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Improving Agricultural Competitiveness in Bosnia and Herzegovina:

**Impact Evaluation of USAID and Sida Fostering Agricultural
Market Activity (FARMA)**

MARCH 2015

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IMPROVING AGRICULTURAL COMPETITIVENESS IN BOSNIA AND HERZEGOVINA:

**IMPACT EVALUATION OF USAID AND SIDA FOSTERING
AGRICULTURAL MARKET ACTIVITY (FARMA)**

MARCH 2015

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DISCLAIMER

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Ye Zhang

Principal Investigator and Technical Director

ACRONYMS

AFIP	Agency for Financial, IT, and Intermediary Services in FBiH
APIF	Agency for Intermediary, IT and Financial Services in FBiH
APPH	Agency for Plant and Phytosanitary Health of BiH
BiH	Bosnia and Herzegovina
CEFTA	Central European Free Trade Agreement
CoA	Chart of Accounts
CzDA	Czech Development Agency
DCA	Development Credit Authority
DID	Difference-in-differences
ET	Evaluation Team
EU	European Union
FARMA	Fostering Agricultural Markets Activity
FBiH	Federation of Bosnia and Herzegovina
F&V	Fruits and vegetables
FSA	Food Safety Agency of BiH
FVO	EU Food and Veterinary Office
IFRS	International Financial Reporting Standards
LAMP	Linking Agricultural Markets to Producers Activity
MAPs	Medicinal and Aromatic Plants
M&E	Monitoring and Evaluation
NGO	Non-governmental organizations
PO	Producer organization
PMP	Performance Management Plan
RCT	Randomized Controlled Trial
RS	Republika Srpska
Sida	Swedish International Development Coordination Agency
SME	Small and medium enterprise
SO	Strategic objective
SOW	Statement of Work
SVO	State Veterinary Office of BiH
UHT	Ultra-high temperature processing
USAID	U.S. Agency for International Development
VAT	Value-added tax

EXECUTIVE SUMMARY

Fostering Agricultural Markets Activity (FARMA), a five and a half year activity launched in September 2009, is a \$22.2 million activity co-financed by the U.S. Agency for International Development (USAID) and Swedish International Development Cooperation Agency (Sida), and implemented by Chemonics International. FARMA provided technical assistance to farmers in Bosnia and Herzegovina (BiH) in targeted sub-sectors (dairy, fruits and vegetables, and medicinal and aromatic plants and honey) through a demand-driven approach aimed at improving the competitiveness of BiH's agricultural products. FARMA worked to expand environmentally sustainable production, processing, domestic sales, export sales, and the production of value-added products.

USAID/Bosnia and Herzegovina (USAID/BiH) has commissioned IMPAQ International (IMPAQ) under USAID/BiH Monitoring and Evaluation Support Activity (MEASURE-BiH) to conduct a rigorous impact evaluation to examine the FARMA intervention. The evaluation was conducted during the period of December 2014 to March 2015 and this is the final report.

Evaluation Purpose and Evaluation Questions

The FARMA evaluation contributes to knowledge and learning in USAID/BiH in the following areas:

- 1) Assess the effectiveness of demand-driven technical assistance programs in sub-sectors of agricultural markets in BiH;
- 2) Help USAID/BiH to better understand the activity's implementation, lessons learned, and best practices; and,
- 3) Provide USAID/BiH with empirical evidence and information that could inform future funding decisions and program designs.

The evaluation answers the following research questions, informed by the FARMA's goals, structure, and logic model:

1. What were the impacts of FARMA interventions on Producer Organizations' (PO) sales and exports? Did the impacts vary by sub-sectors?
2. What were the impacts of FARMA interventions on POs' access to finance? Did the impacts vary by sub-sectors?
3. What were the characteristics of the POs served by the FARMA program?
4. How were FARMA interventions implemented?
5. What were the main challenges to implementation and how could these challenges be addressed?
6. What were the stakeholders' perceptions of the model of joint financing of FARMA by two donors?

In answering evaluation question 2, we also examined the impact of FARMA interventions on female-owned business and employment of women in the agricultural sector, given that gender was a cross-cutting theme of the activity.

Project Background

USAID/BiH and Sida designed FARMA to help BiH meet the following critical objectives: increase agricultural competitiveness; meet European Union (EU) accession standards; reduce poverty by expanding environmentally sustainable production; and increase sales, exports, and employment. FARMA's overarching goal was to achieve rapid, sustainable, and broad-based economic growth through demand-driven technical assistance in sub-sectors of BiH's agricultural markets. FARMA's approach focused on the following four integrated components:

- 1) Build sustainable market linkages for BiH producers;
- 2) Increase access to finance;
- 3) Build the capacity of partner organizations and other counterparts; and
- 4) Enhance the policy environment to benefit the competitiveness of BiH agricultural goods.

FARMA implementation contract has mandated the following results and indicators for the base and option periods:

- Increased sales of participating POs: 35 percent cumulatively over the life of the base period plus 15 percent in the option period;
- Increased employment of participating POs: 25 percent cumulatively over the life of the base period plus 10 percent in the option period;
- Improved access to finance of participating POs: 25 percent increase over the life of the base period plus 15 percent in the option period.

FARMA worked in three agricultural sub-sectors: (1) dairy (D), (2) fruits and vegetables (F&V), and (3) medicinal and aromatic plants (MAPs) and honey. These sub-sectors were selected based on their high potential for rapid, sustainable, and broad-based growth, which could be measured through potential for increased sales, exports, and employment. Additionally, there were several, contractually mandated cross-cutting principles that FARMA was expected to integrate in all interventions: 1) ownership and sustainability; 2) EU alignment; 3) environmental best practices; 4) equal opportunity; and 5) Development Fund (DF).

Evaluation Methods and Limitations

This evaluation estimated the impacts of FARMA interventions and used the results to answer a set of research questions. Answering some of the research questions was challenging because many of the observed beneficiaries' outcomes might have been influenced by factors other than the FARMA interventions. Nonetheless, our technical approach isolated the effects of FARMA from other potentially confounding factors.

We created groups that represent the counterfactual that most closely approximates the benefits of a randomized controlled trial (RCT), thus addressing the issue of potential selection bias in the impact estimates. Specifically, we constructed comparison PO groups that are similar to those that received the intervention. We then estimated the FARMA impacts through multivariate regression analysis based on a difference-in-differences (DID) design.

We complemented this quantitative analysis with a qualitative analysis and an implementation study. The implementation study triangulated qualitative data from several sources to answer research questions 3, 4, 5, and 6. The implementation study enabled us to interpret the impact results and to descriptively explore which FARMA interventions likely were the key drivers of development impacts.

We encountered a number of limitations during this evaluation, such as no baseline information against which to measure progress in the FARMA implementation database; self-reporting of the POs on the required data for indicator calculation used in the FARMA implementation database; lack of data for the comparison group in the FARMA implementation database to conduct the impact evaluation; and several others. While we faced these limitations in evaluating the impact of the FARMA interventions, we developed mitigation strategies to overcome many of them.

Findings and Conclusions

Evaluation Question 1: Using a rigorous quasi-experimental design with DID methodology, our impact analysis did not find any statistically significant effects for the full sample, nor for the F&V sub-sector or the MAPs sub-sector. However, we did find statistically significant results in the dairy sub-sector. FARMA interventions had a significant positive impact on dairy sub-sector sales. Specifically, the estimated effect

of FARMA interventions on dairy POs' sales is 76 percent, statistically significant at 5% level. We did not find any significant results for the exports related outcome variables.

Evaluation Question 2: Similar to the results on sales and exports, we observed no clear pattern in our sub-sector analysis, both in terms of signs and magnitudes. Although we found suggestive empirical evidence of a positive effect on long term loans and a negative effect on short term loans with relatively large magnitude, these estimates were measured with low precision and were more likely to be due to chance. We also found that the Development Credit Authority (DCA) guarantee has not been utilized sufficiently by FARMA's beneficiaries and the level of awareness about this tool among the beneficiaries is still low. There is a consensus among the beneficiaries that such a tool is not an ideal way to increase access to finance in the agricultural sector, although needs for easier access remain large.

Evaluation Question 3: We found that FARMA generally applied a demand-driven approach in selecting the types of technical assistance provided to beneficiaries. However, in terms of selecting PO beneficiaries, the approach may have been less demand-driven, as most beneficiaries were carried over from the previous USAID/BiH agricultural activity (LAMP). We found no overall qualified evidence that FARMA increased the value-added level of the three sub-sectors. We found no evidence that FARMA interventions increased the share of female-owned businesses (which is low at 17%). On the other hand, the FARMA implementation database suggests that there has been an increase in the number of full-time, part-time, and seasonal employees females over the life of FARMA activity (an increase of 17%).

