted and Communicable, Cross Checked and Compared, Empowering, Diverse and Disaggregated
TA – Technical Assistance
USAID – United Stated Agency for International Development
USG – United States Government.

# I. EXECUTIVE SUMMARY

The U.S. Agency for International Development (USAID) contracted SSG Advisors, LLC (hereafter "the research team") to propose and justify two metrics for use in assistance to agricultural cooperatives: one for enterprise-level financial sustainability and one for member-level patronage, or the extent to which the cooperatives provide value to their members. The need to develop new metrics for agricultural cooperative development arose from a 2012 recommendation by the USAID Office of the Inspector General (OIG) that the Agency take steps to enhance the data collection and evaluation of cooperative development programs (please see the text box for the definition of cooperative). As indicated within the contract statement of work, USAID may incorporate the metrics into future cooperative development requirements, including with the Cooperative Development Program (CDP). Additionally, USAID may incorporate the metrics into the Foreign Assistance Coordinated Tracking System (FACTS) as compulsory standard indicators.

**A cooperative is a member-owned business** whose primary function is to provide goods and/or services to its member-owners, leveraging self-governance and the combined buying, selling, and servicing power of its members to achieve economic betterment through either the distribution of profits or increasing value of its members' equity based upon its members' usage.

This study focuses on agricultural cooperatives, in particular. "Pre-cooperative" refers to an association that has not yet obtained legal status as a cooperative. A "primary cooperative" is owned and operated by individual members, while a "secondary cooperative" serves members who are themselves cooperatives.

The research team employed a participatory, small-n, mixed method approach combining qualitative and quantitative data analysis to identify and narrow down a field of metrics for measuring the financial sustainability and patronage of agricultural cooperatives (see text box). Through literature review, telephone-based expert interviews, a peer review survey, and field-testing interviews in Guatemala and Kenya, the research team collected and compiled qualitative and quantitative data. In total, the team reviewed 73 documents in depth, conducted 49 semi-structured interviews, including 20 telephone-based interviews and 29 in-person interviews, and surveyed 14 subject matter experts. The data collection included face-to-face interviews with 22 agricultural cooperatives between Guatemala and Kenya, including 13 pre-cooperatives, six primary cooperatives, and three secondary cooperatives.

**A metric is a measurement** of an organizational dynamic, used to compare organizations or track change over time. A sound metric must be:

- **SMART** (**S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime **B**ound); and
- **SPICED** (**S**ubjective, **P**articipatory, **I**nterpreted and Communicable, Cross-checked and compared, Empowering, and Diverse and Disaggregated)

The team analyzed the content of interview data and the results of the peer review survey to identify and understand the most useful, practical, and complementary metrics. Based on USAID requirements, CDP implementer perspectives from expert interviews, and Participatory Monitoring & Evaluation (PM&E) best practices (please see text box on the following page), the research team used the following criteria, all weighted equally, to identify and prioritize time series-based metrics that would complement each other in depicting enterprise-level and member-level cooperative health:

- ***Usefulness for agricultural cooperatives:*** To what extent could this metric inform management decision-making at the enterprise level in order to continuously improve the financial sustainability and patronage value of the cooperative?

- ***Ease of data collection:*** To what extent would all types of agricultural cooperatives be capable of collecting the data required to calculate this metric, able to calculate and self-report on this metric with some training, and willing to share the results with USAID?
- ***Usefulness for USAID:*** To what extent could this metric provide USAID with valuable insight into the health and performance of both agricultural cooperatives and technical assistance (TA) providers, such as CDP implementers?
- ***Usefulness for TA providers:*** To what extent could this metric inform programmatic decision-making of TA providers, including CDP implementers, with regards to how to best support agricultural cooperatives?
- ***Applicability across a wide range of cooperatives:*** To what extent could this metric be applicable across pre-cooperatives, primary cooperatives, and secondary cooperatives of various agricultural sectors, services, and geographies?

**Participatory Monitoring & Evaluation (PM&E)** stipulates that M&E is a capacity building process within which program beneficiaries take ownership over the metric design and reporting process, including being able to calculate the indicators themselves rather than simply providing the raw data to program implementers. The report further discusses PM&E in section IV.

Based on these processes and criteria, the research team identified two sets of two metrics each that could succinctly capture enterprise-level and member-level cooperative development over time: one priority set for phased deployment and one secondary set for immediate deployment. First, due the interest of USAID in exploring more complex metrics that might deepen the Agency's focus on strengthening enterprise financial viability and capacity, the research team identified two priority metrics that the Agency may wish to consider piloting with more developed cooperatives, then deploying, accompanied by training and TA, to pre- and nascent cooperatives. Second, in light of the USAID requirement that metrics be complementary and applicable across a wide range of cooperatives, the research team identified secondary metrics that would be most immediately feasible for the nascent pre-cooperatives and primary cooperatives with which USAID works, in accordance with PM&E principles and the ease of data collection criterion.[1]

The research team intends all metrics discussed to be measured within time series. Measuring change in these metrics over time would enable comparison between targeted agricultural cooperatives over the course of a USAID activity. Also, measuring change over time would help determine the extent to which the development of a targeted agricultural cooperative prior to, and following USAID assistance is sustainable. Additionally, the two different metrics within each set are complementary in that the financial metrics capture enterprise-level sustainability while the patronage metrics capture member-level health of the cooperative.

[1] First, it is important to note the research team uses the terms "complex" and "basic" to demonstrate relative, rather than absolute difference in the ability of nascent versus established agricultural cooperatives to immediately employ the metrics discussed within this report. The research team recognizes that return on assets may be a standard financial metric in the field of financial management. However, the research team uses this categorization to differentiate between the two metric sets in terms of ease of data collection and applicability to a wide range of agricultural cooperative types, as discussed in Section V. Second, it is important to note that, while the research team recommends further piloting complex metrics with established cooperatives, this report focuses on the justification for the metrics themselves, rather than the recommended pilot approach. That said, Section VI discusses some implications of this suggestion in further detail.

With these criteria and guidelines in mind, the research team has concluded that USAID should prioritize the following, more complex metrics for piloting with established agricultural cooperatives, then deployment across a variety of cooperatives:

**Table 1. Proposed complex metrics for piloting with established cooperatives**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Financial** | Return on assets (revenue / total assets) | • May be applicable across a range of agricultural cooperatives, with some training on asset valuation<br>o Eight of nine (88.9%) primary cooperatives interviewed in Kenya currently track total asset value<br>• Correlates positively with profitability and ability to manage risk due to unexpected market shifts, possibly including climate change | • Training may be necessary to overcome limited calculation of asset value among pre-cooperatives<br>o Two of five (40.0%) pre-cooperatives interviewed in Guatemala and five of nine (55.6%) pre-cooperatives interviewed in Kenya do not currently use asset registries |
| **Patronage** | In-selling (value of product sold by members to the cooperative / total value of product sold by members) | • Positive correlation of in-selling with member satisfaction, cooperative performance, and social capital<br>• Ranked second most valid among six patronage metrics within peer review survey, rating a 4.08 / 5, including high rating for usefulness for agricultural cooperatives and TA providers | • Perceived limits to ease of data collection may require USAID investment in training, mentoring, and data quality assessment around yield projections and monitoring |

Moreover, the research team has concluded that the following secondary metrics may be more immediately applicable across a range of agricultural cooperatives, due to their perceived ease of use and utility for agricultural cooperatives themselves:

**Table 2. Proposed basic metrics for application across all agricultural cooperatives**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Financial** | Gross profit (sales revenue - cost of goods sold) | • Captures both external and internal performance<br>• Correlates positively with member satisfaction if there are dividend payments or patronage refunds, or reinvestments in member services<br>• Feasible in terms of data collection<br>• Endorsed by a plurality of agricultural cooperatives who indicated a single priority financial metric, or 12 of 36 (33.3%) | • Need for capacity building to calculate production costs in order for pre- and nascent cooperatives to self-report this metric<br>o None of the nine agricultural cooperatives interviewed in Kenya currently collect this data |

| | | | |
|---|---|---|---|
| **Patronage** | Number of active members | • Ease of data collection and self-reporting<br>• Proxy for other important but difficult-to-calculate patronage metrics<br>• Complements gross profit metric<br>• Endorsed in 23 of 39 (59.0%) interviews prioritizing a single patronage metric | • Context-based growth targets<br>• Variation across cooperative size and type in terms of emphasis on growth |

In addition to the potential need to phase deployment of the more complex metrics through piloting with established cooperatives, there are several notable implications that the adoption of these proposed metrics may have for USAID cooperative development programming. First, USAID may need to invest additional resources in M&E and financial management capacity building as part of CDP in order to ensure data quality and facilitate self-reporting as per PM&E principles, including for the most basic metrics. Second, if enhanced cooperative profitability is to become a principle metric, and therefore a principle objective, of CDP, and if USAID is to prioritize immediate progress against targets, USAID may need to consider adopting new criteria to determine which agricultural cooperatives to support or which CDP implementers to engage, given the limited emphasis on profitability to date. Third, USAID may need to invest in developing standardized data collection methodologies for metrics such as number of active members and in-selling, given that data inputs and targets are highly context-specific.

In addition to considering these metrics for prioritization, USAID might conduct further research in order to promote continuous improvement of M&E for cooperative development. Areas for further research may include evaluation of the impact of USAID CDP on the performance and sustainability of agricultural cooperatives, indicators for the climate change vulnerability of agricultural cooperatives, and the potential for PM&E as a capacity building tool for agricultural cooperatives.

# II. BACKGROUND

Since CDP went into effect in 1962, USAID has provided assistance to agricultural cooperatives around the world to strengthen institutional capacity, improve business management, and increase production and sales. Cooperatives have the potential to be an important means of reducing poverty, improving food security, and generating inclusive employment. The cooperative structure, wherein the business is owned and operated by its members, allows producers to access key inputs, aggregate outputs, and build democratic communities.[2]

Under CDP, USAID has partnered with U.S. cooperative development organizations (hereafter "CDP implementers") to help cooperatives achieve scale, navigate government regulations, and foster value chain relationships. From 1970 to 2015, USAID dedicated approximately $210 million through CDP to assist agricultural cooperatives and producer organizations, including $105 million between 1970 and 1999, $5.5

[2]Moro, Amelia. "Cooperative Development Program: Program snapshot." 2013, USAID February 17, 2016 <https://www.usaid.gov/news-information/fact-sheets/cooperative-development-program-cdp>

million per year between 2001 and 2010, and $10 million per year between 2011 and 2015.[3] As a whole, USAID invested $3.7 billion through 184 projects to assist agricultural cooperatives and producer organizations between 1998 and 2011, averaging approximately $264 million per year.[4]

In 2012, the USAID OIG identified "the lack of data with which to make informed program decisions for cooperative development programs" across the agency. OIG also identified the lack of "a comprehensive approach across the agency to apply a set of relevant metrics with which to assess cooperative development program results." OIG concluded that "USAID should improve data collection and evaluation of cooperative development programs and [that] those cooperative programs serving small farmers may merit additional in-depth review."[5]

As an agency leader in cooperative issues, the CDP team volunteered to address the OIG recommendations. As part of this effort, USAID contracted SSG Advisors, LLC in 2015 to

> *propose and justify the use of two metrics, which will assess 1) the economic sustainability[6] of farming cooperative organizations, and 2) the extent to which farming cooperative organizations provide value to their members.*[7]

These metrics may serve several purposes. First, these metrics may advance USAID knowledge of how to measure the success of agricultural cooperatives, thus enabling a resolution to the OIG recommendation. Second, USAID may incorporate the metrics into future solicitation and award documents, such as cooperative agreements with CDP implementers. Third, USAID may incorporate the metrics into the Foreign Assistance Coordinated Tracking System (FACTS) as compulsory standard indicators.[8]

# III. DEFINITION OF COOPERATIVE

A working definition of cooperatives is essential for both this report and USAID assistance to agricultural cooperatives. As indicated within the statement of work of this activity,

> *It has proved almost impossible to identify which of these [organizations supported by USAID] are actually cooperative, even including those nominally labeled as such but which do not adhere to generally-accepted*

[3] Budgetary information based on the following sources: USAID. AID-OAA-C-15-00139, September 28, 2015; e-mail exchange with current USAID CDP program manager; telephone interview with Ted Weihle, former USAID Cooperative Coordinator and Special Assistant to the Administrator; and USAID, Report to Congress on the Implementation of the Support for Overseas Cooperative Development Act. November 2001.
[4] Ibid. As indicated by USAID's Thomas Carter in an e-mail to the research team, "The CDP was initially located in the Office of Private and Voluntary Development within what is now the Democracy, Conflict, and Humanitarian Assistance Bureau. It moved to the Office of Development Partners, which was merged into the Office of Innovation and Development Alliances, before being moved to the Bureau for Economic Growth, Education, and Environment.
[5] USAID/OIG. Memorandum: Review of USAID Cooperative Development Programs. May 10, 2012. <https://oig.usaid.gov/sites/default/files/audit-reports/9-000-12-001-s.pdf.>
[6] The research team uses the term "financial sustainability" throughout the report but uses "economic sustainability" here in reference to a term that USAID employs within the statement of work for this activity.
[7] "USAID. AID-OAA-C-15-00139." September 28, 2015.
[8] Ibid.

*cooperative principles. This is particularly true of cooperatives and "pre- cooperatives" which are used as implementing agencies by governments and/or donors where member economic participation is replaced by that of the government or donor and where democratic control by members is trumped by donor or government dictates.*[9]

With that challenge in mind, the research team has developed and employed the following definition of cooperative throughout the course of this assignment:

*A member-owned-and-governed business whose primary function is to provide goods and/or services, frequently financed by member loans and equity, to its member-owners, leveraging the combined buying, selling, and servicing power of its members to achieve economic betterment through either the distribution or reinvestment of profits, or the increasing value of its members' equity based upon its members' usage.*[10]

**Sources employed in establishing the definition of cooperative**

| Component of definition | Source |
|---|---|
| "Member owned…" | U.S. Department of Agriculture[1] |
| "…Combined buying, selling, and servicing…" | Rabobank[1] |
| "Provide goods and/or services to its member-owners…" | National Cooperative Bank[1] |
| "Member-owned-and-governed" | Interview with CDP implementer |
| "Distribution or reinvestment of profits or increasing value of its members' equity… | Interview with research institute and interview with CDP implementer |

This definition reflects the vision of a cooperative as a business enterprise that, in serving the interests of its members, contributes to economic development. The research team used sources from various communities to ensure consensus among stakeholders (see text box).

It is also important to note that this report does not differentiate between cooperative, association, and other member-run businesses. The research team based this decision on the understanding that registration as a cooperative may have different meanings and rationales in different contexts. Furthermore, the research team based this decision on the understanding that the principles of the kinds of member-run businesses that this study aims to measure are applicable in enterprises of various types.

The research team uses "pre-cooperative", "primary cooperative", and "secondary cooperative" as terms for segmenting the population interviewed for this report and the organizations that receive USAID assistance:

- A "pre-cooperative" is an organization that, due to either its nascent formation, its preference for other means of associative business, or the distinct regulatory frameworks in its country of establishment, is not legally registered as a cooperative at the moment[11];

[9] Ibid.
[10] The term "user" may be applicable in lieu of "member", depending on institutional preferences, although the research team found "member" to be the term most widely cited by interviewees and publications.

- A "primary cooperative" is an organization that provides services to its members, such as loans, crop aggregation and purchasing, training, and TA; and
- A "secondary cooperative" is a cooperative that "provides services to its members which are themselves"[12] cooperatives.

# IV. METHODOLOGY

## A. OVERVIEW

The research team employed small-n, mixed method filtering approach to identify and narrow down a field of metrics for measuring the sustainability of agricultural cooperatives. The principal objective was to arrive at one financial metric and one patronage metric that USAID should use across all agricultural cooperatives, with the possibility of also proposing secondary metrics. The research team applied the core criteria around metric utility for agricultural cooperatives, ease of data collection, utility for USAID, utility for TA providers, and applicability across agricultural cooperatives, as well as PM&E principles, to determine the appropriate metrics.

**Key data sources** in identifying and filtering priority metrics:

- 73 documents in initial literature review
- 49 semi-structured interviews
  - 20 telephone interviews with subject matter experts
  - 29 field interviews between Guatemala and Kenya
    - 16 interviews with agricultural cooperatives
- 14 survey responses from subject matter experts

The process of filtering out metrics to arrive at the priority indicators for USAID was based on a mixed method approach in which the research team tallied up references to priority metrics from the qualitative literature review and the expert and field testing interviews (see text box). The research team cross-referenced this quantitative data with the quantitative data from the peer review survey in order to determine which metrics to recommend to USAID. The graphic below depicts the general filtration process undertaken by the research team. From the literature review

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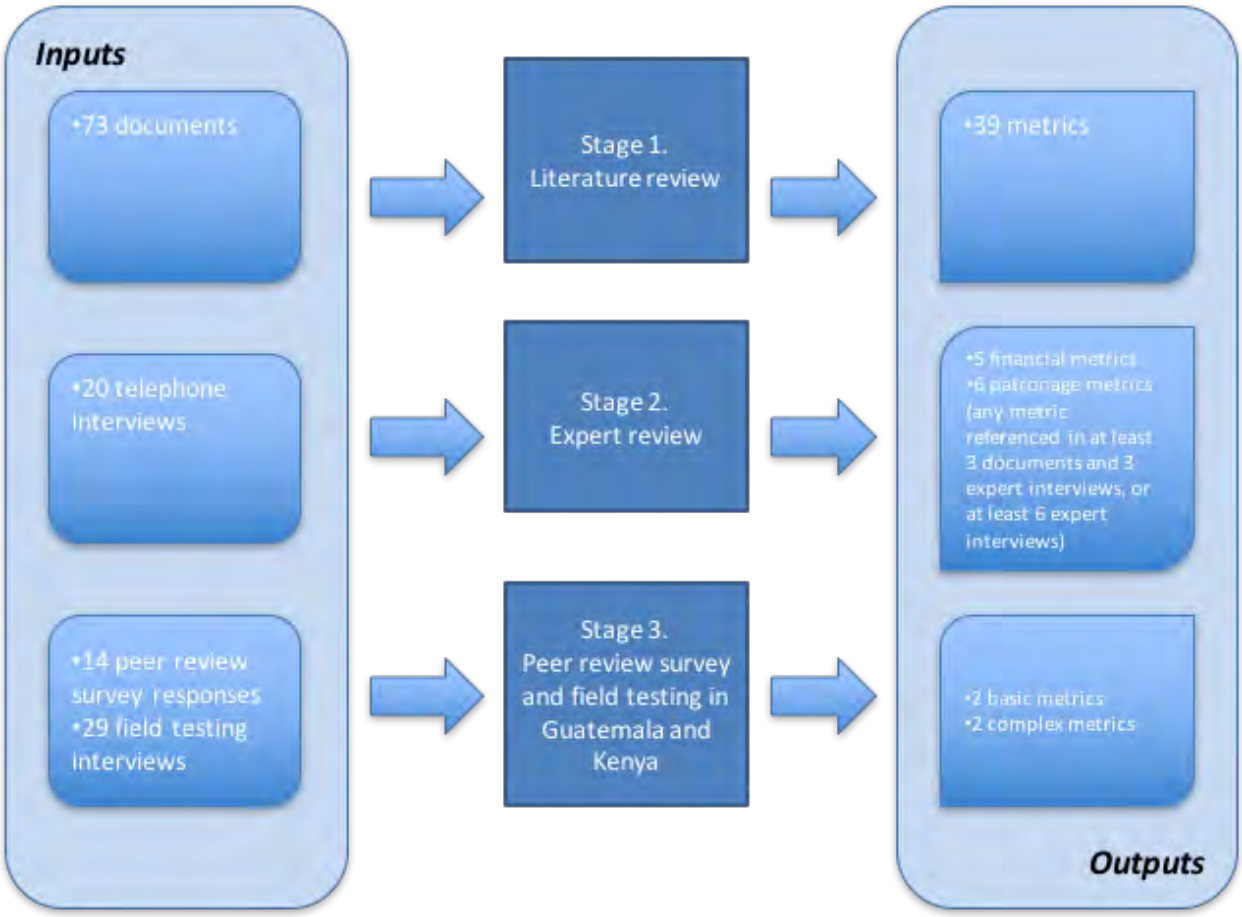
[11] This definition is based on interviews with a CDP implementer and with an individual previously involved in USAID CDP management. The definition is aimed at incorporating developmental, political, and legal reasons due to which an organization may not have legally registered as a cooperative. Moreover, according to an expert interview participant, it may take four to six years for a pre-cooperative to develop into an "established cooperative", which a CDP implementer described as one that is not dependent on grants for survival, is compliant with local regulations, and understands and operates according to cooperative principles. By the time that transition is complete, according to the expert interviewee, the donor or TA providers are no longer working directly with the organization, and therefore have limited access to performance data. This perspective complements the USAID definition provided in section III as one where enterprise decision-making is dictated by donors or governments. However, because the research team did not focus on the extent to which decision-making at the agricultural cooperatives interviewed was dictated by external actors, the research team opted for a legally-centered definition of "pre-cooperative.".

[12] "Service co-operatives: an introduction?" Co-operative Assistance Network Limited. Accessed February 17, 2016. <http://www.can.coop/sacda/service.htm>

and expert interviews, the research team identified five priority financial metrics and six priority patronage metrics that had been referenced in at least three literature review sources and at least three expert interviews, or referenced in at least six expert interviews. The research team then proceeded to test these metrics through a peer review survey and interviews in Guatemala and Kenya.[13] Based on simple quantitative analysis of the survey and interview data, as well as the guiding metrics principles of PM&E, ease, applicability, and utility, the research team then narrowed down the field of metrics to two sets of priority indicators: a complex set, with one financial indicator and one patronage indicator that USAID may wish to pilot with established cooperatives, then deploy across a range of cooperatives; and one basic set, with one financial indicator and one patronage indicator that USAID could deploy immediately across all types of cooperatives. The section below discusses each of the research and analysis steps in detail from a methodological perspective, while the following section enters into discussion of the specific metrics.

**Figure 1. Metrics research and filtering process**




[13] Following field interviews, the research team conducted concluding interviews with one new and two previously interviewed organizations, in addition to an e-mail exchange with a agricultural cooperative in Peru. As a result, while the expert interview stage included 19 interviews, the total number of interviews at the end of this research assignment is 20.

## B. LITERATURE REVIEW

The research team performed a literature review aimed at identifying a broad array of financial and patronage metrics with which to measure the sustainability of agricultural cooperatives. While the research team consistently reviewed literature throughout the assignment, the initial literature review encompassed 73 documents across various source categories (see text box on the following page). The research team examined 51 sources that provided metrics categories, as well as data collection and analysis recommendations to inform an in-depth review of financial and patronage metrics, and used the other

22 documents primarily for methodological orientation. The table on the following page depicts the breakdown of sources that figured into the literature review; please see the bibliography for the complete list of sources.

Through the initial literature review process, the research team identified 26 categories of metrics, including 14 categories of financial metrics and 12 categories of patronage metrics, to cross-reference through telephone interviews with subject matter experts.

**Table 3. Number of initial literature review sources by category**

| Source category | Source sub-category | # of sources for general review | # of sources for in-depth analysis |
|---|---|---|---|
| Academic | Book | 2 | 1 |
| | Conference paper | 6 | 3 |
| | Published paper | 37 | 35 |
| Industry | Papers from the International Summit of Cooperatives 2014 | 4 | 0 |
| | Industry publications | 4 | 3 |
| Policy and donor | Policy reports | 8 | 8 |
| | USAID publications | 7 | 0 |
| | World Bank publications | 3 | 0 |
| | Other organizations | 2 | 1 |
| Total | | 73 | 51 |

## C. EXPERT INTERVIEWS

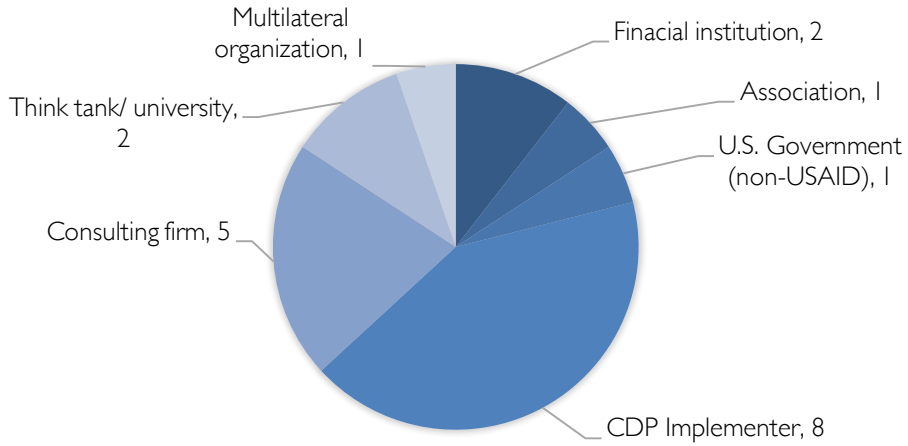
In order to begin to filter the metrics derived from the initial literature review, the research team performed telephone-based interviews with subject matter experts in the fields of cooperative development and agriculture. The interviews lasted approximately 60 minutes on average and employed open-ended questioning centered on current and potential practices for measuring the financial and patronage-based sustainability of agricultural cooperatives. The research team conducted all interviews on the basis of anonymity in order to maximize the candidness of perspectives collected from interviewees (please see Annex II for a complete list of organizations interviewed). The research team focused specifically on the following topics during expert interviews:

- How are researchers and development practitioners currently measuring the sustainability or performance of agricultural cooperatives in terms of finance and patronage?
- What successes or challenges exist with current metrics and data collection strategies?

- What might be the single priority metrics for measuring the financial and patronage-based sustainability of agricultural cooperatives?
- What advantages and disadvantages do these single priority metrics pose?
- What might be the implications of requiring reporting on these single priority metrics for implementation of USAID cooperative development activities?

Please see the following page for the breakdown of expert interviews by category.

**Figure 2. Number of expert interviews by category (n=20)**




In total, the research team performed 20 expert interviews, with a total of 33 interview participants, across seven source categories, as per Figure 2. USAID facilitated 17 of 20 (85.0%) of these expert interviews through either direct e-mail introductions or provision of contact information, while the research team identified and directly contacted the remaining expert interview participants.

Next, having commenced expert interviews with 26 categories of metrics identified through literature review, the research team narrowed down the field of metrics for consideration through a simple quantification process. Specifically, the research team identified five priority financial metrics and six priority patronage metrics that had been referenced in at least three literature review sources and at least three expert interviews, or referenced in at least six expert interviews.

The rationale for prioritizing metrics based on number of references in academic documents or interviews with subject matter experts was based on the BetterEvaluation concept of PM&E and participatory indicator development (please see text box). Per BetterEvaluation's *Equal Access Participatory Monitoring and Evaluation Toolkit: Module 2: Setting objectives and indicators,*

> *setting indicators with your key stakeholders and communities is important [because] the process results in more realistic, meaningful and achievable indicators than those set by top-down methods. [In addition,] the process helps to increase community ownership of*

**BetterEvaluation** is an initiative aimed to improve the practice and theory of evaluation. Founding partners include RMIT University, pact, the Institutional Learning and Change initiative of the Consultative Group for International Agricultural Research, and the Overseas Development Institute. The initiative receives funding from institutions such as The Rockefeller Foundation, the International Fund for Agricultural Development, and the governments of Australia and the Netherlands.

*and involvement in projects, awareness, mutual learning, and empowerment - this can increase the potential that your program has positive impacts of various kinds.*[14]

To use the terminology of BetterEvaluation, the research team decided to approach academics and subject matter experts, particularly the CDP implementers who constituted eight of 20 (40.0%) of expert interviews, as "key stakeholders and communities" in the effort to achieve "positive impacts" by determining optimal indicators for USAID. Within this approach, perspectives from both inside and outside the USAID cooperative development community were valuable. Additionally, metrics that received more references were prioritized by the research team within this participatory process because, per BetterEvaluation, "too often these steps [of developing metrics] are taken without consulting with the people who are the so-called 'targets' or 'primary stakeholders'"[15] of development interventions. The research team considered it important to avoid similar dynamics when developing metrics.

## D. PEER REVIEW

The research team designed an anonymous online survey aimed at collecting subject matter expert perspectives on the five priority financial metrics and six priority patronage metrics. The objective of the survey was to collect quantitative data to support prioritization of a single financial metric and a single patronage metric, building on the qualitative data gathered via the expert interviews.

The team designed the survey to take approximately 15 minutes to complete. They survey consisted of a structured questionnaire to collect expert opinions on the priority metrics across five categories:

- Usefulness of this metric for agricultural cooperatives;
- Ease of collecting the data required to calculate this metric;
- Usefulness of this metric for USAID;
- Usefulness of this metric for TA providers; and
- Applicability of this metric across a wide range of agricultural cooperatives and development contexts.

The questionnaire requested that experts rate the metrics on a one-to-five scale, with one being the lowest and five being the highest, across these criteria. The questionnaire also included open-ended response sections for experts to recommend additional metrics. Furthermore, the questionnaire included a respondent segmentation question based on the source categories employed during the expert interviews.

The research team first requested feedback on the questionnaire from a Consulting Firm expert interviewee and a CDP implementer expert interviewee. After incorporating this feedback, the research team disseminated the survey via e-mail to expert interview participants, to other cooperative and agriculture experts within its professional networks, and to USAID itself. The research team invited e-mail recipients to

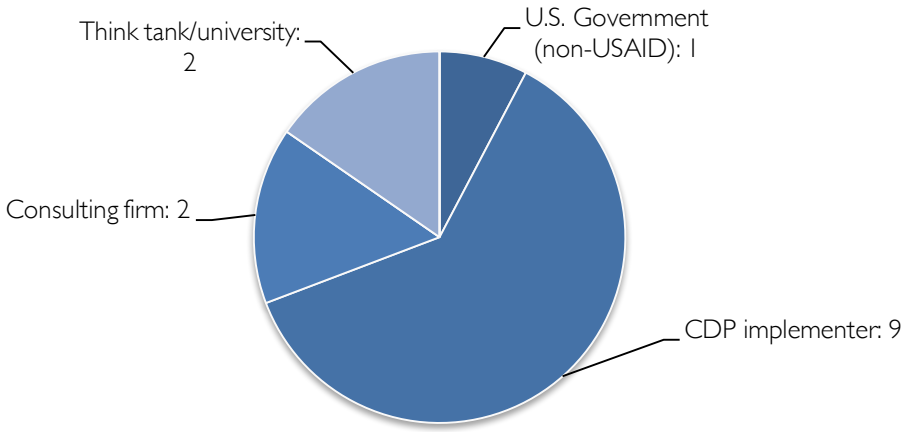
[14] BetterEvaluation. *Equal Access Participatory Monitoring and Evaluation toolkit: Module 2: Setting objectives and indicators.*" pp. 1-2. Accessed February 12, 2016. http://betterevaluation.org/sites/default/files/EA_PM%26E_toolkit_module_2_objectives%26indicators_for_publication.pdf.

[15] BetterEvaluation, 1.

both respond to the survey and share with the survey within their networks to maximize the quantity and diversity of responses.

In total, 14 subject matter experts participated in the peer review survey over a period of approximately two weeks. The peer review surveys averaged 15.3 minutes in length. On average, the subject matter experts rated themselves at 5.61 on a one-to-seven scale in terms of knowledge of metrics for measuring agricultural cooperatives, with one being the lowest and seven being the highest. The table below presents a breakdown of peer review survey respondents by expert interview source category.

**Figure 3. Number of peer review survey respondents (n=14)**




## E. FIELD TESTING

Concurrent with administration of the peer review survey, the research team deployed team members to Guatemala and Kenya, the metrics field testing sites that USAID had selected, in order to test the applicability of the five financial metrics and six patronage metrics over the course of two weeks.[16]

For the purposes of this activity, the research team took the approach that the terms "metric" and "indicator" "can be used interchangeably and their definitions vary across different documents and organisations [sic]"[17], in accordance with BetterEvaluation. Along these lines, the research team used the term "metric" to refer to a measurement of an organizational dynamic, used to compare organizations. In

[16] Per the recommendation of USAID, the research team coordinated with the national offices of a CDP implementing partner, the National Cooperative Business Association, Cooperative League of the U.S.A. (NCBA CLUSA), to schedule interviews with agricultural cooperatives and other stakeholders in country. In Kenya, the research team contracted two consultants, both former NCBA CLUSA employees, to support travel logistics, translation, and interview note-taking; in Guatemala, NCBA CLUSA assigned several team members to support field work logistics. While the research team had initially intended to stagger field work between the two countries in order to refine the field testing methodology as necessary following the first trip, the constrained availability of NCBA CLUSA country teams in early January 2016 necessitated concurrent deployment of team members to Guatemala and Kenya.
[17] BetterEvaluation. Use measures, indicators, or metrics. 2013. Accessed February 15, 2016. <http://betterevaluation.org/plan/describe/measures_indicators>

contrast, the research team used the term "indicator" to refer to a measurement of a change in an organizational dynamic over time as a result of an intervention.

In order to further narrow down the list of metrics to one viable financial metric and one viable patronage metric through field testing, the research team needed to identify which metrics could serve as valid performance indicators. Additionally, the research team needed to identify the optimal method for testing the validity of a performance indicator.

According to BetterEvaluation, a valid indicator should demonstrate "SMART" and "SPICED" characteristics as described within the table below:

**Table 4. Key characteristics of valid indicators per BetterEvaluation**

| SMART indicators | SPICED indicators |
|---|---|
| • **Specific** (to the change being measured);<br>• **Measurable** (and unambiguous);<br>• **Attainable** (and sensitive);<br>• **Relevant** (and easy to collect); and<br>• **Time bound** (with term dates for measurement) | • **Subjective** (and based on the perspective of the beneficiaries or individual providing the data);<br>• **Participatory** (and developed in conjunction with project beneficiaries, staff, and other stakeholders);<br>• **Interpreted and Communicable** (across stakeholder groups);<br>• **Cross-checked and compared** (across various stakeholder groups and data collection methods);<br>• **Empowering** (in enabling beneficiaries to reflect critically on the benefits of the program); and<br>• **Diverse and Disaggregated** (by stakeholder sub-groups both across and within beneficiary organizations) |

While the prior research phases had centered on metrics from the perspective of "SMART", the field testing phase provided an opportunity to explore the extent to which specific indicators might be "SPICED". To do so, the research team employed a participatory approach to field work, both in terms of the organizations interviewed and the questions asked during the interviews. This approach employed BetterEvaluation's PM&E guidance regarding indicator testing.

BetterEvaluation recommends that, in order to validate an indicator once identified, researchers consult with targeted communities or organizations around the extent to which indicators "adequately capture their realities and perspectives"[18], then seek consensus around the wording of the indicator. This approach aligns with The World Bank philosophy around PM&E, wherein targeted communities or organizations "are active participants - not just sources of information."[19] Based on this philosophy, the research team prioritized metrics on which agricultural cooperatives may be able to self-report, including if training is necessary. The research team considered possible training requirements because, according to the World Bank, PM&E must focus on "building capacity of local people to analyze, reflect and take action."[20] This approach to

[18] Ibid.
[19] The World Bank. Participatory Monitoring and Evaluation. Accessed February 12, 2016. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTPCENG/0,,contentMDK:20509352~menuPK:1278203~pagePK:148956~piPK:216618~theSitePK:410306,00.html>
[20] Ibid.

validating indicators was endorsed by two TA providers interviewed by the research team, including an M&E specialist in Guatemala, in order to determine the validity of indicators in developing contexts.