Evaluation Question 4: We found that beneficiaries overall reported a positive experience with FARMA's implementation of grants, technical assistance, and training, with many informants reporting increases in production and support to after-production activities. FARMA also successfully transferred technical knowledge to beneficiaries as well as provided them other benefits further detailed in this report. FARMA did not substantially improve the overall policy environment for the POs, however. This may be due to a lack of political will as well as external economic environment challenges such as the global economic crisis and the floods in BiH.

FARMA assistance to government institution beneficiaries was limited to harmonization with the EU technical standards and did not address the most pressing issues POs faced on the ground, partially due to lack of political will. These include fragmentation of agricultural jurisdictions among and within different government levels; lack of comprehensive strategic planning in agricultural sector; perverse employment registration and taxation incentives and business registration rules that are inapt for agricultural sector; as well as the lack of capacities of the institutions which are the first point of contact for the POs, such as lower level government institutions/agencies, custom authorities, and inspection agencies.

Evaluation Question 5: The major challenge expressed by beneficiaries was the lack of resources to implement new practices. Another challenge was the complex political environment in which FARMA operated and the lack of political will for improved strategic planning in the agriculture sector. Other challenges, further detailed in this report, include lack of clarity of grant selection criteria, inconsistency in applying stated beneficiary selection criteria, and non-responsive technical assistance. In addition, while FARMA succeeded in increasing the communication among donors, beneficiaries, and counterparts, there is room for improvement of communication between FARMA implementation team and government institution beneficiaries.

Evaluation Question 6: Our analysis suggests that FARMA has successfully promoted and facilitated a joint donor approach, including joint policy dialogue and prioritization of financing, information sharing, and coordination. This feature of FARMA was a good example of integration and cooperation between partners and joint donor actions.

I. EVALUATION PURPOSE AND EVALUATION QUESTIONS

I.1 EVALUATION PURPOSE

Fostering Agricultural Markets Activity (FARMA) is a \$22.2 million activity co-financed by the U.S. Agency for International Development (USAID) and Swedish International Development Cooperation Agency (Sida), and implemented by Chemonics International with Orgut Consulting-AB (FARMA implementation team). FARMA provided technical assistance to farmers in Bosnia and Herzegovina (BiH) in targeted sub-sectors through a demand-driven approach aimed at improving the competitiveness of BiH's agricultural products. FARMA worked to expand environmentally sustainable production, processing, domestic sales, export sales, and the production of value-added products.

Guided by USAID'S Evaluation Policy, USAID/BiH commissioned IMPAQ through USAID/BiH Monitoring and Evaluation (M&E) Support Activity (MEASURE-BiH) to design and conduct an evaluation of FARMA. Given USAID/BiH's goal of evaluating interventions with the most rigorous methods available, IMPAQ researched the activity and available data sources in detail and determined that a rigorous impact evaluation of FARMA was feasible. Because it was not possible for the MEASURE-BiH team to estimate the counterfactual for many of the technical and financial assistance interventions provided in the absence of the activity, our evaluation supplemented the impact analysis with an implementation study that enabled us to understand what was actually implemented and how; why FARMA changed outcomes or did not; and in cases in which it did, how it did so. The FARMA evaluation, which combined an impact analysis and an implementation study, will contribute to USAID/BiH's knowledge of and learning related to the following areas:

- 1) Effectiveness of demand-driven technical assistance programs in sub-sectors of agricultural markets in BiH;
- 2) USAID/BiH's understanding of activity implementation, lessons learned, and best practices; and,
- 3) Empirical evidence and information that could inform USAID/BiH's future funding decisions and program designs.

Due to data availability and limitations, this evaluation covers the implementation period of FARMA between 2009 and 2013. The MEASURE-BiH team conducted this evaluation from December 2014 to March 2015; the majority of the field work in BiH took place between December 2014 and January 2015.

I.2 EVALUATION QUESTIONS

The evaluation answers the following research questions, informed by the FARMA's goals, structure, and logic model:

1. What were the impacts of FARMA interventions on Producer Organizations' (PO)¹ sales and exports? Did the impacts vary by sub-sectors?

¹ Based on FARMA implementation documentation such as the Work Plan for Year I, the definition of "producer organizations" (PO) is considered from both a legal stance and a functional one. Specifically, "producer organizations" can be legally incorporated as (agricultural) associations, cooperatives, or for-profit enterprises and can fulfill a range of functions within the agricultural value chain including, but not limited to, input supply, production, market integrator, storage, processing, marketing, branding, transport, export, technology transfer, or any service provision needs or value-added activities. PO is defined as any non-profit or for-profit entity that is controlled by group of agricultural producers to serve their interests as agricultural producers, as well as any such

2. What were the impacts of FARMA interventions on POs' access to finance? Did the impacts vary by sub-sectors?
3. What were the characteristics of the POs served by the FARMA program?
4. How were FARMA interventions implemented?
5. What were the main challenges to implementation and how could these challenges be addressed?
6. What were the stakeholders' perceptions of the model of joint financing of FARMA by two donors?

The first two questions, the focus of the impact evaluation, seek to understand the extent to which FARMA succeeded in improving some of the key outcomes and indicators in the logic model (discussed in Chapter 2). Although it was not possible for us to directly measure long-term impacts on sales, exports, and access to finance in the timeframe of the evaluation, we estimated FARMA's impacts on related outcome variables that were linked to them in the logic model but were more proximal to the activities to assess whether these long-term impacts are plausible, an important indication for program sustainability. The next four evaluation questions, the focus of the implementation study, seek to describe the implementation of FARMA. Our implementation study documents the extent to which various components of the activity were implemented as planned and the reason for any deviations from the plans. The implementation study also identifies key facilitators of and barriers to FARMA's successful implementation. Finally, our implementation study, to the extent possible, provides evidence on which specific interventions in FARMA most likely led to the measured impacts (analyzed as part of the first two research questions), and how they did so.

2. FARMA BACKGROUND

USAID/BiH and Sida designed FARMA to help BiH meet the following critical objectives: increase agricultural competitiveness; meet European Union (EU) accession standards; reduce poverty by expanding environmentally sustainable production; and increase sales, exports, and employment. The design of FARMA was informed by lessons learned from precursor activities, primarily USAID's Linking Agricultural Markets to Producers (LAMP), and was aimed at leveraging the results achieved by LAMP. LAMP, implemented between 2003 and 2008, provided support to BiH's agro-food sector by strengthening the market chain. Specifically, LAMP had the following objectives:

- 1) Facilitate market linkages and market chain development;
- 2) Improve access to credit; and,
- 3) Assist with agricultural policy and regulatory reform.

Some of the key activities of LAMP were trainings for producers, participation at networking meetings (study tours, fairs), disbursement of grant and loan funds through a managed program, and improvement of the sub-sector regulatory environment and achievement of export standards.

FARMA was implemented from August 2009 to May 2015 and is the flagship activity of USAID/BiH's and SIDA's economic growth portfolios. FARMA capitalized on the LAMP's experience and achievements. FARMA's overarching goal was to achieve rapid, sustainable, and broad-based economic growth through demand-driven technical assistance in BiH sub-sectors of agricultural markets. FARMA's approach focused on the following four integrated components:

- 1) Build sustainable market linkages for BiH producers;

organization that may not be controlled by, but broadly serves the interest of, agricultural producers, such as agricultural processors.

- 2) Increase access to finance;
- 3) Build the capacity of partner organizations and other counterparts; and
- 4) Enhance the policy environment to benefit the competitiveness of BiH agricultural goods.

Starting in 2013, FARMA collaborated with another donor organization, Czech Development Agency (CzDA), to implement the project “Strengthening capacity of veterinary laboratories and veterinary inspection services for implementation of the National Residues Monitoring Plan (NRMP) in accordance with EU standards”.