With these principles in mind, the research team developed a field survey questionnaire for CDP-supported agricultural cooperatives and other stakeholders in Guatemala and Kenya. The questionnaire aligned with the peer review survey in asking respondents to rank the five financial metrics and six patronage metrics on a scale from one to five across criteria such as ease of data collection and utility of the metric, and to recommend additional metrics as necessary. The questionnaire also addressed topics such as cooperative profile, financial performance, and financial management. The research team designed the questionnaire to last approximately 45 minutes and to be administered verbally by the researchers themselves.

The research team requested that NCBA CLUSA schedule meetings in Guatemala and Kenya with agricultural cooperatives of various value chains and levels of development, in addition to relevant non-cooperative stakeholders such as local TA providers. Prior to administering the questionnaire to cooperatives in Guatemala, the research team solicited feedback on the instrument during in-person meetings with three organizations: a federation of cooperatives, a TA provider, and an industry association.

Initial feedback from stakeholders in Guatemala that were not primary cooperatives, along with initial experiences administering the questionnaires with cooperatives in both countries, revealed challenges with the instrument in terms of data availability. For example, the three non-cooperative stakeholders in Guatemala indicated that the agricultural cooperatives with which they work have limited financial literacy and administrative and record-keeping capacity (please see text box). As a result, the stakeholders indicated that it would likely be difficult to collect the data for the questionnaire during interviews, as well as the data for the indicators themselves. Meanwhile, during the first day of interviews with primary cooperatives in both countries, the metrics did not appear to be comprehensible to the respondents of an established primary cooperative. The cooperative president and two-member accounting team appeared unable to differentiate between the metrics in terms of comparative ease of data collection and utility, which posed a risk to the validity of the interview data.

While **cooperative law** in countries with CDP presence may require reporting on various metrics identified and tested by the research team, a CDP implementer indicated that enforcement of such laws and use of such metrics by cooperative administrators is often limited and inconsistent, in part due to the outsourcing of accounting functions. Another CDP implementer mentioned that this challenge is visible with nascent and established cooperatives alike.

As a result of this feedback and lack of comprehension during the first day of cooperative interviews, the research team adapted the field questionnaire to a more streamlined, semi-structured interview format aimed at addressing the following questions:

- What is the main objective of the cooperative in terms of financial/patronage development?[21]

[21] Due to the limited intelligibility of the term "patronage" to many interviewees in the field, the research team, in consultation with NCBA CLUSA, decided to describe the term as "the value that the cooperative provides to its members" or "the value that the members derive from the cooperative" during interviews.

- What metrics does the cooperative currently use to measure its progress against this financial/patronage objective? If the cooperative does not currently use financial/patronage metrics, what financial/patronage data does the cooperative use to monitor its development?
- Does the cooperative currently collect the data necessary to feed into any of the metrics within the research team's field questionnaire?
- Given the financial/patronage data currently used by the cooperative, might it make sense to use any additional metrics?
- In light of the financial/patronage metrics that the cooperative is currently using, as well as discussion of the financial/patronage metrics from the questionnaire, what is the most important financial/patronage metric for measuring the sustainability of agricultural cooperatives over time?

In total, the research team performed interviews with 29 total organizations between Guatemala and Kenya, per the table below. Thirteen of 29 (44.8%) organizations interviewed were agricultural pre-cooperatives, six of 29 (20.7%) organizations interviewed were agricultural primary cooperatives, and three of 29 (10.3%) of organizations interviewed were agricultural secondary cooperatives. Additionally, seven of 29 (24.1%) organizations interviewed were non-agricultural cooperatives, including either credit unions, government agencies, or TA providers. Twenty-four of 29 (82.8%) of organizations interviewed by the research team between Guatemala and Kenya had received assistance through USAID programming within the past five years. The research team conducted all field interviews on the basis of anonymity in order to maximize the candidness of perspectives collected from interviewees. A full list of organizations interviewed can be found in Annex II, while the table below outlines the number of interviews by source categories.

**Figure 4. Number of field testing interviews by category: Guatemala (n=16)**

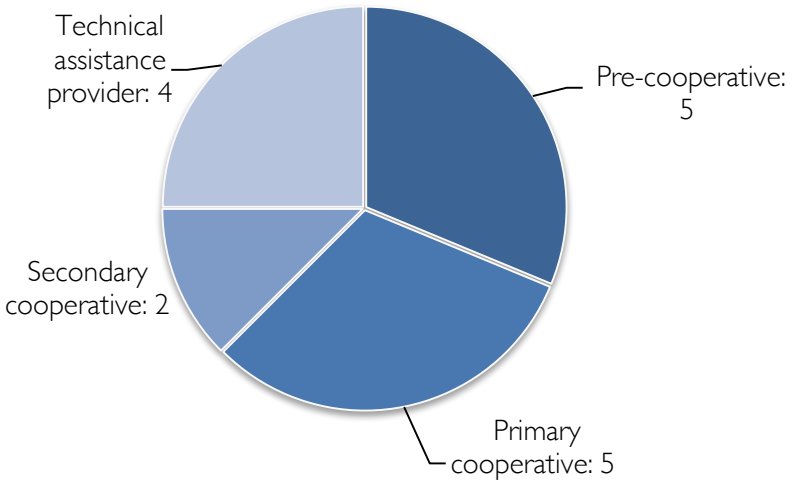
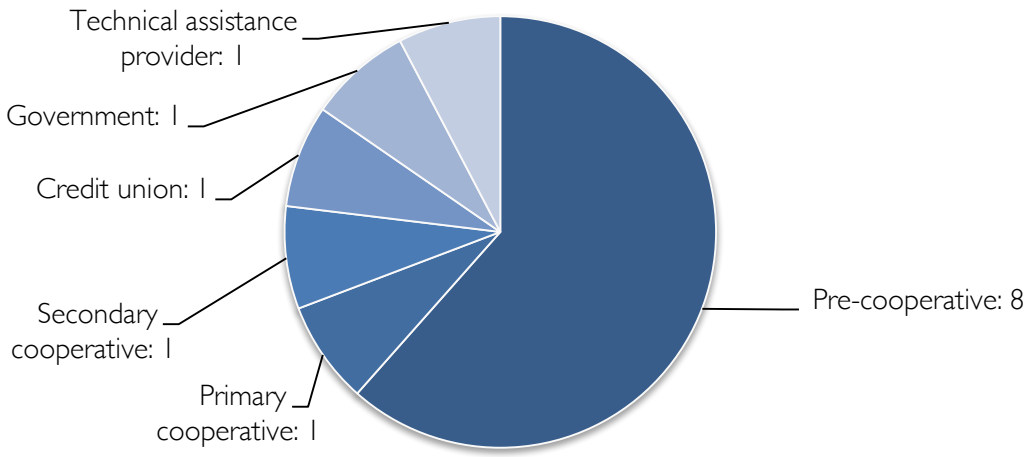


**Figure 5. Number of field testing interviews by category: Kenya (n=13)**




## F. PRIORITIZATION

After collecting the quantitative survey data from the peer review and the qualitative interview data from the expert and field testing interviews, the research team performed basic quantitative analysis to determine how many respondents had endorsed each metric. In terms of the qualitative interview data, the research team performed a simple tallying of the metrics that had been most frequently prioritized by interviewees. The research team also took into account whether or not the agricultural cooperatives are currently collecting the data required to calculate the prioritized metrics. The research team used qualitative data in the form of interview excerpts to complement the quantitative analysis.

Below is a list of key criteria that the research team employed to determine the extent to which a metric was feasible and useful:

- ***Usefulness for agricultural cooperatives:*** To what extent could this metric inform management decision-making at the enterprise level in order to continuously improve the financial sustainability and patronage value of the cooperative?
- ***Ease of data collection:*** To what extent would all types of agricultural cooperatives be capable of collecting the data required to calculate this metric, able to calculate and self-report on this metric with some training, and willing to share the results with USAID?
- ***Usefulness for USAID:*** To what extent could this metric provide USAID with valuable insight into the health and performance of both agricultural cooperatives and TA providers, such as CDP implementers?
- ***Usefulness for TA providers:*** To what extent could this metric inform programmatic decision-making of TA providers, including CDP implementers, with regards to how to best support agricultural cooperatives?

- ***Applicability across a wide range of cooperatives:*** To what extent could this metric be applicable across pre-cooperatives, primary cooperatives, and secondary cooperatives of various agricultural sectors, services, and geographies?

The findings around which complex metrics may be applicable to more established agricultural cooperatives for piloting, followed by deployment across all agricultural cooperatives, are largely based on the peer review survey. This closed-answer format enabled the research team to collect expert feedback on specific metrics that may require more robust accounting systems than those frequently employed by pre- or nascent cooperatives. Meanwhile, the findings on basic metrics that are applicable across all agricultural cooperatives are largely based on interview data, as the semi-structured format of the interviews was conducive to understanding the nuances at play in assigning a single metric to a wide range of cooperatives.

# V. PROPOSED METRICS

## A. OVERVIEW OF PROPOSED METRICS

The team analyzed the content of interview data and the results of the peer review survey to identify the most useful and practical metrics to ascertain sustainability in terms of enterprise-level financial or member-level patronage development over time. Based on USAID requirements, CDP implementer perspectives from expert interviews, and PM&E best practices, the research team used the criteria mentioned in the prior page to prioritize metrics. The research team placed equal weight on usefulness for agricultural cooperatives, ease of data collection, usefulness for USAID, usefulness for TA providers, and applicability across a wide range of cooperatives.

First, given USAID interest in exploring more complex metrics that might deepen the CDP focus on strengthening enterprise financial viability and capacity, the research team proposes two priority metrics that the Agency may wish to consider piloting with more developed cooperatives, then deploying, along with training and TA, to pre- and nascent cooperatives. Second, due to USAID requirement that metrics be applicable across a wide range of cooperatives, the research team proposes two secondary metrics that would be most immediately feasible for the nascent pre-cooperatives and primary cooperatives with which USAID works, in accordance with PM&E principles and the ease of data collection criterion. Each set of metrics contains a financial metric to measure enterprise-level sustainability and a patronage metric to measure member-level sustainability. In this way, the two metrics in each set are meant to complement each other, rather than serve as standalone metrics.

First, the following metrics may be of interest for phased implementation, consisting of piloting with more established cooperatives, followed by deployment across agricultural cooperatives (across two pages):

**Table 5. Complex: Proposed complex metrics for piloting with established agricultural cooperatives**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Financial** | Return on assets (revenue / total assets) | • May be applicable across a range of agricultural cooperatives, with some training on asset valuation<br>o Eight of nine (88.9%) primary cooperatives interviewed in Kenya currently track total asset value<br>• Correlates positively with profitability and ability to manage risk due to unexpected market shifts, including climate change | • Training may be necessary to overcome currently limited calculation of asset value among pre-cooperatives<br>o Two of five (40.0%) pre-cooperatives interviewed in Guatemala do not currently use asset registries |
| **Patronage** | In-selling (value of product sold by members to the cooperative / total value of product sold by members) | • Positive correlation of in-selling with member satisfaction, cooperative performance, and social capital<br>• Ranked second most valid among six patronage metrics within peer review survey, rating a 4.08 / 5, including high rating for usefulness for agricultural cooperatives and TA providers | • Limited ease of data collection may require USAID investment in training, mentoring, and data quality assessment around yield projections and monitoring |

Additionally, the research team has found that USAID should consider the following metrics for immediate application across all agricultural cooperatives:

**Table 6. Proposed basic metrics for application across all agricultural cooperatives**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Financial** | Gross Profit (sales revenue - cost of goods sold) | • Captures both external and internal performance<br>• Correlates positively with member satisfaction if there are dividend payments or patronage refunds, or reinvestments in member services<br>• Feasible in terms of data collection<br>• Endorsed by a plurality of agricultural cooperatives who indicated a single priority financial metric, or 13 of 37 (35.1%) | • Capacity building around calculating production costs may be necessary for pre- and nascent primary cooperatives to self-report this metric<br>o None of the nine agricultural cooperatives interviewed in Kenya currently employ this metric for decision-making |

| | | | |
|---|---|---|---|
| **Patronage** | Number of active members | • Ease of data collection and self-reporting<br>• Proxy for other important but difficult-to-calculate patronage metrics<br>• Complements gross profit metric<br>• Endorsed in 23 of 39 (59.0%) interviews in which participants suggested a single priority patronage metric, including 10 of 20 (50.0%) agricultural cooperatives | • Context-based growth targets<br>• There may be some variation across cooperative size and type when it comes to emphasizing membership growth |

The following section discusses in further detail the metrics that the research team identified, then filtered out through the literature review, expert interview, peer review, and field testing process. Then there is a deeper discussion of the data behind the priority metrics, the possible advantages and disadvantages of these metrics, and how USAID may overcome challenges in their deployment.

The following section first discusses the basic metrics that are immediately applicable across all agricultural cooperatives. The following section then explores the complex metrics that USAID may wish to consider phasing by piloting first with established agricultural cooperatives, then deploying more broadly across all agricultural cooperatives. This order is not to endorse the basic metrics over the priority metrics, but rather to map the metrics discussion to the filtering process employed by the research team by first discussing what USAID can do with few resources immediately, then discussing what USAID can do with more resources through a phased approach.

This section maps to the filtering process in that, upon completing data collection the team research team identified the most basic metrics that USAID may wish to consider across all cooperatives, in part because field testing interviews in Guatemala and Kenya largely centered on pre- and primary cooperative perspectives. Then, upon identifying the most basic metrics based on field testing, the research team revisited the peer review survey data, as well as select sources from the literature review, expert interview, and field testing interview data, to identify metrics that USAID might employ were it to prioritize more complex metrics to encourage a greater focus on cooperative financial viability. The research team suggests that USAID prioritize the more complex metrics for phased deployment as a means of enhancing the focus of assistance on creating financially viable cooperative enterprises. That said, it is logical to track the discussion of metrics as closely as possible to our filtration process in order to demonstrate the sequence through which the research team arrived at each finding and recommendation.

# B. BASIC METRICS APPLICABLE TO ALL AGRICULTURAL COOPERATIVES

## 1. Basic financial metrics applicable to all agricultural cooperatives

### a. Financial metrics filtered for peer review and field testing

Following the literature review and expert interview phases, the research team engaged in its first filtering of metrics in order to determine which metrics to include in the peer review survey and field testing phases. Specifically, the research team prioritized for further testing the metrics that had been referenced in at least three literature review sources and at least three expert interviews, or that had been referenced in at least six expert interviews. The table on the following page depicts the filtered list of financial metrics identified through literature review and expert interviews, then prioritized for peer review and survey testing:

**Table 7. Financial metrics filtering process**

| Financial metric category | Financial metric | Financial sub-metrics and calculations | Number of references | |
|---|---|---|---|---|
| | | | Literature review (of 73 sources) | Expert interview (of 19 sources) |
| **Steps 1: Metrics filtered out through literature review and expert interviews** | | | | |
| Profitability ratios | Return on equity | Income / total equity | 9 | 2 |
| | Return on sales | Income / total sales | 5 | 1 |
| | Extra-value index | Net income after taxes – [(total equity) * (LIBOR 12-month maturity December average + 2%)]) / (total assets – current liabilities) | 4 | 2 |
| | Return on invested capital | Income / invested capital | 1 | 1 |
| Efficiency / productivity ratios | Inventory turnover ratio | Net sales / inventory | 2 | 1 |
| Liquidity ratios | Quick ratio | Current assets - inventories / current liabilities | 5 | 1 |
| Leverage ratios | Debt ratio | Total debt / total assets | 5 | 1 |
| Solvency ratio | Coverage ratio | Earnings before interest and tax (EBIT) / interest | 3 | 3 |
| Economic efficiency percentage | Level of performance that can be reached by a cooperative in accordance with its production possibilities) | Production function based on:<br>• Input proxies for labor (e.g. staff costs) and capital (e.g. fixed assets);<br>• Output proxies (e.g. turnover); or<br>• Percentage of efficiency (deviation from operation at the production frontier) | 10 | 0 |
| **Step 2: Metrics prioritized for peer review survey and field testing interviews** | | | | |
| Profitability ratio | Return on assets | Income / total assets | 12 | 5 |
| Efficiency / productivity ratio | Asset turnover ratio | (Net sales / total assets) or (net sales / Fixed assets) | 9 | 3 |
| Liquidity ratio | Current ratio | Current assets / current liabilities | 8 | 3 |
| Leverage ratio | Debt to equity ratio | (Total debt / total equity) or (long-term debt / total equity) | 9 | 3 |
| Solvency ratio | Ownership percentage | Total equity / total assets | 4 | 3 |

*NOTE: While the research team performed 20 expert interviews in total, one of 20 (5.0%) took place after the conclusion of the filtering process.*

## b. Findings on financial metrics from peer review survey

The 14 subject matter experts that responded to the peer review survey were asked to rate each metric on a one-to-five scale across various criteria to determine the appropriateness of each metric for USAID. The figure on the next page depicts the outcome of the survey.

Evidently, based on the peer review survey, no significant difference is identifiable between the financial metrics in terms of ease of data collection, usefulness for USAID, and applicability across a range of agricultural cooperatives and contexts. An exception is the Extra-Value Index metric, which received consistently lower rating than all metrics; the difference in rating between Extra-Value Index and other metrics was statistically significant based on a Wilcoxon signed-rank test[22], justifying discarding this indicator.

In terms of the usefulness for the cooperatives themselves, it seems that metrics that calculate debt, such as current ratio and debt to equity, slightly outperform others. Debt to equity ratio, in particular, received a leading rating of 4.25 in terms of usefulness for agricultural cooperatives. This metric averaged the highest overall rating, 3.70, across criteria due to its perceived utility for TA providers and agricultural cooperatives. However, debt to equity ratio earned a low rating in terms of data collection, possibly due to the limited use of member equity among the agricultural cooperatives in developing countries.