Many of the development challenges that BiH faces that led to FARMA’s design are detailed in FARMA’s contract. At the time that FARMA’s interventions were designed, BiH faced numerous challenges to achieving rapid, broad-based economic growth. Then, as now, BiH’s agriculture sector was characterized by small and fragmented farms and weak supply chains. This situation dampens competitiveness and results in products that cannot match the prices and quality of imported agricultural products. Although BiH has access to the EU markets through preferential trade agreements, such as the Stabilization and Association Agreement (SAA) signed in 2008, and the Central European Free Trade Agreement (CEFTA) of 2007, it suffers from chronically large trade deficits. These agreements expose BiH to more imports, particularly in the agriculture sector, and increase the pressure on BiH farmers and processors to become more competitive. Bosnian agricultural products lag behind sleeker, more modernly packaged imported products from Croatia and Slovenia. Moreover, export opportunities in surrounding CEFTA countries diminished with their accession into the EU, as experienced with the recent accession of Croatia. Local buyers are increasingly aware of food safety issues associated with local products, and the realities of agricultural markets and production are such that BiH’s producers and processors are not satisfying the domestic market demand. Additionally, most local producers and processors have limited access to inputs due to cumbersome regulations and are limited to selling semi-produced products cheaply rather than investing in improved quality control, post-harvest handling, and packaging for a higher economic return. Finally, limited access to finance for the agricultural sector, aggravated by the ongoing financial crisis and lack of borrowing collateral, hampers business expansion despite an array of financial resource options and reputedly one of the strongest micro-lending programs in the developing world.

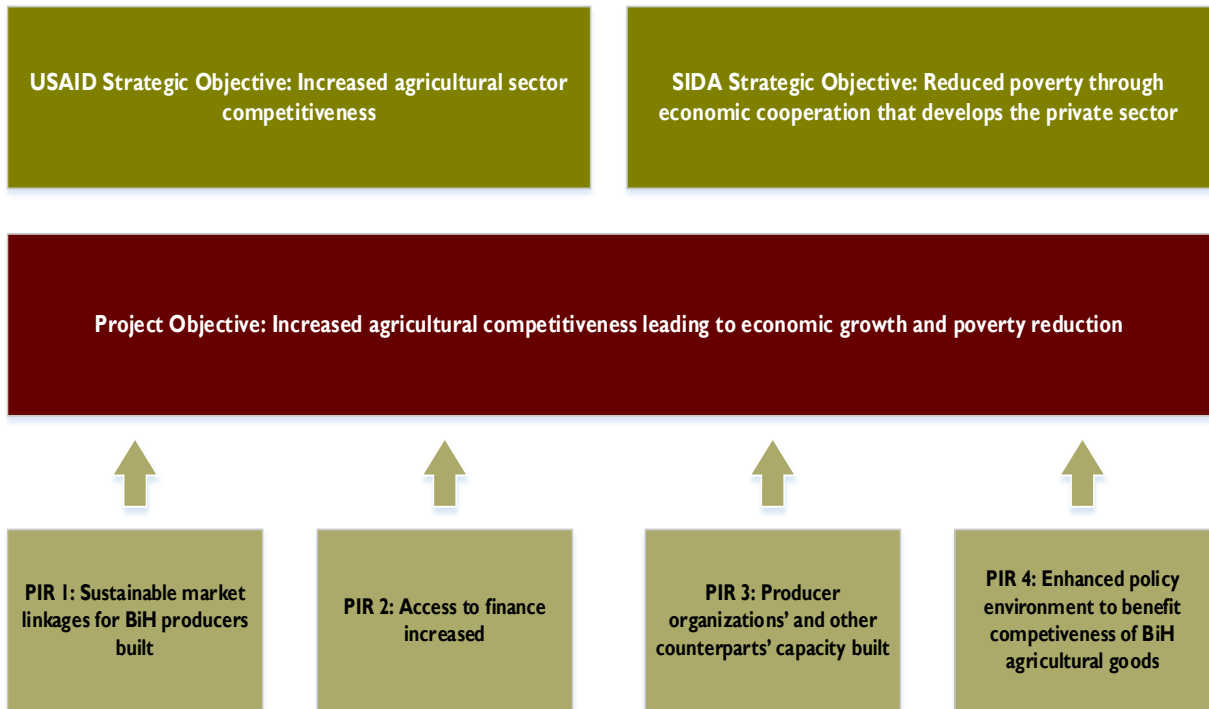
Despite BiH’s widely recognized and pressing needs, BiH still does not have a state-level Ministry of Agriculture and, thus, lacks the institutional capacity to support its agriculture sector. In accordance with the Dayton Peace Agreement, agricultural policy falls under the two Entities’ competencies. Agricultural policy institutions exist at several lower levels, but not at the state level. A state-level Food Safety Agency (FSA), an Agency for Plant and Phytosanitary Health (APPH), and a State Veterinary Office (SVO) have been established and regulations have been developed; however, an agreement on the precise roles and responsibilities of the various actors, the link to entity inspection services, and various other laws and regulations have yet to be finally agreed on or adopted and then implemented across the country.

The FARMA design and approval documents do not contain an explicit development hypothesis or a results framework. Figure 1, however, presents a logic model for FARMA that was developed by the implementation team. This logic model conveys the development hypothesis linking the necessary and sufficient intermediate results (referred to as project intermediate results or PIR) with FARMA’s strategic objective (SO). As FARMA is funded by both USAID and Sida, the logic model has two, inter-linked, strategic objectives. These have been combined to form FARMA’s development objective: Increase agricultural competitiveness leading to economic growth and poverty reduction.

The FARMA contractually mandated results and indicators for the base and option period can be summarized as follows:

- Increase sales of participating POs, 35 percent cumulatively over the life of base period plus 15 percent in the option period;

Figure 1. Logic Model for FARMA



- Increase employment of participating POs, at least 25 percent cumulatively over the life of base period plus 10 percent in the option period; and,
- Improve access to finance of participating POs, 25 percent increase over the life of base period plus 15 percent in the option period.

FARMA worked in three agricultural sub-sectors: (1) dairy, (2) fruits and vegetables (F&V), and (3) medicinal and aromatic plants (MAPs) and honey. These sub-sectors were selected based on their high potential for rapid, sustainable and broad-based growth, which could be measured through potential for increased sales, exports, and employment. Additionally, FARMA contained several, contractually mandated cross-cutting principles it integrated in all interventions: 1) ownership and sustainability; 2) EU alignment; 3) environmental best practices; 4) equal opportunity; and 5) FARMA Development Fund (DF).

The Development Fund leveraged all interventions across all four components. Originally, \$2 million was set aside for grants, FARMA grant disbursement records showed that the total amount of disbursed non-flood related grants by December 2014 is over 3.8 million KM. All grants were supposed to promote innovative ideas and new technologies, and contribute to the growth of the agro-food sector, relevant agro-food subsectors, agro-food clusters, or agro-food value chains, as distinguished from generating financial benefits for a single grant recipient.

FARMA's main objective was to assist BiH's agriculture producers and processors in improving their abilities to withstand pressures emanating from the CEFTA and EU accession processes, and also to enable agriculture businesses to capture opportunities in domestic, regional, and EU markets emanating from activation of CEFTA and EU accession process. FARMA was designed to provide targeted, demand-driven support to farmers, cooperatives, market integrators, and food processors and helped address constraints along the entire value chain in the three targeted sub-sectors. In addition, FARMA was to provide private sector-identified and driven policy assistance in cooperation with farmer-associations, cooperative and SMEs, to foster a better policy environment for market efficient agricultural production and food processing in BiH. Given the demand-driven nature of FARMA's technical assistance approach, FARMA

implemented a wide variety of technical assistance interventions, both within and across sub-sectors, during the implementation period. Tables 1, 2, and 3 provide partial illustrative lists of sample activities that were implemented through FARMA.²

Table 1. Illustrative FARMA Activities in Dairy Sub-Sector

Activities
Trainings on market requirements for dairy products
Visible presence of small cheese producers in local market
Trainings on farm record keeping
Dairy schools
Dissemination of test results of cattle feed and farm soil
Trainings on better usage of feed ratios and improvement of soil cultivation
Study tours

Table 2. Illustrative FARMA Activities in Fruits and Vegetables Sub-Sector

Activities
Establishing business relationships
Improving branding and packaging
Trainings on business planning and filling loan application
Dissemination of information on new berry varieties
Implementing latest growing technology
Establishing demo plot for new varieties
Dissemination training materials to farmer groups
Implementing relevant standards

Table 3. Illustrative FARMA Activities in MAPs and Honey Sub-Sector

Activities
Developing promotional catalogue
Facilitating contacts between POs with international/local buyers
Organizing promotional events (WfW, ACED etc.)
Implementing new technologies
Developing training materials for sustainable wild collection
Trainings on cultivating immortelle (“Dani smilja” organized)
Developing promotion plan for MAPs companies including packaging/design
Study tours
Trainings on online marketing

² Chemonics International. (2010-2014). *FARMA annual reports*.

3. EVALUATION METHODS AND LIMITATIONS

We estimated the impacts of the FARMA interventions discussed above and used the results to answer a set of research questions. We faced challenges in doing so because some of the observed beneficiaries' outcomes, several of which were tracked in the FARMA M&E plan, might have been influenced by factors other than these interventions. Our technical approach therefore isolated the effects of FARMA from other potentially confounding factors. To that end, we employed the most rigorous evaluation methods possible. Theoretically, an ideal evaluation design would have compared outcomes for POs that received FARMA interventions with outcomes for the same group if they had not received the technical and financial assistance through FARMA. In practice, however, once POs received FARMA's interventions, it was impossible to observe what would have happened if they had not received the interventions. We thus approximated the effects of FARMA's interventions by comparing outcomes for the POs that received the interventions (treatment group) with outcomes for similar groups that did not receive the interventions (comparison group) through a quasi-experimental design based on difference-in-differences (DID) approach.

Below we describe our methods, data collection, and data analyses techniques that we used in the impact analysis. This is followed by a description of methods, data collection, and data analyses techniques used for the implementation study.

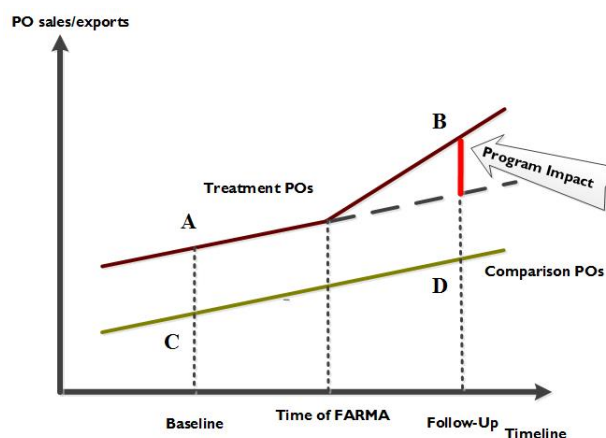
3.1 IMPACT ANALYSIS

3.1.1 Method Description

To address evaluation research questions 1 and 2, we combined the FARMA implementation database with external administrative data from the Agency for the Financial, IT, and Intermediary Services in the Federation of BiH (AFIP) and the Agency for Intermediary, IT, and Financial Services in Republika Srpska (APIF) across years 2008 to 2013 and applied a DID approach to all POs, and the POs in the three sub-sectors separately.

The DID approach compares the before-after changes in outcomes between POs in the treatment group and similar POs in the comparison group. It is important to note that the DID does not require baseline (pre-intervention) conditions to be the same in treatment and comparison groups. But for the DID to be valid, the comparison group must accurately represent the change in outcomes that would have been experienced by the treatment group in absence of the intervention. In other words, the key identifying assumption behind the DID is that trends (changes) in outcomes between the treatment and comparison groups should be similar. Figure 2 illustrates the DID design.

Figure 2. Difference-in-Differences (DID) Approach



As indicated in Figure 2, PO sales/exports was higher before the intervention at baseline in treatment group than in comparison group. PO sales/exports increased over time in both treatment and comparison groups, but it increased more for the treatment POs after the FARMA activity was implemented. The dashed line in Figure 2 represents the trend the treatment POs would have experienced in sales/exports in the absence of the intervention.

In such a DID design, the difference in outcome before and after the intervention for the comparison group ($D-C$) is subtracted from the change in outcome for the treatment group ($B-A$). Equivalently, the difference in outcomes between treatment and comparison groups at baseline is subtracted from the difference in outcomes between treatment and comparison groups at follow-up, i.e. DID Program Impact = $(B-A) - (D-C) = (A-C) - (B-D)$.

We implemented the DID approach through multivariate regression models in which we used covariate adjustments to correct selection bias that occurred because in a non-randomized FARMA implementation design. The AFIP/APIF data contain a wealth of PO baseline characteristics before FARMA implementation, which enabled us to identify a comparison group of POs that closely matched the FARMA-assisted POs. Specifically, we estimated the following multivariate regression model for outcome variables related to sales, exports, and access to finance:

$$Outcome = \alpha + \beta T + \gamma F + \delta (T \cdot F) + \lambda X + \varepsilon. \quad (1)$$

The left-hand side of the equation is the outcome variable of interest, such as PO annual sales and exports and measures of access to finance. The variables on the right-hand side include the following:

- A dummy variable T that is equal to 1 if the observation is in the treatment group and zero if otherwise. The estimate of β captures the group effect. In other words, T controls for any differences in the outcome variable that are associated with being in the treatment group.
- A dummy variable F that is equal to 1 in the years that FARMA intervention took place and zero in the baseline year. The estimate of γ captures the time effect. In other words, F controls for any changes in the outcome variable that occur over time and are common for treatment and comparison group POs.
- An interaction term ($T \cdot F$) that is equal to 1 if the observation is in the treatment group and in the years that FARMA intervention took place, and zero otherwise (i.e., for comparison group members in both the baseline and FARMA years, and for the treatment group in the baseline year). The estimate of δ captures the impact of FARMA on the outcome variable—this is the parameter of interest.
- A vector X of other relevant explanatory variables that may be related to the outcome of interest and will help control for baseline PO characteristics.

For each regression model, we estimated the parameters $\alpha, \beta, \gamma, \delta$, and the elements of the vector λ . All things being equal, the positive parameter estimates indicated that the corresponding right-hand side variable is associated with an increase in the outcome measure. Likewise, negative parameter estimates indicated a negative association. We used t-tests to measure the statistical significance of the parameter estimates. Where we found statistically significant differences, we were confident that the corresponding right-hand side variable had an effect on the outcome variable.

3.1.2 Data Collection

Since the FARMA activity design did not include an explicit comparison sample, the FARMA implementation database did not include baseline data for participating POs and a comparison group of non-participating POs. As a result, we needed an alternative data source to construct a comparison sample. Fortunately, AFIP/APIF maintains an administrative database of the financial statements from all companies operating in BiH. We constructed six-year unbalanced panel data (2008-2013) with AFIP and

APIF comprehensive databases, which we accessed through TRON Systems. These databases contain balance sheets and income statements of all registered companies that were legally obliged to submit their financial statements to AFIP/APIF throughout BiH.

This AFIP/APIF administrative financial database was used to:

- 1) collect financial data for the targeted POs (FARMA core PO beneficiaries³ listed in the FARMA database;
- 2) match FARMA beneficiaries with their financial statements in the administrative financial database;
- 3) identify comparison group of POs in the same sub-sectors as the FARMA beneficiaries (based on the industrial classifications used by FARMA implementation team); and
- 4) collect financial information for those comparison POs.

On average, financial statements for approximately 28,500 companies (19,800 in FBiH and 8,700 in RS) are available for each of the six FARMA years. The main advantage of the administrative financial databases is the comprehensiveness of the information for each company: identification number/tax ID, name, municipality, industry classification, legal form, all items from the most detailed balance-sheets and income statements, as well additional information on the salaries and the number of officially registered full-time employees.

Based on our analysis of the FARMA implementation database, we identified 187 unique core agricultural producing beneficiaries in all of the three targeted sub-sectors. Our initial data screening shows that out of the 187 unique beneficiaries, 152 are businesses with a unique Value Added Tax (VAT) number, while the rest are individuals, who we removed from our data set due to lack of data and lack of possibility to identify a comparison group. Within these 152 units, there are beneficiaries that were not legally obliged to submit their financial statements to AFIP/APIF because they were either home-based businesses or associations. Additionally, firms from the Brcko District did not submit their financial statements to AFIP/APIF. Omission of these units resulted in the sample size of 120 beneficiary POs. Finally, after we removed units for which financial statements were incomplete or not filled out in the administrative financial database, our final analysis sample size of treated POs in the impact analysis was 112.

3.2 IMPLEMENTATION STUDY

3.2.1 Method Description

The impact analysis is supplemented by a comprehensive implementation study. We made use of FARMA activity documentation and available data sources, and also conducted desk research, interviews with the USAID/BiH and the FARMA implementation team, and key stakeholder interviews and focus groups with the FARMA activity beneficiaries (both POs and government institutions/agencies) to examine research questions 3 to 6.