Rather than indicate that the debt to equity ratio is suboptimal in terms of the ability of cooperatives to calculate the metric, this feedback from peer review survey respondents may be based on the limited availability of equity data among developing world cooperatives. Per Weihe (2013), despite the importance of equity within the seven recognized international principles of cooperatives, "many if not most Fair Trade and cocoa co-operatives have little or no member equity. The literature of Fair Trade, many development organizations involved in co-operative development, and the chocolate industry that relies on co-operatives almost never mention or discuss the importance of member equity."[23] This finding suggests that metrics that rely on the practice of member equity may not be applicable across the wide range of agricultural cooperatives supported by USAID.

In all, the small sample size and statistical significance of the survey limited the conclusiveness of the data. The survey results did suggest, however, that ease of data collection and applicability across a wide range of agricultural cooperatives would be challenges when field testing the metrics and making a final recommendation. Additionally, the survey results suggested that agricultural cooperatives could benefit from effective use of a wide array of financial metrics, perhaps due to a perception among respondents that use of such metrics is currently limited. This finding is evidenced by the fact that the average rating for all metrics in terms of the criteria of usefulness for agricultural cooperatives, 3.98, was higher than that of any other criteria. It was clear that the research team needed to not only obtain more data around these metrics in Guatemala and Kenya for filtering purposes, but also to explore alternative metrics that might be easier to obtain.

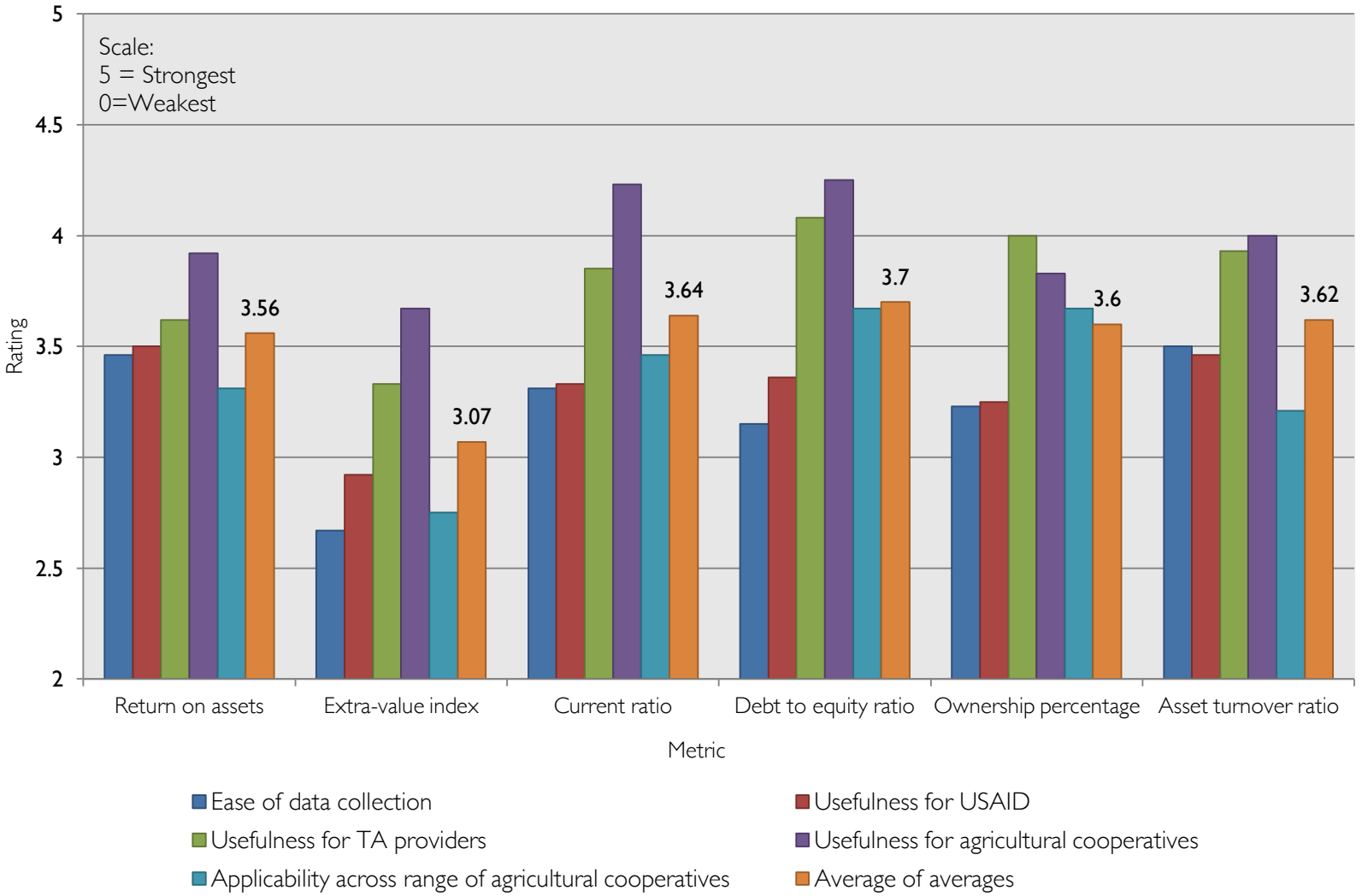
During field testing, it also became evident that the research team would need to identify and test additional metrics that might be more applicable to cooperatives with less developed financial systems, As discussed in section IV, initial feedback from TA providers and secondary cooperatives in Guatemala suggested that, due

[22] The research team performed a Wilcoxon signed-rank test to explore differences between ratings. Wilcoxon signed-rank is a statistical hypothesis test for assessing whether or not two related samples have different values from each other. This method is particularly applicable to very small samples (Field 2009).

[23] "Why Member Equity is Critical to Successful Cocoa Co-operatives." Ted Weihe. 2013 World Cocoa Foundation Partnership Meeting. Accessed March 23, 2016. http://www.worldcocoafoundation.org/wp-content/uploads/files_mf/138306901 2MemberEquity_revisionsoct10_Combined_1_.pdf

to perceived weakness in financial management among the agricultural cooperatives that receive USAID assistance, the financial metrics included within the peer review survey may not be applicable to the pre- and primary cooperatives. These initial interviews led the research team to adapt a semi-structured interview format aimed at understanding cooperative objectives, as well as current use of metrics and accounting practices, in order to ascertain the most widely applicable and easy-to-collect financial metrics. Please reference the following table for more data around the peer review metrics rating.

**Figure 6. Metric ratings from peer review survey (n=14)**



### c. Gross profit: findings on basic financial metrics from field testing, metric recommendation, and justification

The metric of gross profit, or sales revenue less cost of goods sold, is advantageous for USAID in measuring the enterprise-level sustainability of agricultural cooperatives because it:

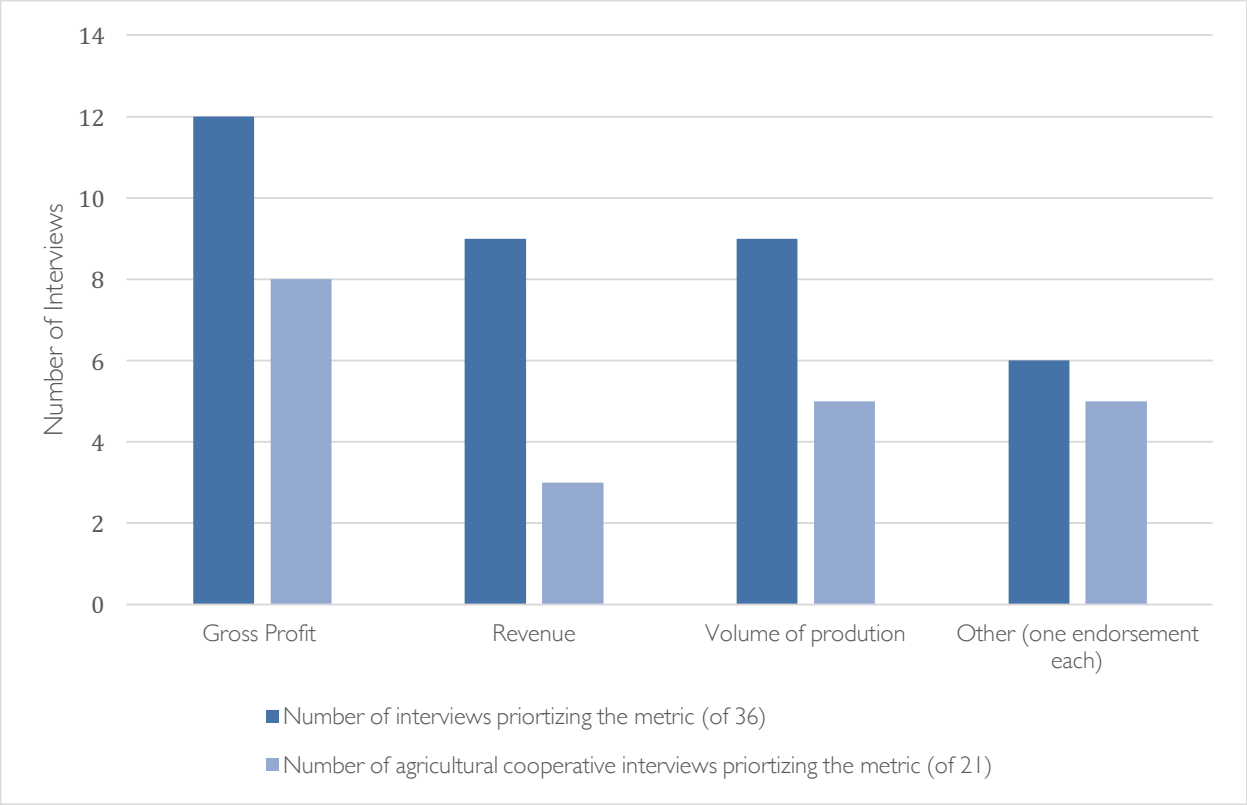
- Captures both external and internal performance;
- Correlates positively with member satisfaction and retention if there are dividend payments or patronage refunds, or reinvestment of profits in member services;
- Is feasible in terms of data collection; and
- Is endorsed by a plurality of agricultural cooperatives who indicated a single priority financial metric, or 12 of 36 (33.3%)

This section further discusses how the research team reached this conclusion through the peer review survey and field testing, including how the gross profit metric compares to other metrics that the research team has identified as priorities (see text box). The research team perceives gross profit as an indicator of enterprise-level health that can complement member benefit indicators to provide a comprehensive picture of cooperative sustainability. As such, the section below also discusses the relationship between enterprise and member benefits.

> The research team suggests that USAID use **gross profit**, or sales revenue less costs of good sold, rather than **net profit,** or gross profit less overhead and interests payable. According to a CDP implementer, while net profit is the ultimate indicator of financial viability, it is a less accurate and reliable metric due to challenges among agricultural cooperatives in development countries in calculating operating costs. Gross profit, on the other hand, is indicative of the relationship between production costs, or internal performance, and revenue, or external performance, which is a "stepping stone" to building an understanding of operating costs. According to the interviewee, "sometimes it is easiest to start with the basics and to build in some of the other metrics as you go." This approach is beneficial from the perspective of PM&E in that agricultural cooperatives, particularly nascent enterprises, would first be able to build the capacity to calculate production costs, then progress to calculating broader operating costs.

Through 29 interviews in Guatemala and Kenya, including 21 interviews with agricultural cooperatives, combined with the 20 expert interviews, the research team determined that metrics related to sales, such as gross profit, revenue, and volume of production, are the most widely applicable indicator for financial sustainability. Per the table below, when participants opined as to a single priority financial metric applicable to all agricultural cooperatives, sales-related metrics such as gross profit, revenue, and volume of production were favored in 29 of 36 (80.6%) interviews. Among interviews with agricultural cooperatives in Guatemala and Kenya, 16 of 21 (76.2%) organizations favored these metrics.

**Figure 7. Number of interviewees priortizing sales-related financial metrics**




Amidst these three metrics, gross profit would appear to be the priority. This metric was endorsed during a plurality of interviews, including approximately one-third of total interviews and slightly more than one-third of agricultural cooperative interviews. Additionally, the gross profit metric is representative of both external and internal performance, correlates positively with member satisfaction, and offers advantages in terms of ease of data collection. While other metrics such as revenue and volume of production may be more readily available among agricultural cooperatives, the gross profit metric has a sufficient comparative advantage so as to warrant USAID prioritization.

Research suggests the ability of this metric to encompass both external performance in terms of sales, as well as internal performance in terms of services to members and production efficiency are important. For example, according to a TA provider in Guatemala as well as a CDP implementer in the U.S., gross profit is vital as a metric because it takes into account both sales and administrative costs, both of which cooperatives need to manage efficiently in order to be sustainable.

While the research team proposes gross profit as a priority metric for understanding the enterprise-level sustainability of a cooperative, this metric would also appear to be indicative of benefits at the member level. According to a U.S.-based TA provider, profitability of the agricultural cooperative is the number one indicator of not just the financial sustainability of a cooperative, but also of whether or not members will remain part of the cooperative year after year. Another consulting firm interviewee indicated that "member satisfaction starts with profit. If there is profit, everything else falls in line."

Similarly, there is recognition among agricultural cooperatives that being able to calculate and report on this metric is an essential signpost, not just for development of the cooperative as an enterprise, but also for the satisfaction of members. For example, according to a primary cooperative in Guatemala, "during our annual general assembly, the members no longer care about volume of production or the price we are receiving for our products. Rather, the member are asking, what is the profit of the cooperative?"[24]

It is important to note that this positive relationship between enterprise profitability and member satisfaction and retention is, in part, linked to the provision of patronage refunds and dividend payments to members. In their review of literature regarding the commitment of members to cooperatives, Jussila, Goel, and Tuomenin (2012) indicate that

> *member commitment can also be increased via the sharing of profits. By getting a share of the profit (as dividends or patronage refunds) the member will get additional financial benefits, which an [investor-owned firm] cannot deliver (as the dividends go to external shareholders). In other words, the more the individual member gets as dividends or patronage refunds, the more committed that member will be.*[25]

Based on their literature review, the authors proceed to conclude the following:

> *[First], [t]here is a positive relationship between price benefits and [member] utilitarian commitment. ... [Second], [t]here is a positive relationship between production efficiency and utilitarian commitment. ... [Third], [t]he positive relationship between production efficiency and utilitarian commitment is mediated by price benefits. .... [Fourth], [t]here is a positive relationship between dividend payments and patronage refunds and utilitarian commitment.*[26]

That said, there are other ways that enterprise gross profit can facilitate member satisfaction. For example, according to a CDP implementer,

> *In addition to dividend payments, members will also base satisfaction on the services that they receive. Even if the cooperative is not providing a dividend, they can still have a satisfied member if the cooperative is investing that surplus in the services that it can provide, such as processing. In the cooperatives that we work with, there was more reinvestment of profit in services than there was redistribution.*

According to this CDP implementer, these agricultural cooperatives have seen a consistent growth in gross profit and number of members since receiving USAID assistance, despite the fact that only seven of 29 (24.1%) provide dividend payments, which in and of themselves are minimal. This finding suggests that, even in the absence of significant dividend payments, higher gross profit may drive higher member satisfaction, making this metric advantageous in terms of its applicability to a variety of surplus administration practices.

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**24** The research team has paraphrased all interview quotes.

[25] "Member Commitment in Co-operatives: The Utilitarian Approach." Iiro Jussila, Sanjay Goel, and Heidi Tuominen. 2012. Business and Management Research. Vol 1:3, page 11. <http://www.sciedu.ca/journal/index.php/bmr/article/viewFile/1448/714>

[26] Ibid.

Furthermore, the gross profit metric appears to present the advantage of being an appropriate means of measuring financial sustainability across various types of cooperatives.[27] According to an interviewee from a federation of agricultural cooperatives in Guatemala, gross profit is the optimal metric for measuring the financial sustainability of both primary and secondary cooperatives. The interviewee suggested that the fact that primary cooperatives in the coffee and cardamom sectors have been operating at a loss due to crop diseases and price declines will limit near-term profitability, making planning for future gross profits highly important.

In total, participants endorsed gross profit in eight of 12 (66.6%) agricultural cooperative interviews in Guatemala and Kenya, including six of 13 (46.2%) interviews with pre-cooperatives. These finding suggest that a range of cooperatives may be willing to take ownership over monitoring, reporting, and managing performance against this metric, in line with PM&E principles.

It is important to note that there was endorsement of financial sustainability metrics other than gross profit. However, these endorsements strengthen the argument for gross profit, rather than obviating this metric. The following paragraphs introduce the rationales for financial sustainability metrics other than gross profit, such as volume of commodities sold by members to the cooperative, revenue, and total sales, and also discuss why these metrics are less favorable than, and strengthen the argument for gross profit.

The fact that participants in 18 of the 37 (46.7%) interviews endorsed other metrics that figure into the gross profit formula, such as total sales, revenue, and volume of commodities sold by members to the cooperative, may suggest that even those organizations that do not think gross profit is the most appropriate indicator would be able to self-report on it. In Kenya, for example, nine of nine (100.0%) agricultural cooperatives interviewed currently track overall sales value, which is an essential component of the gross profit equation. Additionally, between Kenya and Guatemala, 22 of 22 (100.0%) agricultural cooperatives interviewed currently track the volume of product that each member sells to the cooperative; if all agricultural cooperatives with which USAID works can come to calculate production costs effectively, it may be feasible for cooperatives to disaggregate profit to average gross profit per member who sold into the cooperative, enabling richer analysis than simply deriving the overall gross profit for the enterprise. The availability of, and the potentially ability to disaggregate this data makes gross profit feasible and attractive from a data collection and self-reporting point of view in accordance with PM&E principles.