Specifically, we carried out the implementation study by analyzing the FARMA implementation database on core PO beneficiaries and desk study of FARMA documentation (including FARMA Implementation Contract Statement of Work, Annual Work Plans, and Annual Reports) and conducting semi-structured interviews with the FARMA implementing partners and beneficiaries. We used the information that we gathered through semi-structured interviews and focus group discussions with selected FARMA

³ Based on discussion with the FARMA implementation team, FARMA had two types of beneficiaries. The first type was the group from which FARMA gathered its data for activity M&E. These were organizations with which FARMA worked extensively and their businesses' performance data are captured in FARMA implementation database. Here we refer to them as core PO beneficiaries. The second type of beneficiaries were organizations or individuals that had less frequent and intensive contact with FARMA (including very small POs), as well as other non-producing organizations such as non-producing agricultural associations, agricultural extension services, and NGOs and educational institutions. Since FARMA collected performance data only for the core PO beneficiaries, all of the descriptive analyses in this report are based on these core PO beneficiaries.

beneficiaries (both core POs and government institutions/agencies) to address research question 3 and 4, supplemented by the desk research of FARMA activity documentation and the FARMA implementation database. We used all of the above data sources, coupled with M&E Plans and Quarterly Performance Reports and interviews with FARMA donors (USAID/BiH and Sida staff), to address evaluation research questions 5 and 6.

The semi-structured interviews and a focus group provided inputs into evaluation findings, conclusions, and recommendations. We consolidated the information that we obtained and analyzed it by a thematic analysis using information categories related to the evaluation research questions by interview/focus group transcript coding. We conducted a qualitative analysis of interview transcripts with NVivo software.

We analyzed the information that we obtained from the interviews and a focus group using a process in which we consolidated multiple responses related to a similar theme by different categories of respondents, and analyzed them for general findings. In this manner, we were able to determine the common themes. Furthermore, we explored the qualitative data inductively and then coded them, transforming them into categorical data for further quantitative analysis. We performed this content analysis of interviews to uncover themes or categories and to give a detailed description of the FARMA implementation process and FARMA's contributions.

3.2.2 Data Collection

We conducted a desk review, semi-structured interviews, and a focus group to collect quantitative and qualitative data for FARMA implementation study.

Desk review

We conducted a desk review of FARMA implementation documentation provided by FARMA implementation team staff during the group discussion at the beginning of our evaluation. The documents that our team reviewed included the FARMA Contract and the subsequent extension, Annual Work Plans, Annual Reports, Quarterly Performance Reports, M&E plans, as well as the baseline analyses on FARMA sub-sectors prepared by FARMA at the beginning of the implementation. We reviewed other materials, including the FARMA mid-term evaluation commissioned by Sida in 2011, the FARMA database containing lists of beneficiaries/partner organizations, and other industry/country specific reports. We provide a detailed list of the documents that we reviewed in Annex V.

Key informant semi-structured interviews

We conducted key informant interviews with FARMA beneficiaries including agricultural producer organizations/farmers (POs) as well as government institutions/agencies that are relevant for BiH's agricultural sector. In addition, we conducted a focus group with additional POs. We selected key informants from the list of core PO beneficiaries provided by the FARMA implementation team. Based on this list, we determined that a total number of 187 unique POs were assisted through FARMA from 2009 to 2013.

We used a stratified random sampling approach to select key informants for the semi-structured interviews. The PO beneficiary population was stratified by two criteria:

- 1) three agricultural sub-sectors served by FARMA (dairy, fruits and vegetables, and medicinal and aromatic plants and honey);
- 2) size categories (small and large) as measured by the number of cooperants/farmers.

We chose sub-sector categories to ensure the coverage of all sub-sectors that FARMA served and to capture the specificities of each sub-sector in our evaluation. We chose the size categories to reflect the criteria that FARMA used to select PO beneficiaries, which, based on information received from the FARMA implementation team, sought to cover as many farmers as possible (in other words, one of the criteria that FARMA used to select PO beneficiaries was that the beneficiary worked with a large number

of cooperants/farmers). Table 4 shows the breakdown of the total number of unique PO beneficiaries by strata.

Table 4. Total Number of Core PO Beneficiaries by Category

Sub-sector/ Size	Small	Large	Total
Dairy	67	17	84
Fruits and Vegetables	28	28	56
MAPs	31	16	47
Total	126	61	187

Source: FARMA implementation database

We extracted the sub-sector strata directly from the FARMA implementation database. The administrative employment data do not include the number of PO associated farmers, unless they are official full-time employees of the POs, or the number of seasonal, part-time employees, cooperants, or other associated farmers (e.g., immortelle pickers). Accordingly, we used information from the FARMA implementation database on the number of registered full-time employees, the number of seasonal and part-time employees, the number of cooperants in collections, and the number of other cooperants (note that data on individual farmers who may also be suppliers but do not have cooperant agreements with the PO were not available in FARMA database) to generate proxy for PO size. We stratified the population into two size categories, with POs with fewer than 100 employees/cooperants defined as small and POs with 100 or more employees/cooperants defined as large.

Out of the total 187 unique core PO beneficiaries in FARMA implementation database, 39 had not submitted financial statements to the official administrative financial databases of FBiH and RS. There are two reasons for the lack of financial statements for the aforementioned 39 POs:

- 1) they were individual farmers (35 units) or;
- 2) they were registered in Brcko District (4 units) and, thus, were not obligated to report to Entity Agencies (data for Brcko District financial statements were not available to us).

Of these 39 observations, 38 were in the dairy sub-sector and one was in the fruit and vegetables sub-sector. In order to preserve the comparability between the treated beneficiaries in the implementation study and impact analysis, we removed the 35 individual farmers and 4 POs from Brcko District from the list of potential key informants. Consequently, the total population from which we sampled key informants consisted of the remaining 152 POs. Table 5 shows their breakdown by stratifying categories.

Table 5. Key Informants Selection Stratification Categories

Sub-sector/ Size	Small	Large	Total
Dairy	33	17	50
Fruits and Vegetables	27	28	55
MAPs	31	16	47
Total	91	61	152

Source: FARMA implementation database

We conducted the random sampling from the 6 (3×2) strata, with the initial list of the 24 POs, which we contacted to set up interview meetings. Based on POs' availability, the final list of the key informants included 17 POs. Table 6 shows their break down by stratifying categories.

Table 6. Key Informant POs by Category

Sub-sector/ Size	Small	Large	Total
Dairy	4	4	8
Fruits and Vegetables	2	3	5
MAPs	2	2	4
Total	8	9	17

Source: FARMA implementation database

We also conducted semi-structured interviews with agriculture related government institutions/agencies, which were important FARMA beneficiaries. FARMA assisted a total number of 12 government institutions. We conducted interviews with each of these institutions. Table 7 provides a list of these institutions.

Table 7. Government Institution Key Informants

BiH State Veterinary Office
BiH Plant Health Protection Administration
RS Ministry of Agriculture, Forestry and Water Management
FBiH Ministry of Agriculture, Forestry and Water Management
BiH Food Safety Agency
RS Agricultural Institute
Federal Agromediterranean Institute
Veterinary Institute of RS
Federal Agriculture Institute
Veterinary Faculty Sarajevo
Ministry of Foreign Trade and Economic Relations of BiH, Sector for Agriculture
Department for Agriculture, Forestry and Water Management of District Brcko

Finally, we conducted semi-structured interviews with FARMA donors USAID/BiH's and Sida's relevant staff. We developed three separate interview protocols based on elaboration of evaluation research questions and used them to conduct the semi-structured interviews with each of the three types of key informants: POs, government institutions/agencies, and donors. We provide the interview protocols (three separate protocols for POs, government institutions/agencies, and donors) in Annex III.

In total, we conducted 33 individual interviews with FARMA PO and government institution beneficiaries, donors, and the FARMA implementation team. Annex VI provides detailed list of the key informant interviews (POs and government institutions/agencies).

Focus Group

In addition to the 17 individual interviews that we held with the FARMA beneficiary POs, we included 8 additional POs in a focus group discussion. While we selected the 17 POs for the individual interviews using stratified random sampling, we selected the focus group's participants based on recommendations made by the FARMA implementation team. The criteria that the FARMA implementation team used to recommend the focus group participants included familiarity with FARMA's interventions, intensive use of FARMA technical and financial assistance, and the size of the POs in terms of number of employees/cooperants/farmers. Annex VI provides a list of the focus group participants, and the Focus Group General Guideline is attached in Annex IV.

3.3 EVALUATION LIMITATIONS

We encountered a number of limitations during this evaluation. This section describes the evaluation's principal limitations and the ways in which we attempted to mitigate them.

Limitation 1: No baseline information against which to measure progress in the FARMA implementation database

The FARMA implementation database does not contain baseline information on the selected performance indicators and outcome variables (for targeted or the comparison group). We noted the absence of baseline information on a range of variables such as sales, exports employment, and access to finance held by POs which FARMA has been working with.

Mitigation: We used data from AFIP/APIF official financial statements for targeted and comparison POs for 2008-2013. For baseline data of treatment POs, we used data from the year prior to their participation in any FARMA assistance activities. For baseline data of comparison POs, we used data from 2008.

Limitation 2: Self-reporting of the POs on the required data for indicator calculation used in the FARMA implementation database

During the first few years of FARMA, the data needed for monitoring indicators were collected from the POs by the FARMA implementation team. The FARMA implementation team did not verify the data against the POs' official financial statements. In 2012, FARMA started purchasing the official financial statements to capture the required data. At the same time they still continued to collect self-reported data from the POs. Therefore, we had reservations about the quality of data in the FARMA implementation database, and were concerned that it could compromise the quality of the indicators.

Mitigation: We used data from AFIP/APIF official financial statements for targeted POs and not the self-reported data provided by the FARMA implementation database.

Limitation 3: Lack of data for the comparison group in the FARMA implementation database to conduct impact evaluation

A rigorous impact evaluation of FARMA was not planned during the project's design. FARMA, thus, did not collect information on potential comparison POs. Due to possible beneficiary selection bias, FARMA participants likely were more successful with respect to each activity's goal than nonparticipants. Accordingly, if we analyzed only the financial statements of participants we likely would have overestimated FARMA's impacts.

Mitigation: We collected data from POs that were not beneficiaries in the sub-sectors in which FARMA assisted (dairy, fruits and vegetable, and MAPs) to compare the changes in outcome variables through DID design.

Limitation 4: Impact evaluation data limitation – official financial statements and industry sector classification (statistical classification of economic activities)

Although the data from the official financial statements (for both beneficiaries and non-beneficiaries in the relevant sub-sectors assisted by FARMA) are the most comprehensive financial data available in BiH, we still faced several data limitations. The structure of financial statements differs between the two Entities. Furthermore, the official Chart of Accounts (CoA) in FBiH has changed during the FARMA implementation period, so that the evaluation was based on two different CoAs for FBiH: one for 2008 to 2009 and one for 2010 to 2013.

Another limitation with the data is that the statistical classification of economic activities (industry sector classification) in the two entities was not harmonized until 2011. Namely, the FBiH classification adopted the EU classification in 2011, while this classification was in place in RS throughout the entire observed period (2008 to 2013). Moreover, a firm's official statistical classification shows only its self-reported primary economic activity; that is, a firm can be registered for a number of different activities, and it is impossible to distinguish the share of the values of financial items coming from different activities in their financial statements.

Mitigation: We carefully analyzed the CoAs to ensure comparability across both Entities and throughout the entire FARMA evaluation period (2008 to 2013). For statistical classification of economic activities, we used the bridging table between the two different classifications (one for FBiH for 2008 to 2010 and the other for FBiH for 2011 to 2013 and for the entire evaluation period for RS) provided by TRON Systems (see Annex VII). This ensured maximum comparability across Entities and across different time periods.

Limitation 5: Potential inconsistency of results from key informant interviews and focus group discussions

Because we used different selection procedures for key informants and focus group participants, and we sought different information from the key informant interviews and focus group discussion, we recognized that the results that we obtained through interviews and focus group might be inconsistent and difficult to reconcile.

Mitigation: We based the main questions for the focus group discussion on the key informant interview protocols in order to preserve comparability of the results. Two evaluation team members conducted both individual interviews and facilitated the focus group, independently taking notes, and recording both the interviews and focus group discussion for later reference and transcription.

Limitation 6: Bias associated with the small sample of POs interviewed, their limited availability, and selection process

We were able to visit only a relatively small sample of POs for key informant interviews (just more than 11 percent of FARMA core PO beneficiaries) due to the time constraints. We attempted to secure a 16 percent randomly selected sample of POs for site visits but had to rely on the availability of the POs to meet at relatively short notice and in the midst of winter holidays. A couple of randomly selected PO beneficiaries were unwilling to participate in the interviews due to their negative attitudes towards FARMA. Only 17 of the 24 key informants who we randomly selected for the semi-structured interviews were able to meet with us.

We did not select the focus group participants (eight POs) randomly; instead, the FARMA implementation team recommended them, which inherently may have biased their responses towards positive assessment of the FARMA interventions.

Overall, we were concerned by the relatively small sample size and unknown representativeness of the POs that we visited, and, specifically whether these factors would impact adversely the external validity of the evaluation results.

Mitigation: We triangulated information from multiple sources to minimize our risk of reaching conclusions based on biased sample or views. While the focus group participants were nominated by FARMA, they

were more likely to be very familiar with all aspects of FARMA's interventions, which may not have been the case for the randomly selected POs for the key informant interviews. Thus, by combining randomly selected POs (for semi-structured interviews) and FARMA-recommended POs (for focus group), we attempted to capture a comprehensive and accurate description of the activity. Furthermore, the response rate of the key informant selection process exceeded 70 percent (17 key informants out of 24 randomly selected POs).

Limitation 7: Lack of gender-disaggregated data in the administrative financial information used for impact analysis

There was only limited gender information in the FARMA implementation database and there is no gender-disaggregated information in the AFIP/APIF administrative data. This limitation prevented us from carrying out subgroup analysis based on gender in our impact analysis.

Mitigation: We presented a detailed analysis of every gender related variable in the FARMA implementation database.

Limitation 8: Willingness of respondents to provide honest responses

Mitigation: In order to encourage honest responses, we informed all of the key informants and focus group participants that their responses would be kept confidential and that they would not be identified in the evaluation report in terms of the specific feedback that they provided.

4. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.1 FINDINGS

EVALUATION QUESTION I

What were the impacts of FARMA interventions on POs' sales and exports? Did the impacts vary by sub-sectors?

Before we present the results of the multivariate DID regression, we provide Table 8, which shows the summary statistics of the baseline characteristics for the treated sample (FARMA core PO beneficiaries) and comparison POs that were in the same sub-sectors. In Table 8, baseline refers to the year before each treated PO participated in FARMA. We extracted this information from the FARMA implementation database. For comparison POs, we used 2008 as the baseline year. In our analysis, follow-up periods refer to all years after POs' FARMA participation, which vary from one year to five years depending on when the PO became a FARMA beneficiary. As discussed in Section 3.1.1, our analysis sample included 112 treated core PO beneficiaries, and 495 comparison POs identified from AFIP/APIF data based on statistical classification of economic activities of the treated POs.

Most of the PO characteristics tended to have skewed distributions which implies that the averages might be mostly driven by relative small number of large POs. To facilitate the investigation of baseline and follow-up PO comparisons, we also presented the median values along with the means for each variable except the dummy variable, which indicated if the PO had any exports. It is also worth noting that the FBiH financial statements used up to 2010 did not include information about exports, so we did not have PO level exports information for years 2008 and 2009.

Table 8. Baseline Characteristics for FARMA Treatment POs and Comparison Group

Characteristics <i>(KM unless specified otherwise)</i>	Treatment		Comparison	
	Average	Median	Average	Median
Assets	4,989,706	709,094	2,769,817	234,881
Equity	2,703,367	168,166	1,233,832	31,903
Employment (full time equivalent)	11	2	15	2
Short term loans	357,149	189	230,134	0
Long term loans	654,497	17,881	468,881	0
Sales	3,022,265	466,148	2,150,174	140,731
Percentage of POs that export	45	-	20	-
Exports	1,107,175	0	168,940	0

Source: Authors' calculations based on AFIP/APIF and FARMA implementation database.

At baseline, as seen in Table 8, the average FARMA treated PO had total assets valued at almost 5 million KM. This average valuation was driven mostly by some large POs, as the median value stands at about 700,000 KM. Comparison POs were smaller both in total assets and in equity value. For example, baseline average equity for the treated sample was 2.7 million KM while the corresponding value for the comparison group was less than half at 1.2 million KM. At baseline, the number of full time employees was similar across FARMA treated POs and the comparison group, and averaged 11 for the treated sample and 15 for the comparison sample. As for indicators of access to finance, we also examined short and long term loan values for the POs in our sample. The selection of this outcome variable was based on a contractual performance indicator tracked by FARMA implementation team.⁴ As shown in Table 8, the average value of short term loans was about 350,000 KM for the treated POs and 230,000 KM for the comparison sample. Baseline sales figure averaged about 3 million KM in the treated sample with a median value of about 470,000 KM. In the comparison sample, the sales in the year 2008 had a mean value of about 2.1 million KM and a median value of about 140,000 KM. About 45 percent of the all the POs in the FARMA core PO beneficiaries already had exported their products before FARMA assistance while the proportion of POs that exported in the comparison sample was a lower 20 percent.