Needless to say, change over time in financial metrics other than gross profit, such as volume of member sales to the cooperative and total sales or revenue, also correlates with strong financial performance. According to a non-USAID USG interview participant, "the more volume you have, the more the cost on your per-unit basic drops, which is critical", assuming purchasing from members at market price. Increases in volume of production also facilitate greater access to finance over time, according to an interview participant from a federation of cooperatives in Guatemala. Furthermore, three of five (60.0%) Guatemalan agricultural cooperatives who endorsed volume of production volunteered that volume of production drives gross profit, enables employment, and facilitates purchasing agreements. According to a participant on one of these interviews in Guatemala, "more volume generates more revenue and more employment

[27] This perspectives is corroborated within "Understanding Heterogeneous Preferences of Cooperative Members." Nikos Kalogeras, Joost M.E. Pennings, Ivo. a. Van der Lans, and Phillip Garcia. 2009. Agribusiness: An International Journal. Vol 25:1, pages 90-11. Also, see "Which Co-op Ownership Model Performs Better? A Financial-Decision Aid Approach." Nikos Kalogeras, Joost M.E. Pennings, Theo Benos, and Michael Doumpos. 2013. Agribusiness: An International Journal. Vol. 29:1, pages 80-95. Dr. Kalogeras is a member of the research team.

opportunities for the community, and also enables us to meet our volume-bound contract with the buyer." Additionally, a participant in one of the three interviews indicated:

> *It is most important to know the volume of production. With more volume comes more profit. We invest in having greater production because, even if the price is low, it is helpful to have strong production. But if you don't have strong production, you are even more affected by price and you don't have any profit. When the price is low, our production is ever more important because we need volume to convince the buyers to come all the way up the mountain to buy our product.*

It is worth noting that, while there was an endorsement of volume of production versus gross profit at times, there are weaknesses in the justifications for prioritizing volume of production. For one, while higher volume sold by members to the cooperative may correlate with lower per-unit production costs, payment of above market price by cooperatives to attract more members may ultimately drive losses at the enterprise level. Second, while purchasing contracts or the ability to draw buyers to remote location may hinge on volume, agricultural cooperatives may not achieve enterprise health if the prices offered for their commodities are low. These findings correlate with the perspectives shared by a secondary cooperative in Guatemala, whose interviewees emphasized that commodity prices may have the largest impact on cooperative health. As such, it seems volume of product sold by members to the cooperative may be a less favorable metric of enterprise-level financial sustainability due to its failure to address pricing variations.

In terms of revenue, a TA provider indicated that, first and foremost, "the cooperative will want to track what it is selling, the quantity of sales, and the price they are receiving for the goods and services."

Evidently, there may be some rationale for prioritizing volume of production and revenue over gross profit, given the level of endorsement during interviews, as well as the ease of data collection. However, the gross profit metric, while largely aimed at measuring enterprise-level health, appears to be more effective than the volume of production or revenue metric in capturing sustainability in terms of both finance and patronage. According to an academic interviewee, cooperative members want most of all to not only increase sales at the enterprise level, but also decrease costs at the producer or member level:

> *What do cooperative members or producers receive through participating in a cooperative that makes them better off? Members are satisfied when their cooperative achieves more revenue for the output and can then help them minimize the cost of their inputs.*

This perspective correlates with a finding of The Economic Times, which analyzed return for investors based on the quarterly results of 2,334 publicly traded Indian firms in 2011. The Economic Times found that shareholders "prefer companies with higher profit over companies with higher revenue" because "the companies whose profit growth is consistently lower than the revenue growth are those that are unable to keep up with their costs."[28] That is, increases in costs over time can offset revenue gains, limiting value for shareholders. Drawing the connection between shareholders or investors and cooperative members, profit appears to correlate more heavily than revenue with not just financial health but also member benefits if cooperatives provide dividend payments or patronage refunds, per Jussila, Goel, and Tuomenin (2012).[29]

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[28] "Earnings: Should shareholders go for profit or revenue?" Sameer Bhardwaj. The Economic Times (India). May 30, 2011. <http://articles.economictimes.indiatimes.com/2011-05-30/news/29594844_1_top-line-growth-bottom-line-companies>

[29] Jussila, Goel, and Tuomenin. Member Commitment in Co-operatives: The Utilitarian Approach, 11.

It is telling that, when interview participants endorsed a single metric for patronage, or the value that cooperatives provide to their members, eight of 38 (21.2%) interviews included endorsements of average gross profit per member. That level of endorsements makes the metric second among all patronage metrics in terms of interviews in which participants put forward priority means of measuring member benefit (to be discussed further in section 4.1.2), and further demonstrates the importance of measuring gross profit.

### d. Potential limitations to the gross profit metric and mitigation measures

It is worth taking into account the potential disadvantages with this indicator and how USAID may overcome them. First, while the availability of revenue data strengthens the validity of this metric in terms of ease of data collection, determining gross profit also requires knowing the cost of production, which does not appear to be widely calculated by primary cooperatives. In Kenya, nine of the nine (100.0%) primary agricultural cooperatives interviewed indicated that they do not currently calculate cost of production. In Guatemala, two of the five (40.0%) agricultural cooperatives that endorsed gross profit as a priority metric do not currently calculate cost of production, either. A pre-cooperative interview in Guatemala indicated that their cost of production calculations are "more of an estimate", but are far from comprehensive.

It may only be feasible to prioritize the gross profit metric if there is training on how to calculate costs, given the limited extent to which pre- and nascent, as well as primary cooperatives calculate cost of goods sold. USAID may need to incorporate additional resources in its assistance to assess the ability of agricultural cooperatives to calculate the cost of production, and to train and mentor agricultural cooperatives in carrying out the calculation. Such training would contribute to the PM&E objective of building target community or organization capacity and fostering ownership over metrics. As indicated during an interview with a pre-cooperative in Guatemala, "we do not calculate costs, but we do know sales and we would like to receive assistance to be able to" determine current versus target cost of goods sold at the member level in order to optimize production efficiency.

A second possible limitation to this metric is that, as a metric that agricultural cooperatives can self-report with training, there may be a higher risk of transcription error or data manipulation than if an M&E specialist were reporting on the metric. Prior to, during, and immediately following trainings on this metric, the risk of transcription error may be higher, requiring mentoring and data quality assessments from CDP implementers. The USAID Data Quality Assessment Checklist and Recommended Procedures provides several recommendations that may help self-reporting cooperatives mitigate this risk, such as: establishing procedures or safeguards to minimize data transcription; ensuring independence in the management, collection, and assessment of data related to the indicator; and developing mechanisms to prevent unauthorized changes to the data.[30] These same recommendations may be applicable to all self-reported indicators.

A third possible limitation of the gross profit metric may be that, despite the finding that the gross profit metric may be applicable to cooperatives of various sizes, the focus on pre- or primary cooperatives during field testing may have caused the research team to overlook the dynamics of larger cooperatives. Nineteen of 22 (86.4%) agricultural cooperatives interviewed were either pre- or primary cooperatives; 16 of these 19 (84.2%) pre- or primary cooperatives currently participate in USAID programming. These cooperatives are largely within approximately three to five years of incorporation, meaning that the data collected by the research team may underrepresent the experience of larger-scale primary cooperatives.

[30] "Data Quality Assessment Checklist and Recommended Procedures." USAID. Accessed February 16, 2016. <https://usaidlearninglab.org/sites/default/files/resource/files/Data Quality Assessment Checklist.pdf>

According to Lerman and Parliament (1991) in a study of 43 dairy, food, grain, and farm supply cooperatives in the U.S., large regional cooperatives are more efficient in utilizing assets to generate sales, while small regional cooperatives have higher profitability.[31] Other studies, such as McKee (2008)[32] and McKee, Shaik, and Boland (2009)[33] have contested the notion that there is a positive correlation between asset size and profitability. Were USAID to consider emphasizing assistance to large-scale primary cooperatives to a greater degree, it may be worth considering to what extent profit is a priority versus other financial objectives. Please find below the suggested USAID Performance Indicator Reference Sheet (PIRS) for more detail about how the Agency should administer this metric:

**Table 8. USAID performance indicator reference sheet: Gross profit**

| |
|---|
| **Name of Result Measured (Goal, DO, IR, sub-IR, Project Purpose, Project Output, etc):** |
| **Name of Indicator:** Gross profit |
| **Is this a Performance Plan and Report Indicator?: No __ Yes__, for Reporting Years(s) __**<br>**If yes, link to foreign assistance framework:** |
| **DESCRIPTION** |
| **Precise Definition(s):** Sales revenue less cost of goods sold |
| **Unit of Measure:** U.S. dollars |
| **Disaggregated by:** Discrete products and services, member |
| **Rationale or Justification for indicator (optional):** Endorsed by a plurality of agricultural cooperatives interviewed across a range of cooperative types, captures elements of both external and internal performance, correlates with member satisfaction, and accessible in terms of data collection. |
| **PLAN FOR DATA COLLECTION BY USAID** |
| **Data Source:** Financial records of agricultural cooperatives supported by USAID |
| **Method of data collection and construction:** Self-reported |
| **Reporting Frequency:** Yearly |
| **Individual(s) responsible at USAID:** USAID CDP manager |
| **DATA QUALITY ISSUES** |
| **Dates of Previous Data Quality Assessments and name of reviewer:** |
| **Date of Future Data Quality Assessments (optional):** Three years following deployment |
| **Known Data Limitations:** Data integrity as with any self-reported indicator[1] |
| **TARGETS AND BASELINE** |
| **Baseline timeframe (optional):** Year |
| **Rationale for Targets (optional):** Identify trends and projections for volume of production, volume of sales, price, and cost of production |
| **CHANGES TO INDICATOR** |
| **Changes to indicator:** |

[31] "Size and Industry Effects in the Performance of Agricultural Cooperatives." Zvi Lerman and Claudia Parliament. Agricultural Economics. 1991. Vol. 6:1, pages 15-29.
[32] "The Financial Performance of North Dakota Grain Marketing and Farm Supply Cooperatives." Gregory McKee. 2008. *Journal of Cooperatives.* Vol 2, pages 15-34.
[33] "Role of Financial Variables in Explaining Profitability of North Dakota Farm Supply and Grain Marketing Cooperatives." Gregory McKee, Saleem Shaik, and Michael Boland. 2009. *Journal of Rural Cooperation*. Vol 37:2, pages 261-272.

## 1. Patronage metrics applicable to all agricultural cooperatives

### a. Patronage metrics filtered for peer review and field testing

Following the literature review and expert interview phases, the research team engaged in its first filtering of patronage metrics in order to determine which metrics to include in the peer review survey and field testing phases. The research team prioritized for further testing the patronage metrics that had been referenced in at least three literature review sources and at least three expert interviews, or that had been referenced in at least six expert interviews. As the literature review had yielded few references to metrics for measuring patronage value, the research team mainly derived the metrics from expert interviews. As a result, few metrics needed to be filtered out by the research team prior to the peer review survey and field testing interviews.

It is important to note that, while the member loyalty metric categories of retention rates and members versus farmers had received frequent references, the research team removed these metrics from the peer review survey because in-selling and member satisfaction seemed to capture similar information. Additionally, the research team attempted to keep the field of metrics as streamlined as possible to maximize survey participation. It is important to reiterate that all metrics are based on time series data.

The table below depicts the filtered list of patronage metrics prioritized for peer review and field testing:

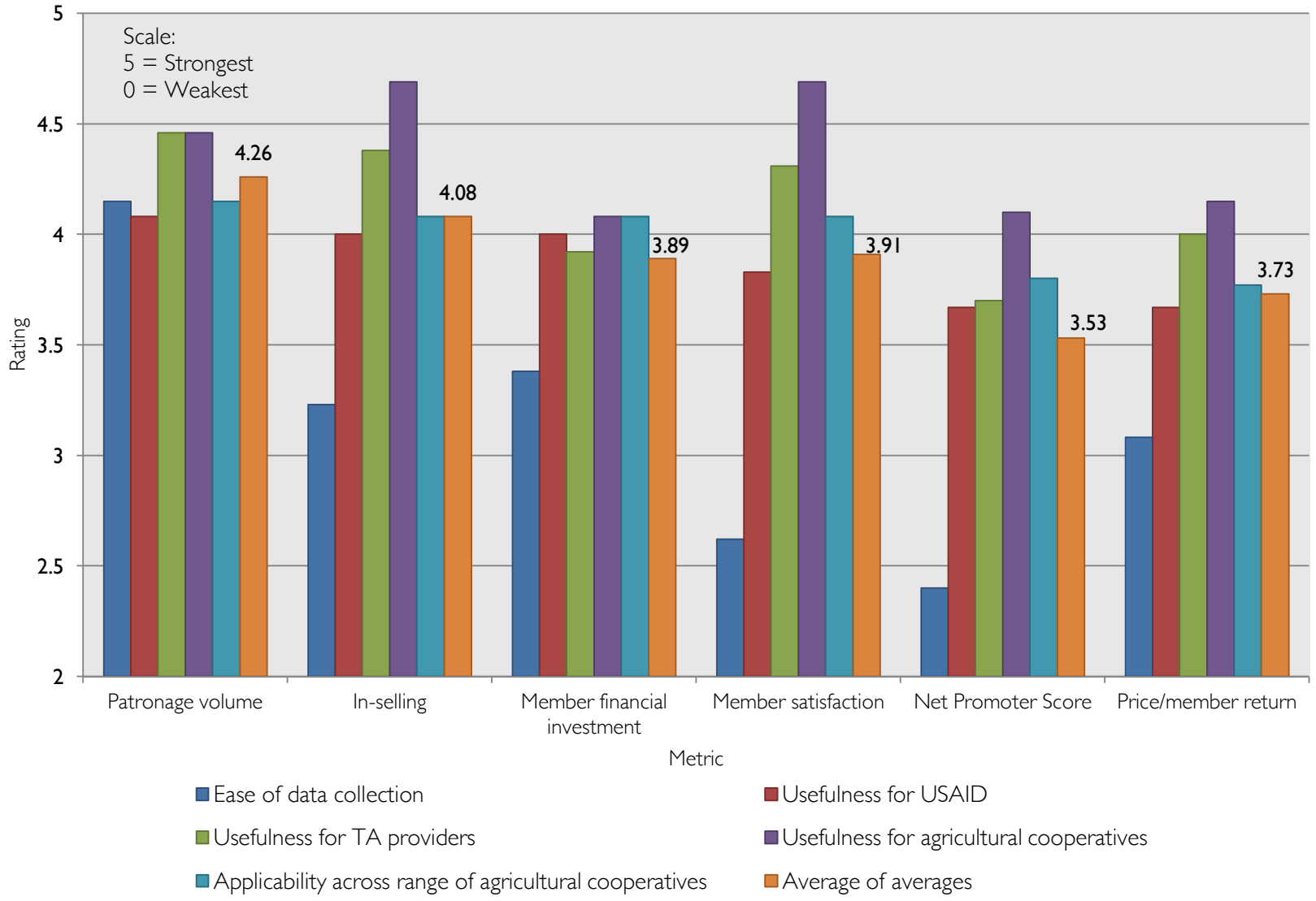
**Table 9. Patronage metrics identified through literature review and expert interviews**

| Patronage metric category | Patronage metrics | Number of references | |
|---|---|---|---|
| | | Literature review (of 73 sources) | Expert interview (of 19 sources) |
| Patronage volume data | Volume collected / number of members | 3 | 9 |
| In-selling | Volume delivered to the cooperative / total member volume | 2 | 12 |
| Member loyalty – Attitudinal | Net Promoter Score | 0 | 6 |
| Member financial investment | Member equity / total equity | 3 | 5 |
| Member satisfaction | Satisfaction scales regarding pricing, services, governance, operations, communication, and overall perspective | 5 | 5 |
| Price & member returns | • Price premiums<br>• On-time patronage refund<br>• Margin stability<br>• Dividend returns and net income (surplus) distribution | 4 | 6 |

### b. Findings on patronage metrics from peer review survey

The 14 subject matter experts that responded to the peer review survey were asked to rate each metric on a one-to-five scale across various criteria to determine the appropriateness of each metric for USAID. The table on the following page depicts the outcome of the survey as far as patronage metrics are concerned.

**Figure 8. Metric ratings from peer review survey**



Per the above table, patronage volume and in-selling receive the highest average ratings across the five criteria, with in-selling, or volume of commodities delivered to the cooperative divided by total member volume, ratings particularly high in terms of usefulness for agricultural cooperatives but low in terms of ease of data collection. Peer review survey respondents perceived member satisfaction to be particularly valuable for cooperatives themselves, but challenging in terms of ease of data collection. Similarly, Net Promoter Score achieved low ratings with regards to ease of data collection, in particular.

Since patronage volume, or volume collected divided by number of members, is comparable to the volume of production metric discussed previously, the research team decided to remove that metric from prioritization. As discussed, volume of production is useful but it not as representative as gross profit when it comes to both external and internal performance.

As with financial metrics, feedback collected from TA providers in country prior to field testing the metrics in Guatemala and Kenya demonstrated that it would be necessary to adjust the metrics and adopt a semi-structured interview format. For instance, two of two (100.0%) TA providers interviewed in Guatemala prior to commencing interviews with primary cooperatives indicated that, while important, member satisfaction would not be feasible in terms of data collection. Granted, as indicated within the "Integrating Mobiles into Development Projects" handbook prepared for USAID, "mobile technology is ideally suited to support ... efforts to ... [collect data on] certain performance metrics dealing with the attitudes of beneficiaries ... through the use of enumerators or through self-reporting."[34] Additionally, based on e-mail exchanges with USAID, the research team understands that four of 10 (40.0%) CDP implementers have recently employed the Net Promoter Score methodology in mid-term evaluations as a means of measuring member satisfaction. These findings suggest that use of cell phone-enabled surveys or Net Promoter Score is not unfeasible in the context of USAID agricultural cooperative development assistance.

That said, field testing revealed that there are several key limitations with the member satisfaction metrics that go beyond ease of data collection and center on data fidelity. These limitations include the cost of conducting independent perception surveys. Another limitation is the anticipated fidelity of self-reported satisfaction data as a result of a lack of clear conception among members of what exact services the cooperative provides and the level of social conflict within many targeted communities. Specifically, a secondary cooperative interviewee in Guatemala indicated that, due to the high degree of social conflict in the communities that host the targeted primary cooperatives, historical tensions between communities or community members might have an outsized influence on survey data versus perceptions of the quality of cooperative services. In all, four of 12 (33.3%) agricultural cooperatives interviewed in Guatemala, indicated that member satisfaction would not be helpful as a sole indicator of the benefit that members receive for participating in an agricultural cooperative. These perspectives included two of two (100.0%) TA providers, one of five pre-cooperatives (20.0%), and one of five (20.0%) primary cooperatives interviewed in Guatemala.

Moreover, a participant in an interview with a secondary cooperative in Guatemala indicated that limited administrative capacity and experience measuring member benefits would likely hamper the ability of primary cooperatives to calculate the proposed metrics.

While initial review of the questionnaire did not suggest that it would be necessary to do away with these patronage metrics all together, the research teams in Guatemala and Kenya decided to adopt a semi-structure interview format. This approach enabled collection of data around financial metrics and patronage

[34] "Integrating Mobiles into Development Projects." Josh Woodard, Jordan Weinstock, and Nicholas Lesher. 2014. i. < https://www.usaid.gov/sites/default/files/documents/1861/M4DHandbook_August_2014.pdf>

metrics in a similar fashion. This format also allowed the research team to collect more general information about how agricultural cooperatives perceive membership benefits and appropriate measurements, and to probe on several previously identified metrics where appropriate.

### c. Number of active members: findings on basic patronage metrics from field testing, metric recommendation, and justification

The metric of number of active members is advantageous for USAID because it:

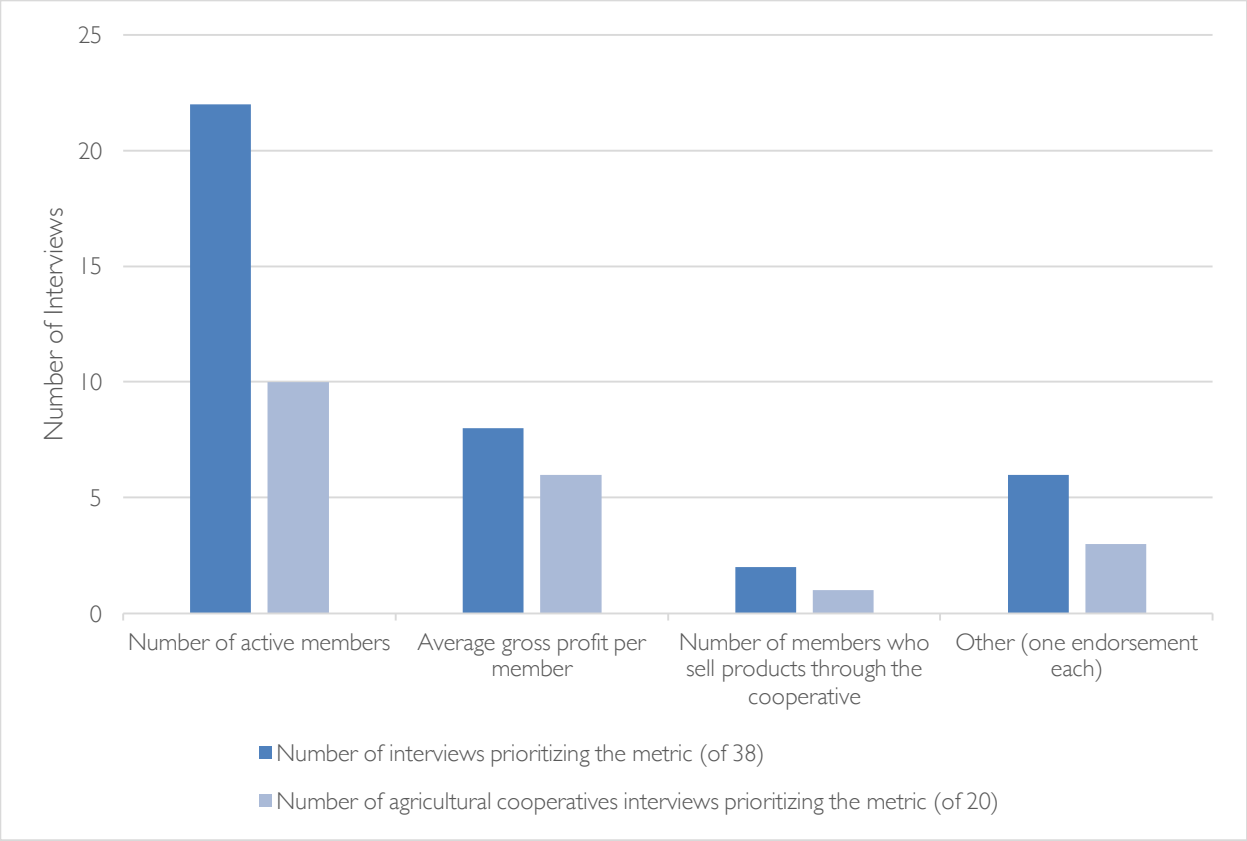
- Is easy for data collection and self-reporting;
- Serves as a proxy for other important but difficult-to-calculate patronage metrics, such as member satisfaction and Net Promoter Score;
- Complements the gross profit metric; and
- Was endorsed in 23 of 39 (59.0%) interviews in which participants suggested a single priority patronage metric.

The section below further discusses how the research team reached this conclusion through the peer review survey and field testing, including how the number of active members metric compares to other metrics that the research team has identified as priorities for measuring member benefits.

Interview participants proposed a single most important patronage metric that would be applicable to all agricultural cooperatives in 39 of 49 (79.6%) total interviews, including 20 of 22 (90.1%) interviews with agricultural cooperatives between Guatemala and Kenya. Number of active members was endorsed by participants in 23 of 39 (59.0%) interviews in which participants proposed a single most important patronage metric, including 10 of 20 (50.0%) interviews with agricultural cooperatives and 11 of 20 (55.0%) expert interviews. In contrast with the proposed financial metric, in which interview participants endorsed gross profit in a plurality of applicable interviews, there is a clear majority in terms of support for this patronage metric.

In addition to the strong endorsement of the number of active members metric, eight of 38 (21.1%) interviews, including six of 20 (30.0%) agricultural cooperative interviews, saw participants endorsing average gross profit per member as the most applicable metric. Number of members who sell products through the cooperative was endorsed by participants in two of 38 (5.3%) applicable interviews. In six of 38 (15.8%) interviews participants endorsed other metrics, with none of these metrics garnering more than one endorsement. The table below depicts these statistics in graphic form.

**Figure 9. Number of interviews prioritizing patronage metrics**




Based on this analysis, the research team concluded that the number of active members should be the priority patronage metric for USAID to apply across all agricultural cooperatives. This metric presents multiple benefits to USAID, including ease of data collection, correlation with other important but difficult-to-calculate patronage metrics, and complementarity with the proposed financial metric.

In terms of ease of data collection, 22 of 22 (100.0%) agricultural cooperatives interviewed were able to inform the research team of the number of active members based on memory recall, member registries, and meeting attendance lists. Moreover, all agricultural cooperatives were able to clearly differentiate between registered members and active members. While the definition of active members appears to vary across agricultural cooperatives, possibly including themes such as meeting attendance and product sales through the cooperative, whether or not members were current in annual payment due to the cooperative was a factor used to determine whether or not a member is active in 22 of 22 (100.0%) agricultural cooperatives interviewed. In this sense, cooperatives universally understood the importance of members

being active, rather than simply registered.[35] This dynamic implies that not only are agricultural cooperatives likely to take ownership of this metric as evidenced by the level of endorsement, they will be able to calculate and self-report on the metric themselves without additional training from USAID. This metric therefore appears advantageous in terms of advancing PM&E objectives.

In addition to presenting data collection benefits, change in number of active members over time serves as a valuable proxy metric for member satisfaction. A CDP implementer in the U.S. indicated that this metric measures whether or not members are returning to the cooperative year after year, and, thus, whether or not they are satisfied. Similarly, a TA provider in Guatemala indicated that this metric captures not only member satisfaction with cooperative economic performance, but also satisfaction with governance, a key factor of cooperative performance according to Ruben and Heras (2012),[36] Franken and Cook (2013),[37] and Chibanda, Ortmann, and Lyne (2009).[38] As indicated by a primary cooperative in Guatemala, "if a member ceases to be active and the numbers go down, it is because that member is not happy with the benefits they are receiving."

Endorsement was not limited to Guatemala; seven of 10 (70.0%) agricultural cooperatives interviewed in Kenya endorsed the number of active members as the priority patronage metric. An interview participant among this group indicated that change in active membership over time also captures the extent to which previously disengaged community members are being drawn by the perceived benefits received from current members. This metric would thus appear to capture not only the benefits received by members, but the broader effect of the cooperative at the community level.

In addition to reflecting member satisfaction, research suggests that measuring change in the number of active members over time captures the broader financial health of the cooperative. This perspective appears to be particularly resonant among pre-cooperatives. According to a pre-cooperative interviewed in Kenya, an increase in active membership will result in increases in savings, product aggregation, revenue, and profit. Two of five (40.0%) pre-cooperatives interviewed in Guatemala echoed this perspective, with interview participants volunteering that membership growth drives increased access to capital and, therefore, buying power and ability to expand member services. Moreover, according to a pre-cooperative interviewed in Guatemala, "more members equals more funding for projects, as well as more skilled farmers to be able to sell a larger volume and thus establish more alliances with purchasers."

In this way, there appears to be a strong complementarity between the proposed patronage metric of number of active members and the proposed financial metric of gross profit. A CDP implementer echoed

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[35] It is important that there be a universal definition of this indicator for M&E purposes. According to the Organisation of Economic Co-operation and Development (OECD) Guidelines on Measuring Subject Well-being, subjective indicators are valuable in capturing self-perception and "can provide an important complement to other indicators already used for monitoring and benchmarking... performance, for guiding people's choices, and for designing and delivering policies." However, because definitions vary, such subject indicators "need to be collected with large and representative samples and in a consistent way across different population groups and over time... to be most useful to governments and decision-makers."

[36] "Social Capital, Governance, and Performance of Ethiopian Coffee Cooperatives." Ruerd Ruben and Jorge Heras. Annals of Public and Cooperative Economics. Vol. 83:4, pages 463-484, December 2012.

[37] "Governance and Performance of Multipurpose Cooperatives." Jason Franken and Michael Cook. Selected paper prepared for presentation at the International Conferences on Economic and Management of Networks. Morocco. November 21 - 23, 2013. <https://emnet.univie.ac.at/uploads/media/Franken__Cook__2_.pdf>

[38] "Institutional and Governance Factors Influencing the Performance of Selected Smallholder Agricultural Cooperatives in Kwazulu-Natal." Michael Chibanda, Gerald Ortmann, and Michael Lyne. Agrekon. Vol. 48:3, pages 293-306, 2009.

this perspective, indicating that the number of active members metric is most effective when combined with the gross profit metric because analysis revealing a negative correlation between the two over time may indicate a significant need to change course, while analysis revealing a positive correlation between the two over time may lead to the opposite diagnosis. Complementarity between indicators is important because, since "no single indicator can capture the desired change [of a program, programs] should aim to employ complementary baskets of indicators."[39] Incorporating gross profit and number of active members into USAID reporting, according to a TA provider in Guatemala, would give implementers

> *a better idea of the overall sustainability of the cooperative. It would be quite useful. Usually, when there is an improvement at the member level, there is an improvement in sustainability at the cooperative level in terms of economics and finances. So, there is a correlation between these indicators.*"

### d. Potential limitations to the number of active members metric and mitigation measures

There are some potential disadvantages with measuring change in active membership that USAID should take into account and take steps to overcome. This section will first introduce some possible limitations to this metric, then discuss possible means of overcoming these limitations.

A first challenge with the number of active members metric has to do with project-level M&E processes, wherein, given the positive correlation between gross profit and active membership, CDP implementers may chose to set active membership growth goals over the course of the project with agricultural cooperatives. This tendency would appear to correlate with the recommendations of Kolade and Harpham (2014), based on their analysis of 326 farmers in southwestern Nigeria. The researchers concluded that, due to "the positive correlation of cooperative membership with farm sales, and the positive correlation of adoption of high-yield maize and irrigation with farm sales,"[40] "intervention programs in the agricultural sector should focus more attention on strengthening and expanding farmers' cooperatives."[41]

However, it could be that developing membership growth targets may require a high degree of subjectivity, varying based on the location, sector, and level of development of each cooperative. As indicated by an M&E specialist of a TA provider interviewed in Guatemala, the number of active members is a valid indicator, "but you should not impose growth goals because there may not be sufficient people in a given area for the cooperative to grow consistently each year." A CDP implementer echoed this perspective, indicating that one of its more developed, successful agricultural cooperative partners purposefully limits membership by keeping the cost of entry high so as to ensure that members buy into, and sell into the cooperative and provide services to non-members. Another CDP implementer mentioned that emphasis on membership growth will decrease as cooperatives get closer to meeting their installed capacity with production volume.

Given this nuance, it may be difficult to develop a global formula to determine membership growth targets that is applicable across all agricultural cooperatives. In order to mitigate this issue, it may be necessary to develop a standard approach to setting targets collaboratively with the agricultural cooperatives. This approach may be resource intensive compared to a employing one-size-fits-all growth target, but may lead

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[39] "Monitoring and Evaluating Flexible and Adaptive Programming." Julian Barr. Information Training and Agricultural Development. April 2015 <http://www.itad.com/monitoring-and-evaluating-flexible-and-adaptive-programming/.>
[40] "Impact of cooperative membership on farmers' uptake of technological innovations in Southwest Nigeria." Oluwaseun Kolade and Trudy Harpham. Development Studies Research. Vol. 1.1, page 351, 2014.
[41] Kolade and Harpham, 2014, page 340.

to more effective goal setting and management over the course of a project.[42] Additionally, given the importance of encouraging in-selling per the next section, USAID may wish to consider employing a multidimensional definition of active membership that includes both dues payment and in-selling. Such a definition may be more comprehensive but also more difficult to manage, as use of this basic metric, number of active members, would become dependent on the ability of agricultural cooperatives to employ a more complex metric, in-selling.

A second possible challenge with prioritizing number of active members as the patronage metric of choice could be that this metric, as well as its potential for change over time, may vary based on cooperative size and type. In one example, a CDP implementer suggested that, because the cooperative law in a certain Sub-Saharan African country permits establishing a cooperative with very few members, forming secondary cooperatives may be the only way to achieve impactful membership growth. This dynamic could limit the utility of measuring change in number of active members over time for all but larger and secondary cooperatives. A U.S. TA provider appeared to echo this perspective, indicating that

> *primary cooperatives tend to want to stay small but open to non-member sourcing of product in order to increase the per member share value.[43] Secondary cooperatives tend to want to expand cooperative members to gain marketing and purchasing advantage for their member cooperatives.*

The data collected through field testing interviews may contradict this notion. The research team found that seven of 13 (53.9%) pre-cooperatives, two of four (50.0%) primary cooperatives, and one of three (33.3%) secondary cooperatives interviewed endorsed number of active members as the priority patronage metric. This finding suggests that pre- and primary cooperatives may, in fact, be more open to placing emphasis on growing membership than secondary cooperatives. Nonetheless, larger sample sizes may be necessary to accurately segment the population according to cooperative level. Such analysis may be useful if USAID were to consider placing greater emphasis on support to larger cooperatives over smaller and nascent cooperatives within CDP.

A third potential limitation is that this metric may be vulnerable to market distortions and perverse incentives. First, this metric could possibly produce a type of free rider problem through perverse incentives, wherein cooperatives emphasize bringing on new members who continuously meet minimum requirements for active membership while prioritizing sales to intermediaries rather than the cooperative. Because intermediaries will continue to offer cooperative members higher prices for their product than the cooperative itself, members may have an incentive to provide minimal investment so that the cooperative will continue to favorably influence the market. The cooperative may thus appear active in that more and more members are current with payment, but with no correlation with enterprise-level development. Second, while support or subsidies from international development organizations or governments may drive

[42] As this assignment was focused on validating metrics of financial sustainability and patronage value, the research team did not analyze the optimal method of measuring cooperative growth. That said, there was feedback from interviewees around how to best approach this task. For example, as indicated by a TA provider in Guatemala and a consulting firm interviewee in the U.S., it may be preferable to measure membership growth in terms of the percentage of farmers or producers in a given area who join the cooperative, rather than simply emphasizing percentage growth in number of members over time. This approach could be valuable in taking into account the cooperative's share of the market.

[43] It is not the intention of the research team to suggest that members who profit from non-member business should or should not be considered active members by cooperative administrators. Rather, this quote serves as an example of one interviewee perspective on how different cooperatives approach the membership question in practice, based on the experience of that interviewee.

membership growth, the metric may not necessarily be indicative of sustainable, commercially viable development.[44]

In response to market distortions and perverse incentives such as these, Francesoni, Cook, and Livingston (2015) indicate that "economic incentives ought to be better targeted to selectively promote the development of agri-coop[erative]s with well-defined membership rules decision, and claim rights, and a common purpose."[45] In order to overcome these types of distortions, USAID could emphasize that

> *members' entry needs to be regulated – for example, through the adoption of entrance fees set in proportion to the expected economic gains of new members – and that members' exit needs to be facilitated – for example, through exit bonuses or compensations set in proportion to the contributions previously made by exiting members to their organization.*[46]

Evidently, despite these potential challenges, there are viable means of overcoming the limitations surrounding the number of active members metric. It is important to reiterate that this metric would be the most widely endorsed and the most widely applicable metric for USAID to adopt, based on interviews conducted, indicating high perceived utility for agricultural cooperatives themselves. Additionally, unlike measuring gross profit, measuring number of active members would not appear to require additional training for agricultural cooperatives, and thus may not contribute as directly to the PM&E objective of building target community capacity as the proposed finance metric. Nonetheless, given the complementarity between these two metrics and the correlation between membership volume, member benefits, and enterprise health in the eyes of interviewees, this metric would appear to capture member value effectively.