We tested the baseline equivalence between treatment and comparison groups using statistical tests. In general, we found that key treatment-comparison differences were present in our sample. Although FARMA assisted POs and comparison POs are equivalent in employment, short term and long term loans, and sales, there are statistically significant differences in baseline measures of assets, equity, and exports. These differences highlight the non-random nature of FARMA beneficiary selection and the associated challenges for impact evaluation. Overall, the FARMA core PO beneficiaries tend to be larger in assets, equity, loan amounts, sales, and exports compared to POs that are not part of FARMA interventions before FARMA starts to implement interventions. Any unconditional differences of outcome variables between treated and comparison POs likely would have yielded biased impact estimates for FARMA

⁴ See PIR2, indicator No.9 of FARMA M&E Plan (Chemonics, 2010). It tracks the percent change in the value of loans and investments in assisted POs annually.

interventions. We took into account these observable differences through the multivariate regression framework that we used to implement the DID design.

Table 9. FARMA Impacts on Sales and Exports

Outcome Variable	Sales	Export	Percentage Exports
Whole Sample	0.021	-0.162	0.000
	(0.205)	(0.665)	(0.088)
Fruits and Vegetables	-0.142	0.377	-0.077
	(0.363)	(0.717)	(0.143)
Dairy	0.762**	-1.232	0.208
	(0.389)	(1.435)	(0.134)
MAPs	0.085	-0.953	-0.041
	(0.323)	(1.182)	(0.157)

Source: Authors' calculations based on AFIP/APIF and FARMA implementation database. Note: Standard errors are in the parentheses. **/**/** significantly different from 0 at the 0.1/0.05/0.01 levels, respectively, two-tailed test.

Our analysis of the impacts of FARMA interventions on POs' sales and exports are shown in Table 9. The Table's first row presents the impact estimates based on the whole sample while the next three rows produce the estimates in our sub-sector analysis answering the second part of the evaluation question. The dependent variables that we used in our analysis were logarithms for the sales and exports, and we used a dummy variable to indicate if a PO has any exports. The estimates can be interpreted as percentage change on corresponding outcome variables. FARMA interventions had a positive effect on PO sales of around 2 percent, but this effect was not statistically significant. Overall, we did not find any statistical significant impacts of FARMA activities on exports.

Our examination of the impact estimates for the three sub-sectors yielded several observations. First, there were a lot of heterogeneities across these three sub-sectors assisted by FARMA and there was no clear pattern of the impacts generated by FARMA. This observation directly speaks to the demand-driven, sub-sector focused approach of FARMA interventions. Second, we did not find statistically significant impacts of FARMA activities in F&V and MAPs sub-sectors. None of the estimates was significant at the 10 percent level. Third, we found that FARMA's interventions had a significant effect on sales in the dairy sub-sector with a relatively large increase of sales of 76 percent. This estimate was statistically significant at a 5 percent level. We did not detect any significant results for the exports related outcome variables.

EVALUATION QUESTION 2

What were the impacts of FARMA interventions on POs' access to finance? Did the impacts vary by sub-sectors?

Access to finance is included within the illustrative list of FARMA components in the FARMA contract. Access to finance encompasses the following activities: assisting agricultural cooperatives, associations, market integrators, and SMEs in obtaining loans from commercial banks and other financial institutions; facilitating lending through DCA; and facilitating venture funding and foreign and domestic direct investment. Access to finance is among the seven indicators that the contractual agreement required: investments and working capital financed through banks and micro-finance institutions in targeted POs must increase by at least 25 percent. In terms of performance monitoring, indicators monitored by FARMA

implementation team in relation to the access to finance measurement include life of the project (LOP) targets (base period plus option period) of 4,000,000 USD of private financing mobilized with DCA-guarantee; 6,843,328 USD of FDI access by selected POs with FARMA assistance; and 40 percent increase in the value of loans and investments in assisted POs.

Our impact analysis used short term and long term loans to measure access to finance. Although we do not believe that access to finance could be accurately captured without properly designed enterprise survey data, information on short term and long term loans provided us with the best available information in the AFIP/APIF database related to PO’s financing outcomes and that was directly related to the performance indicator tracked by FARMA implementation team. We present estimates of the intervention’s impacts on access to finance in Table 10.

The first row of Table 10 presents the estimates of the impact based on the whole sample; the next three rows presents the estimates in our sub-sector analysis answering the second part of the evaluation questions. Looking at whole sample estimates, FARMA interventions had a positive effect on long term loans but a negative effect on short term loans. Although the magnitudes of these effects were large (90 percent and 35 percent, respectively), they were not statistically significant at conventional levels. Moreover, although the overall estimated impacts were not significant, there may still have been a positive effect on long term loans and a negative effect on short term loans that we could not detect with our sample.

Similar to the results on sales and exports, we observed no clear pattern in our sub-sector analysis, both in terms of signs and in terms of magnitudes. In summary, although we found suggestive empirical evidence of positive effect on long term loans and negative effect on short terms loans with relatively large magnitude, these estimates were measured with low precision and were more likely to be due to chance.

Table 10. FARMA Impacts on Access to Finance

Outcome Variable	Short term loans	Long term loans
Whole Sample	-0.349	0.896
	(0.683)	(0.746)
Fruits and Vegetables	0.065	0.145
	(1.126)	(1.198)
Dairy	0.724	0.605
	(1.330)	(1.552)
MAP	-1.978	2.023
	(1.211)	(1.299)

Source: Authors’ calculations based on AFIP/APIF and FARMA implementation database. Note: Standard errors are in the parentheses. ***/**/* significant different from 0 at the 0.1/0.05/0.01 levels, respectively, two-tailed test.

EVALUATION QUESTION 3

What were the characteristics of the POs served by the FARMA program?

For the implementation study, we collected and used data from a variety of sources. For example, we used data from the FARMA implementation database as well as qualitative data collected by MEASURE-BiH team. These data helped us to POs’ characteristics and explore mechanisms linking activities to the outcomes measured in the impact analysis.

Before turning to our implementation findings, it is worth noting that the total number of beneficiaries, as reported by FARMA, was 532 at the end of 2013 (100 percent of the target). In addition to the 187 POs that comprised the core PO beneficiaries of FARMA and whose performance information FARMA implementation team tracked, there were also POs that FARMA did not intensively serve (including small-scale POs), as well as other organizations which served interests of the agricultural producers, such as agricultural extension services of the cantons, NGOs, non-producing agricultural associations, and educational institutions. Since FARMA collected performance data only for the 187 core PO beneficiaries, we based the descriptive analyses only on these core PO beneficiaries.

FARMA staff reported that all BiH POs were encouraged to approach FARMA to seek assistance and that the criteria for collaboration was based primarily on 1) the needs of the POs, 2) FARMA's capacity to support them, and 3) the expected impact that this assistance would have on the POs and the sub-sector. Furthermore, FARMA also considered the number of people employed and engaged as cooperants/independent farmers in selecting beneficiaries. However, many of the FARMA assisted POs that we randomly selected for key informant interviews were also beneficiaries in the previous USAID/BiH agricultural activity, LAMP (2003-2008), and received either grants or technical assistance. Out of the 17 PO key informants, 10 were LAMP beneficiaries between 2003 and 2008. (Notably, a few beneficiaries had difficulties distinguishing whether the assistance that they received was provided by LAMP or FARMA.) Furthermore, half of the focus group participants were LAMP beneficiaries. Although the FARMA implementation and management teams articulated that the LAMP grantees were generally excluded from the competition for FARMA grants, 16 POs received grants from both LAMP and FARMA,⁵ and 4 POs received multiple grants from FARMA. While some of the LAMP beneficiaries may have received FARMA assistance based on their direct demand, the large share of the repeated beneficiaries may imply that some of them could have been passively carried over from the previous intervention, a practice not consistent with the demand-driven implementation design of the FARMA activity.

Our interviews with FARMA staff also revealed that FARMA used the following approaches to engage POs as beneficiaries:

- Presentations of FARMA activity organized by local organizations, such as associations or municipal agricultural services at the beginning of the activity;
- Engaging beneficiaries at agricultural fairs;
- Large producer companies informing their cooperants/farmer associations about FARMA;
- FARMA technical experts informing organizations or farmers that they worked with before about FARMA; and
- Information disseminated through FARMA website.