Please find below the PIRS for more detail about how the Agency should administer this metric:

[44] Based on Francesconi, Cook, and Livingston's "A Policy Note on Agricultural Cooperatives in Africa," published by the International Center for Tropical Agriculture in 2015 and accessible at https://cgspace.cgiar.org/bitstream/handle/10568/69554/Gender_and_FTA_value_chain_in_LAM_2015_(2).pdf?sequence=1. See page 3.
[45] Francesoni, Cook, and Livingston, 2015, 4.
[46] Ibid.

**Table 10. USAID performance indicator reference sheet: number of active members**

| |
|---|
| **Name of Result Measured (Goal, DO, IR, sub-IR, Project Purpose, Project Output, etc):** |
| **Name of Indicator:** Number of active members |
| **Is this a Performance Plan and Report Indicator? No __ Yes__, for Reporting Years(s) __**<br>**If yes, link to foreign assistance framework:** |
| **DESCRIPTION** |
| **Precise Definition(s):** Number of current cooperative members who satisfy the requirements of their cooperative for remaining current with membership and loan payments |
| **Unit of Measure:** Number of people |
| **Disaggregated by:** Men/women, members between ages 16-25, members added/lost |
| **Rationale or Justification for indicator (optional):** Endorsed by a plurality of agricultural cooperatives interviewed across a range of cooperative types, represents easy-to-collect information, serves as proxy for member satisfaction with cooperative financial performance and governance, and complements the proposed financial metric of gross profit |
| **PLAN FOR DATA COLLECTION BY USAID** |
| **Data Source:** Membership registry and financial records of agricultural cooperatives supported by USAID |
| **Method of data collection and construction:** Self-reported |
| **Reporting Frequency:** Yearly |
| **Individual(s) responsible at USAID:** USAID CDP manager |
| **DATA QUALITY ISSUES** |
| **Dates of Previous Data Quality Assessments and name of reviewer:** |
| **Date of Future Data Quality Assessments (optional):** First three years following deployment of the indicator |
| **Known Data Limitations:** Potential limitations in data integrity as with any self-reported indicator; [47] |
| **TARGETS AND BASELINE** |
| **Baseline timeframe (optional):** Year |
| **Rationale for Targets (optional):** Identifying trends and projections in membership growth and financial performance, taking into account the potential correlation between annual gross profit and annual change in membership |
| **CHANGES TO INDICATOR** |
| **Changes to indicator:** |
| **Other Notes (optional):** |

[47] Limitation derived from "USAID Data Quality Assessment Checklist and Recommended Procedures." Accessed February 16, 2016. <https://usaidlearninglab.org/sites/default/files/resource/files/Data Quality Assessment Checklist.pdf>

# C. COMPLEX METRICS THAT USAID MAY PILOT AND PHASE ACROSS AGRICULTURAL COOPERATIVES

## 1. Return on assets: complex financial metric that USAID may pilot and phase across agricultural cooperatives

Return on assets appears to be the most advantageous and practical financial metric for USAID to deploy with more established cooperatives first through a pilot, then, based on this pilot, deploy more broadly across agricultural cooperatives. The table below outlines some key considerations regarding this metric.

**Table 11: Summary of advantages and limitations for return on assets**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Financial** | Return on assets (revenue / total assets) | • May be applicable across a range of agricultural cooperatives, with some training on asset valuation<br>o Eight of nine (88.9%) primary cooperatives interviewed in Kenya currently track total asset value<br>• Correlates positively with profitability and ability to manage risk due to unexpected market shifts, possibly including climate change | • Training may be necessary to overcome limited calculation of asset value among pre-cooperatives<br>o Two of five (40.0%) pre-cooperatives interviewed in Guatemala do not currently use asset registries |

As previously discussed, gross profit appears to be the most favorable metric for USAID to measure the enterprise-level financial sustainability of agricultural cooperatives, in part due to the applicability of this metric across the range of agricultural cooperatives to which USAID provides assistance. That said, the research team recommends that USAID deploy a complementary metric for measuring the financial sustainability of more established agricultural cooperatives, including secondary cooperatives as well as primary cooperatives with the capability to add value to raw products.

Per table 7, return on assets had the second lowest rating of all six financial sustainability metrics analyzed within the peer review survey. As compared to the average ratings across key criteria, respondents rated return on assets above average in terms of usefulness for USAID but below average in all other categories. In terms of applicability across the range of agricultural cooperatives, return on assets received a rating of 3.31 of 5; the average was 3.35, and only the asset turnover ratio metric was rated lower in this category.

This poor rating seems to reflect the finding that measuring assets may be more important for businesses, or for larger cooperatives, than for the small and medium-sized cooperatives with which USAID typically works through CDP. McKee (2008) corroborates this finding in determining that large cooperatives are more likely to post positive returns on assets, while smaller cooperatives often present negative returns on assets and

tend to provide returns as transfers from other entities.[48] A CDP implementer indicated that larger, more established primary cooperatives, as well as secondary cooperatives may be more likely to be able to collect the data necessary to calculate this metric, given the limited financial management capacity of the pre- and nascent primary cooperatives with which the implementer works. The same CDP implementer suggested that pre-, nascent, or generally less established cooperatives may be more likely to not own assets, but rather to possess informal land titling, loaned equipment, or donations from governments or international development organizations, complicating the calculation of asset value. These findings point to a possible gap in applicability of this metric based on cooperative size and maturity. Moreover, according to the U.S. Overseas Cooperative Development Council (OCDC) publication, *Measuring Cooperative Success: New Challenges and Opportunities in Low- and Middle-Income Countries* (2009):

> *For a cooperative, measuring business success is more complicated than for an investor-owned business. For the latter, the objective is to maximize profit or rate of return on equity [the difference between assets and debt]. For cooperatives, the objective simply may be to give members a better price or service. [49]*

This excerpt reflects a perception that asset measurement may not be as important for cooperatives as it is for investor-owned businesses. However, the OCDC publication goes on to indicate that "increasing equity (the difference between assets and debt) is a sign of success and of the ability to meet temporary setbacks."[50] That is, while measuring assets as a means of ascertaining financial sustainability has been more common for investor-owned firms than cooperatives, it is nonetheless an important indicator for cooperatives. Indeed, OCDC has recommended that USAID prioritize return on assets for inclusion in FACTS as the priority financial sustainability indicator for assistance to agricultural cooperatives. According to OCDC, return on assets:

> *is an indicator of profitability (for a co-op, profit is also referred to as a surplus). Total assets represent the cooperative's total investment applied to earning a surplus - it is the surplus that is necessary to return a patronage reward to members and to grow a cooperative. Thus return on assets is the basic measure of profitable or surplus-providing performance.[51]*

Additionally, data collected from interviews with agricultural cooperatives suggests that, with training and TA, calculating assets is feasible for agricultural cooperatives across various levels of maturity. In Kenya, nine of the 10 (90.0%) agricultural cooperatives interviewed, including eight of nine (88.9%) pre- and primary cooperatives interviewed, currently have registries of total assets.[52] In Guatemala, while two of five (40.0%) pre-cooperatives interviewed do not currently have asset registries, a TA provider in country indicated that, while cooperatives may not understand the term "assets", the concept of inventory value does resonate with cooperatives and is easily calculable with guidance. Moreover, through an e-mail exchange with the research team, an interviewee from a cooperative in Peru indicated that, while the cooperative does not currently track return on assets, it would be useful and, based on data availability, feasible to begin to do so.

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[48] "The Financial Performance of North Dakota Grain Marketing and Farm Supply Cooperatives." Gregory McKee. Journal of Cooperatives. Vol. 3, 15-38, 2008.

[49] Limitation derived from "USAID Data Quality Assessment Checklist and Recommended Procedures." Accessed February 16, 2016. https://usaidlearninglab.org/sites/default/files/resource/files/Data%20Quality%20Assessment%20Checklist.pdf." Memorandum from OCDC to USAID. October 25, 2013. Shared with the research team on November 2, 2015.

[52] The research team did not verify the existence of physical asset registries.

Another TA provider in Guatemala indicated that it is important for cooperatives to learn to use asset values to a greater degree as a means of better managing cost. Additionally, a primary cooperative in Kenya endorsed return on assets as the priority financial sustainability metric, while another primary cooperative in Kenya indicated that change in total value of assets per year was the most important indicator of the financial health of a cooperative. A CDP implementer summed up these perspectives graphically in their endorsement of this metric:

> *Return on assets is useful because it looks at both the income statement and the balance statement. Average assets, on the left side of the balance sheet, forces you think through asset accumulation, while net income would come from your income statement. A ratio like return on assets is therefore helpful because it makes the translation between capital investments, which result in assets on the balance sheet and services as a conduit for production and productivity, and profit.*

The same interviewee indicated that, while misalignment between the timing of cooperative inventory valuations and implementer requests for information may pose occasional data quality challenges, this metric is "one of the easier ones to work with" in terms of financial sustainability, given the ease of calculation.

While incorporating gross profit as the priority metric for financial sustainability applicable to all cooperatives would encourage calculation of administrative and operating costs, promoting return on assets as a metric for larger cooperatives would go a step further. Specifically, using asset measurements to a greater degree may help cooperatives better manage risk by knowing what components in their inventories may be convertible into cash in the case of unexpected changes in market conditions. Given the vulnerability of smallholder farmers and agricultural cooperatives to climate change, enhancing the capacity to manage risk may be vital.[53]

Climate change may be exactly the type of unexpected circumstance that would make asset valuation important. Participants in 12 of 12 (100.0%) interviews with agricultural cooperatives in Guatemala mentioned that climate change has had a significant effect on enterprise financial performance over the past five years. Six of six (100.0%) agricultural cooperatives interviewed in Guatemala whose principal crops were grains, such as beans. or vegetables, such as corn or peas, indicated that decreased rainfall had hampered performance. Meanwhile, six of six (100.0%) agricultural cooperatives interviewed in Guatemala whose principal crop was coffee indicated that coffee rust, a fungal crop disease linked to climate change[54], had limited their yield.

Given the possible advantages of promoting return on assets in terms of applicability, correlation with profitability, and risk management, it may be worth considering providing training on asset valuation and its role in M&E to agricultural cooperatives of various maturity levels within CDP. That said, if USAID is to concurrently adopt the gross profit metric for application across agricultural cooperatives, the level of training required for all cooperatives to begin to calculate administrative and operating costs could be

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[53] "Discussion Paper: Agricultural Finance and Risk Management." Feed the Future. Feed the Future Public-Private Partnership Technical Forum. Accessed February 18, 2016. http://feedthefuture.gov/sites/default/files/resource/files/Discussion%20Paper%20Agricultural%20Finance%20and%20Risk%20Management.pdf.

[54] "A Coffee Crop Withers: Fungus Cripples Coffee Production Across Central America." Elisabeth Malkin. New York Times. May 5, 2014. http://www.nytimes.com/2014/05/06/business/international/fungus-cripples-coffee-production-across-central-america.html?_r=0.

significant. Therefore, it may be more prudent for USAID to deploy this metric first with more established cooperatives.

The PIRS below provides further detail related to this metric:

**Table 12. USAID performance indicator reference sheet: return on assets**

| |
|---|
| **Name of Result Measured (Goal, DO, IR, sub-IR, Project Purpose, Project Output, etc):** |
| **Name of Indicator:** Return on assets |
| **Is this a Performance Plan and Report Indicator? No _ Yes _, for Reporting Years(s) _**<br>**If yes, link to foreign assistance framework:** |
| **DESCRIPTION** |
| **Precise Definition(s):** Revenue divided by total assets |
| **Unit of Measure:** U.S. dollars |
| **Disaggregated by:** n/a |
| **Rationale or Justification for indicator (optional):** Applicability to a broad range of agriculture cooperatives, correlation with profitability, and importance for risk management |
| **PLAN FOR DATA COLLECTION BY USAID** |
| **Data Source:** Financial records of agricultural cooperatives supported by USAID |
| **Method of data collection and construction:** Self-reported |
| **Reporting Frequency:** Yearly |
| **Individual(s) responsible at USAID:** USAID CDP manager |
| **DATA QUALITY ISSUES** |
| **Dates of Previous Data Quality Assessments and name of reviewer:** |
| **Date of Future Data Quality Assessments (optional):** Three years following deployment |
| **Known Data Limitations:** Precision, if asset values are based on estimates |
| **TARGETS AND BASELINE** |
| **Baseline timeframe (optional):** Year |
| **Rationale for Targets (optional):** Identify historical asset values and combine with trends and projections for inventory and profitability |
| **CHANGES TO INDICATOR** |
| **Changes to indicator:** |
| **Other Notes (optional):** |

## 2. In-selling: complex patronage metric that may be USAID may pilot and phase across agricultural cooperatives

In-selling appears to be the most advantageous and practical patronage metric for USAID to deploy with more established cooperatives as part of a pilot, then to expand across a range of cooperatives. The table below outlines some key considerations regarding this metric for member-level cooperative health.

**Table 12: Summary of advantages and limitations for in-selling**

| Metric category | Metric | Advantages | Limitations |
|---|---|---|---|
| **Patronage** | In-selling (value of product sold by members to the cooperative / total value of product sold by members) | • Higher percentage of in-selling correlates with stronger member satisfaction, cooperative performance, and social capital<br>• Ranked second most valid among six patronage metrics within peer review survey, rating a 4.08 / 5, including high rating for usefulness for agricultural cooperatives and TA providers | • Limited ease of data collection may require USAID investment in training, mentoring, and data quality assessment around yield projections and monitoring |

As previously discussed, data from expert and field testing interviews suggests that number of active members should be a priority patronage metric for application across agricultural cooperatives. Notwithstanding, if USAID is interested in considering additional patronage metrics for application to agricultural cooperatives with greater administrative capacity and more robust record-keeping practices, in-selling may be a viable option.

The peer review survey resulted in an overall average rating of 4.08, making in-selling second to only patronage volume. On a scale of one to five, with five being the highest, in-selling received an average rating of 4.69 in terms of usefulness for agricultural cooperatives and 4.00 in terms of usefulness to USAID across the 14 peer review survey responses. These rating placed in-selling at the number one and number two rating among the six patronage metrics according the their respective criteria. However, the average rating of 3.23 when it came to ease of data collection was what most hindered the performance of this metric in the peer review survey.

In expert and field testing interviews, participants reflected a similar perspective: in-selling is important but difficult to measure. The research team did not ask all interviewees about the in-selling metric, but eight of 48 (16.7%) total interviewees mentioned that, while important, this metric would be highly difficult to calculate. There appear to be multiple reasons for this difficulty.

First, as evidenced by the fact that only one of the 10 (10.0%) agricultural cooperatives interviewed in Kenya calculates member-level production volume and costs, the current availability of information related to the denominator in the side-selling is limited. Second, members may be hesitant to share information about the amount of product that they have sold outside of the cooperative, which is not permitted by some organizations, according to a U.S.-based TA provider. Third, the perspective of cooperatives towards side-selling may vary depending on context. For instance, participants in two of three (66.6%) interviews with pre-cooperatives performed within a certain municipality in Guatemala indicated that side-selling is not relevant because "coyotes", or the intermediaries who offer to buy products from members at higher prices than the cooperative can pay, are not allowed in their communities. That is to say, in regions where

cooperatives exercise sufficient social control to eliminate the risk of side-selling, this metric may not be applicable. Fourth, according to a U.S.-based TA provider,

> *we can calculate side-selling based on yield projections that are required for international certification purposes, but not all cooperatives are going through the same certification process, and not all cooperatives have the rule that members must sell 100% of produce through cooperatives. This data would therefore be hard to get from non-certifying cooperatives. Also, yield projections based on farm size are not entirely accurate.*

A non-USAID USG interview participant echoed the notion that estimating side-selling based on yield projections would not provide accurate data. Moreover, another U.S.-based TA provider indicated that the susceptibility of yield projections to changes due to climate or crop diseases is too high to warrant emphasis for M&E.

With all of these challenges aside, it is important to note that, while not all interviewees received questions regarding in-selling, 12 of 29 (41.4%) interview participants who did not represent pre-cooperatives or primary cooperatives indicated that this metric is highly important. Moreover, through an e-mail exchange, an interviewee from a primary cooperative in Peru indicated that, while the cooperative does not currently measure in-selling, it would be useful and feasible to measure due to the insight this metric would provide regarding member output. Additionally, this metric addresses important considerations around the prices that members receive, social capital, and member commitment. According to a U.S.-based TA provider,

> *Side-selling is a big deal. If you wanted to prove the value of the cooperative, look at the farm gate price before and after the cooperative organized. That will tell you if the cooperative has any impact. Side-selling is the eternal crisis for the cooperative. The economic argument for the cooperative is, if the cooperative is successful, everybody's price is right because it becomes the price on the market. That's what we should look at in terms of measurements.*

Moreover, two academic studies reviewed by the research team draw a correlation between in-selling percentage and the social capital of the cooperative. For example, in a study of 186 members from 20 fruit and vegetables cooperatives in New York, New Jersey, and Pennsylvania, Bhuyan (2015) found that member dissatisfaction with cooperative management, perception that member input is not valued, and member resentment towards the lack of flexibility of marketing agreements can drive side-selling and other negative behaviors towards the cooperative.[55]

Similarly, Ruben and Heras (2012) found that, in a survey of 500 members among five coffee cooperatives in Ethiopia, cooperatives where internal social capital is weaker than external social capital are more likely to rely on external networks for sales, rather than selling through the cooperative.[56] Devising a viable means of measuring in-selling as a percentage of total sales at the member level may thus be important in measuring the social capital of a cooperative, making this metric at indicative of economic health in terms of pricing and production, as well as member benefits and relations.

An added benefit of the in-selling metric may be its complementarity with the other metric proposed for piloting with established cooperatives, return on assets. According to a CDP implementer, these two metrics are complementary in that member patronage is a critical driver of income, the numerator in the

[55] "The 'People' Factor in Cooperatives: An Analysis of Members' Attitudes and Behaviors." Sanjib Bhuyan. Canadian Journal of Agricultural Economics. Vol. 55:3, pages 275-298, September 2007.
[56] Ruben and Heras, 2012, pages 463-484.

return on assets equation, which in turns drives productivity. The interviewee provided the example of vertically integrated cooperatives with significant installed capacity that require a certain volume from members to achieve productivity, obtain favorable prices, and access a variety of markets. Additionally, the interviewee mentioned that this positive correlation between in-selling and income is applicable to agriculture-related cooperatives focused on marketing, as well as those focused on intermediary bulking and sales services, demonstrating the relevance of this metric across a variety of agriculture cooperatives types.

Given these benefits, it may be worth considering how USAID might incorporate an in-selling metric into reporting requirements for assistance to agricultural cooperatives that are capable of projecting and monitoring yield at the member level. While a study of how to best standardize yield projections at the smallholder farm level was outside of the scope of this research, the principles guiding this research suggest that USAID could take several steps to developing such an approach.

First, there would need to be a standardized methodology for yield projection and monitoring in order to mitigate any risk that subjectivity distort the data, per the OECD Guidelines on Measuring Subject Well-being. Second, in accordance with PM&E principles, it may be advantageous from a capacity building perspective to train the more established cooperatives on how to project and monitor yields themselves, where possible, rather than charging implementing partners with collecting the raw data. The farmer estimation method may be applicable to training cooperative managers in estimating acreage and yield per member, as well as preferable compared with estimating member sales based on informal conversations or observation.[57]

Given the trend towards increased availability of weather information products for agricultural cooperatives in the developing world[58], partnering with the private sector to enhance the capacity of cooperatives to estimate yield based on climate data may contribute to more accurate projections. This effort to standardize data collection may include measuring production in terms of monetary value to ensure comparability across types of products.

Third, USAID may need to avoid setting targets or data collection processes around this metric that would discriminate against members found to have sold products outside of the cooperative. As a U.S.-based TA provider indicated during an interview, side-selling is a survival strategy for many smallholder farmers who are members of cooperatives. Encouraging the penalization of side-selling would be unjust and may jeopardize future data collection, as members may be less willing to share information around side-selling if they feel criticized by the people gathering the information.

Please find below the PIRS for more detail about how the Agency should administer this metric:

[57] According to the Agricultural Productivity Indicators Measurement Guide, developed for USAID by the Food and Nutrition Monitoring Project in 2009, "farmer estimation involves surveying farmers to obtain their estimates of the total crop they harvested and dividing this by estimates of how much land they planted (ideally obtained through by direct land area measurements) to calculate estimated yields. In this case, yield estimates are based on the entire area planted by a farmer rather than a subplot." See page 7, http://pdf.usaid.gov/pdf_docs/Pnacg169.pdf.

[58] USAID. Using ICT to provide weather information for agriculture. May 2013. <http://pdf.usaid.gov/pdf_docs/PA00J7PX.pdf>

**Table 14. USAID performance indicator reference sheet: in-selling**

| |
|---|
| **Name of Result Measured (Goal, DO, IR, sub-IR, Project Purpose, Project Output, etc):** |
| **Name of Indicator:** In-selling |
| **Is this a Performance Plan and Report Indicator? No _ Yes_, for Reporting Years(s) ___**<br>**If yes, link to foreign assistance framework:** |
| **DESCRIPTION** |
| **Precise Definition(s):** Value of product sold by members through the cooperative divided by total value of product sold by members |
| **Unit of Measure:** U.S. Dollars |
| **Disaggregated by:** Product, number of members |
| **Rationale or Justification for indicator (optional):** Ranked second most valid among six patronage metric; correlates with member satisfaction and cooperative performance, as well as level of social capital |
| **PLAN FOR DATA COLLECTION BY USAID** |
| **Data Source:** Individual cooperative members |
| **Method of data collection and construction:** Farmer estimation method to estimate yield at the beginning of harvest, followed by anonymous member survey at the end of harvest |
| **Reporting Frequency:** Yearly |
| **Individual(s) responsible at USAID:** USAID/E3/Local Sustainability Office CDP manager |
| **DATA QUALITY ISSUES** |
| **Dates of Previous Data Quality Assessments and name of reviewer:** |
| **Date of Future Data Quality Assessments (optional):** First three years following deployment of the indicator |
| **Known Data Limitations:** Potential limitations in validity due to underreporting, timeliness due to possible benefit of reporting more than once a year in order to capture data associated with shorter harvest cycles, precision due to variation in levels of financial literacy and record-keeping among data source, and integrity due to risk of misreporting |
| **TARGETS AND BASELINE** |
| **Baseline timeframe (optional):** Year |
| **Rationale for Targets (optional):** Identifying trends and projections in yield, pricing, sales, and membership in order to ascertain how much product might members be tempted to sell on the side |
| **CHANGES TO INDICATOR** |
| **Changes to indicator:** |
| **Other Notes (optional):** |

# VI. DISCUSSION OF IMPLICATIONS

In order to understand the implications that these findings and suggested metrics may have for USAID, it is important to understand current and proposed USG and USAID M&E practices for cooperative development programming. Various stakeholders are involved in M&E of cooperative development assistance. For example, CDP/Guatemala (CPD/G) employs both Feed the Future (FTF) standard indicators and custom program indicators[59], while OCDC has been collaborating with USAID to compile CDP implementers' priority metrics for financial sustainability.[60]

A review of indicators from CDP/G, FTF[61], the U.S Department of State's Standard Foreign Assistance Master Indicator List (MIL)[62], and indicators recommended by OCDC[63] suggests that there are various indicators currently used for measuring the financial outcome of agricultural aid, including an FTF and MIL indicator explicitly aimed at enterprise profitability. However, CDP implementers do not appear to prioritize the profitability indicator, which is included within the FTF and MIL indicators but not the CDP/G or OCDC indicators.

As far as patronage is concerned, there is an indicator that addresses benefits that cooperative members may receive. However, this patronage indicator is specific to savings accounts and insurance policies, which may not be a service of all cooperatives, and references individuals, rather than members, and is therefore not specific to cooperatives. This finding suggests that neither USG nor CDP implementers have prioritized patronage measurement to date.

Below is a table of indicators that the research team has identified as related to the financial sustainability and patronage value of agricultural cooperatives:

[59] NCBA CLUSA, Performance Management Plan (PMP), Cooperative Develop Program (CDP II) Cooperative & Food Security Development in Guatemala, August 8, 2014.
[60] Eight of eight (100.0%) CDP implementers who participated in expert interviews mentioned OCDC involvement in this effort.
[61] "Summary Chart of Feed the Future Indicators." Feed the Future: The U.S. Government's Global Hunger and Food Security Initiative. October 31, 2014. http://feedthefuture.gov/resource/summary-chart-feed-future-indicators.
[62] "Standard Foreign Assistance Master Indicator List (MIL)." U.S. Department of State. Accessed February 18, 2016. http://www.state.gov/f/indicators/.
[63] "FACTS Indicators Compiled." U.S. Overseas Cooperative Development Council. MS Excel document shared with the research team on November 18, 2015.

**Table 15. Relevant USG and CDP indicators identified by the research team**

| Indicator category | Outcome indicator | CDP/G | FTF | MIL | OCDC |
|---|---|---|---|---|---|
| **Financial sustainability** | Gross margin per hectare, animal, or cage of selected product (crop/animals selected varies by country) | | ✔ | | ✔ |
| | Number of firms (excluding farms) or CSOs engaged in agricultural and food security-related manufacturing and services now operating more profitability (at or above cost) because of USG aid[64] | | ✔ | ✔ | |
| | Value of incremental sales (collected at farm-level) attributed to program implementation | ✔ | ✔ | ✔ | |
| | Return on assets[65] | | | | ✔ |
| **Patronage** | Average sales per member | | | | ✔ |
| | Number of people with a savings account or insurance policy as a result of USG assistance | | | ✔ | ✔ |

With these findings in mind, below is a list of potential implications that adoption of the proposed metrics may have for USAID
cooperative assistance programming:

- ***Overall implication:*** USAID may need to encourage further investment in the M&E and financial management capacities of all types of agricultural cooperatives with which it works under CDP, particularly pre-cooperatives and nascent primary cooperatives. Furthermore, in order to facilitate cooperatives' self-reporting on these metrics per the PM&E principles, USAID may need to dedicate additional resources to M&E-related mentoring and data quality assessments. As a result of these efforts, the agricultural cooperatives supported under CDP should possess enhanced M&E and financial management capacity and take ownership of the metrics, but program costs may need to increase in order to achieve this outcome. Part of these program costs may need to facilitate the recommended piloting of the complex metrics, return on assets and in-selling, with established cooperatives (see text box on the following page).

- ***Implication of incorporating return on assets for phased deployment with cooperatives:*** USAID and CDP implementers may need to determine and promote a standardized approach to valuating assets to ensure that self-reported data from cooperatives is reliable and precise, given the apparent lack of systematic asset valuation among pre-cooperatives.

[64] Ibid.
[65] "Proposed Measures of Cooperative Impact." OCDC Memorandum. 2013.

- ***Implication of incorporating in-selling for phased deployment with cooperatives:*** USAID and CDP implementers may need to devise innovative methodologies for determining the denominator of the in-selling equation, or the total volume of member product sold. Such methodologies may need to accurately project crop yield, such as the farmer estimation method, or, while avoiding demonization of side-selling, ascertain values through member surveys. Either methodology may require additional resources for CDP M&E in order to ensure data quality.

- ***Implication of deploying gross profit immediately across cooperatives:*** If not currently prioritizing profitability indicators is indicative of a hesitance to view cooperatives as businesses whose core objective is to make a profit, CDP implementers may need to place a greater emphasis on enhancing the financial management capacities and financial performance of the cooperatives they assist. If USAID is to begin measuring CDP implementation by the extent to which CDP implementers aid cooperatives in enhancing cooperative gross profits, there may need to be more rigid criteria at play in determining which agricultural cooperatives to support or which implementers or consultants to engage in future CDP iterations, based on demonstrated financial capability and cooperative business expertise.

- ***Implication of deploying number of active members immediately across cooperatives:*** USAID and CDP implementers may need to invest additional resources in determining how to set targets for this metric, given that the ability of a cooperative to increase membership may be heavily dependent on the number of producers in the area.

While providing detailed recommendations on how to incorporate these indicators into USAID cooperative development assistance is beyond the scope of this report, the following may serve as illustrative guidelines for **further piloting complex metrics** based on BetterEvaluation PM&E guidelines:

- Incorporate these metrics into yearly reporting requirements for advanced agricultural cooperatives half-way through the current CDP iteration;
- Assess lessons learned and best practices in metrics use at the end of the current CDP iteration; and
- Incorporate metrics into reporting requirements for all agricultural cooperatives under the next CDP iteration, based on lessons learned from the pilot.

# VII. RECOMMENDATIONS FOR FURTHER RESEARCH

The discussion of proposed metrics in section V contains references for additional topics that USAID might explore. These topics include methodologies for calculating estimate yield to determine in-selling percentage and standardized definitions of active membership. Through literature review, expert and field testing interviews, and the peer review survey, the research team has identified several additional areas for further research that USAID may wish to consider for the continuous improvement of M&E around cooperative development.

- ***The impact of USAID CDP on the performance and sustainability of agricultural cooperatives:*** A review of the Development Exchange Clearinghouse (DEC) suggests that USAID has not conducted an impact evaluation of CDP. Given the Agency's Evaluation Policy[66] and the interest of USAID in continuing the develop M&E around agricultural cooperatives, it may be worth considering what evaluation methodologies could help inform future CDP design and implementation. An evaluation would also serve as a valuable opportunity to further test and begin to employ the metrics proposed within this report.

- ***Indicators for the climate change vulnerability of agricultural cooperatives:*** Per section V, sub-section C.1, the research team has found that climate change has had a notable impact on the agricultural cooperatives that USAID supports through CDP. Moreover, Kolade and Harpham (2014) recommend that development interventions focus on expanding the membership of agricultural cooperatives as a means of increasing adoption of climate change-sensitive technologies.[67] These finding suggests that change in the proposed financial and patronage metrics over time may help TA providers identify and address the negative effects of climate change. However, it may be useful to consider incorporating additional indicators of climate change vulnerability into M&E around assistance to agricultural cooperatives. The work of Ludena and Woon (2015)[68] is an example of resources that may be helpful in exploring such indicators.

- ***PM&E as a capacity building tool for agricultural cooperatives:*** As discussed in section IV, employing indicators that target communities or organizations themselves can calculate, monitor, and report can contribute to local ownership of results. Additionally, training these communities in how to administer a metric can enhance the administrative and M&E capacity of

[66] "Evaluation Policy." USAID. Accessed February 17, 2016. https://www.usaid.gov/evaluation/policy.
[67] Kolade and Harpham (2014), 340.
[68] Ludena and Sang. (2015). Local Vulnerability Indicators and Adaptation to Climate Change: Inter-American Development Bank. Technical Note n. 857. <https://publications.iadb.org/bitstream/handle/11319/7214/Local_Vulnerability_Indicators_and_Adaptation_to_Climate_Change_A_Survey.pdf?sequence=1.>

local organizations. A preliminary review of the DEC and additional literature suggests that use of M&E as a participatory and capacity building process has largely concentrated on the health sector.[69] Given the strong potential for PM&E and the limited financial and record-keeping capacity of the agricultural cooperatives interviewed by the research team, there may be an opportunity for CDP to assume a leadership role within the USAID economic development community in PM&E. Potential research areas may include a stocktaking of USAID experience with PM&E and how PM&E may differ between the health and economic development sectors.

- ***Further empirical research to validate proposed metrics and research findings:*** While the research team is confident in the scope, methodology, data, and findings of this study, it is important to note that the sample size of 49 interview participants and 14 survey participants is limited compared to the overall number of stakeholders in USG cooperative development programming. Therefore, USAID may wish to consider further examining the proposed metrics through pilot deployment among CDP implementers or a comparable study with a larger sample size and greater geographic diversitys prior to incorporation into future CDP M&E requirements and FACTS. At the very least, further corroborating these metrics and findings within the CDP implementer community, including OCDC, may be useful.

[69] USAID. (2006). MEASURE Evaluation's Capacity-Building Strategies.. <http://pdf.usaid.gov/pdf_docs/pnadi523.pdf>; Additionally, see International Center for Research on Women. (2007). A Measure of Success: Building Monitoring & Evaluation Capacity in Small, Community-Based Programs: Lessons Learned from Three Youth Reproductive Health Programs in India. <http://www.icrw.org/sites/default/files/publications/A-Measure-of-Success-Building-Monitoring-and-Evaluation-Capacity-in-Small-Community-Based-Programs.pdf>. Lastly, see USAID. (2004). Participatory Monitoring and Evaluation of Community- and Faith-based Programs: A step-by-step guide for people who want to make HIV and AIDS services and activities more effective in their community. Retrieved: <http://pdf.usaid.gov/pdf_docs/Pnadb439.pdf>

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# ANNEX II: LIST OF INTERVIEWS

| Interview type | Interview sub-type | Organization |
|---|---|---|
| Expert interview | CDP implementer | ACDI Voca |
| | | Cooperative Resources International |
| | | Equal Exchange |
| | | Global Communities |
| | | NCBA CLUSA (two separate interviews) |
| | | Land o' Lakes International Development |
| | | World Council of Credit Unions |
| | Consulting firm | CoMetrics |
| | | Crown Agents, Inc |
| | | Individual consultant |
| | | Individually owned consulting firm |
| | | SCOPEinsight |
| | Financial institution | Laboral Kuxta-Mondragon |
| | | Root Capital |
| | Think tank/university | Filene Research Institute |
| | | Western Illinois University |
| | Association | U.S. Overseas Cooperative Development Council |
| | Multilateral organization | International Labour Organization |
| | U.S. Government (non-USAID) | U.S. Department of Agriculture |
| Field testing - Guatemala | Pre-cooperative | Asociación de Desarrollo Integral Nueva Esperanza |
| | | Asociación de Desarrollo Comunitario Granero de Oriente |
| | | Asociación de Desarrollo Integral Nueva Alianza |
| | | Asociación de Productores Sicalbenses El Progreso |
| | | Mújeres con esencia de café |
| | Primary cooperative | Cooperativa Integral Agrícola Atescatempa |
| | | Cooperativa Integral Agrícola Nuevo Porvenir |
| | | Cooperativa Integral Agrícola Riveras de Cabuz |
| | | Cooperativa Integral Agrícola San José |
| | | Cooperativa Chorti'jol |
| | Secondary cooperative | Federación de Cooperativas Agrícolas de Productores de Café de Guatemala |
| | | Federación de Cooperativas de las Verapaces |
| | TA provider | Asociación Nacional de Café (two separate interviews) |

| | | |
|---|---|---|
| | | Asociación Guatemalteca de Exportadores |
| | | Sustainable Commodity Assistance Network |
| Field testing - Kenya | Pre-cooperative | Cheboldinye Community Based Organization |
| | | Gikinyukia Producer Organization |
| | | Kiraposho Producer Organization |
| | | Kuto United Farmers |
| | | Olenton Social Enterprise Group |
| | | Oliko Community Based Organization |
| | | Riandu Producer Group |
| | | Ukulima Bora Self-Help Group |
| | Primary cooperative | Kanyuambora Cooperative Society |
| | Secondary cooperative | Yetu Sacco |
| | Credit union | African Confederation of Cooperative Savings and Credit Associations |
| | Government | Ministry of Cooperative Development |
| | TA provider | World Council of Credit Unions |

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