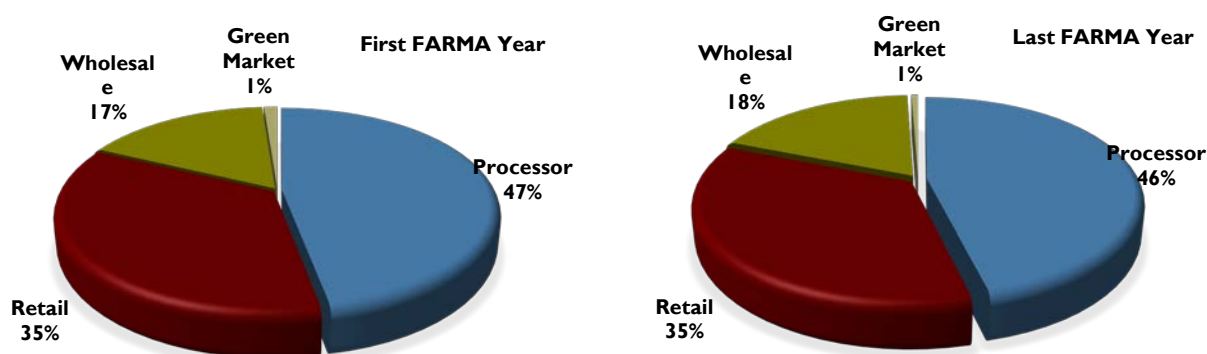
We learned about other characteristics of FARMA PO beneficiaries from the FARMA implementation database including primary domestic market sales channel of each PO, total numbers of estimated employees and cooperants, and the information on the years in which each PO received FARMA assistance over the LOP. Figure 3 shows the primary domestic sales channels of the 187 FARMA core PO beneficiaries, both in the first year in which a PO received FARMA assistance, as well as in the last year in which a PO received FARMA assistance over the LOP. As seen in Figure 3, there were no significant changes in the structure of domestic sales channels between the first and final years in which FARMA assistance was provided to the FARMA core PO beneficiaries, the majority of whom fell into the categories of processor and retail. Thus, although there was some anecdotal evidence suggested by the PO key informants that beneficiaries indeed moved up the value-added chain (e.g. *immortelle*-based cosmetics

⁵ Note, however, the only available data from LAMP activity we are able to obtain is the grantee list.

products or pickled cucumbers), there was no overall quantified evidence that FARMA interventions increased the value-added level of the three sub-sectors. However, some POs might consider their primary function to be processing even they also directly sell final products (especially the larger companies in F&V sub-sector). Consequently, FARMA implementation database does not have sufficient information for value-added level analysis.

Table II illustrates the breakdown of total full time employees, seasonal and part time employees, and cooperants for the 187 FARMA core PO beneficiaries. We extracted these data from the FARMA implementation database. Figures 4 and 5 present in more detail the structure of beneficiaries in the first FARMA year and in the final year of FARMA assistance by number of employees and cooperants.

Figure 3. FARMA PO Beneficiaries Domestic Sales Channel



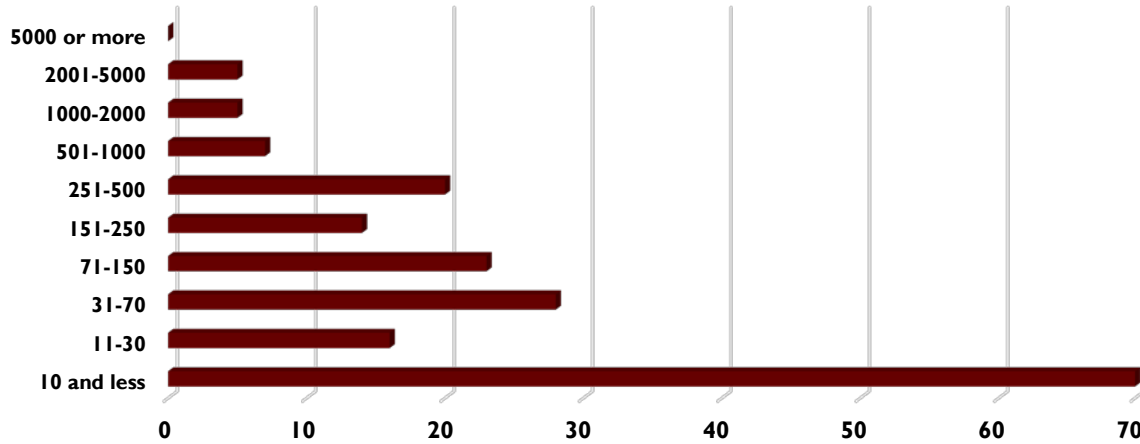
Source: Authors' calculations based on FARMA Implementation database.

Table II. Employment of FARMA PO Beneficiaries

First FARMA year	Full time	Part time and seasonal	Cooperants	Total
Dairy	964	134	19,576	20,674
Fruits and Vegetables	1,182	2,130	11,671	14,983
MAPs	487	647	4,700	5,834
Total	2,633	2,911	35,947	41,491
Last FARMA Year	Full time	Part time and seasonal	Cooperants	Total
Dairy	1,214	243	18,657	20,114
Fruits and Vegetables	1,219	2,120	9,450	12,789
MAPs	485	683	7,891	9,059
Total	2,918	3,046	35,998	41,962

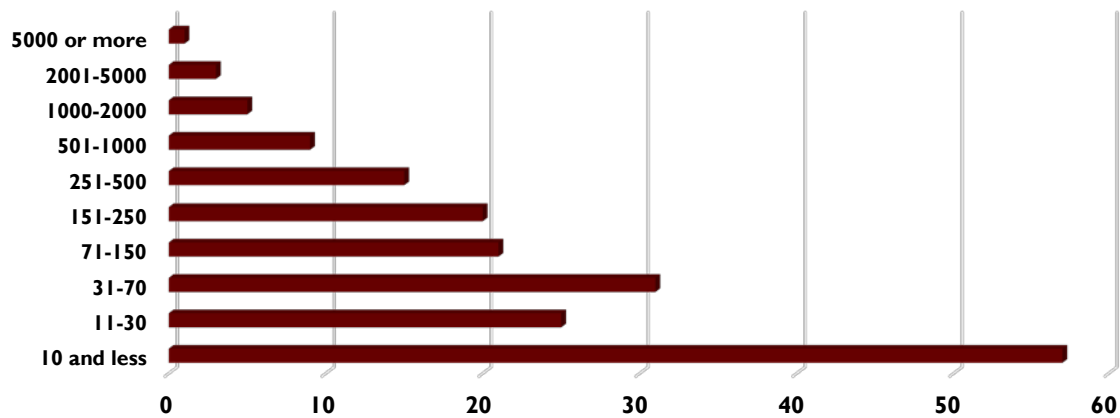
Source: Authors' calculations based on FARMA Implementation database.

Figure 4. Total Number of Employees and Cooperants of FARMA PO Beneficiaries at First FARMA Year



Source: Authors' calculations based on FARMA Implementation database.

Figure 5. Total Number of Employees and Cooperants of FARMA PO Beneficiaries at Last FARMA Year



Source: Authors' calculations based on FARMA Implementation database.

The FARMA implementation database contains the following two types of gender-disaggregated data:

- 1) gender of the PO owner/manager (data available for 141 FARMA core PO beneficiaries, shown in Table 12); and,
- 2) gender of full time employees and part-time and seasonal employees.

Only 17 percent of the POs had a female owner or manager; POs in the MAPs sub-sector had the highest share of female owners/managers at 23 percent. While we did not specifically conduct gender subgroup analysis in this evaluation due to limitations in the data, the low share of female owners and managers indicated in Table 12 was also evident in the pool of key informants and focus group participants. Only 2 out of 25 selected POs had a female owner/manager.

Table 12. Gender of Owner/Manager of FARMA core PO Beneficiaries

		Female	Male	Total
Dairy	Small PO	5	51	56
	Large PO	4	10	14
	Total	9	61	70
Fruits and Vegetables	Small PO	3	19	22
	Large PO	5	14	19
	Total	8	33	41
MAPs	Small PO	6	11	17
	Large PO	1	12	13
	Total	7	23	30
Total	Small PO	14	81	95
	Large PO	10	36	46
	Total	24	117	141

Source: Authors' calculations based on FARMA Implementation database.

Although only 17 percent of the POs had a female owner or manager, we found that almost half (49 percent) of the total number of full time employees and part time and seasonal employees were female in the last year of FARMA assistance, up from 45 percent in the first FARMA year. The gender-disaggregated FARMA implementation data also implied that the female share in employment was highest in the MAPs sub-sector and lowest in the dairy sub-sector. Overall, women were more likely to be part time or seasonal employees, while men were more likely to be full time employees.

EVALUATION QUESTION 4

How were FARMA interventions implemented?

We base our discussion of the implementation findings on the FARMA implementation documentation and qualitative data described in Section 3.2.2. We classified FARMA interventions either as technical assistance or grant program, Development Fund (DF).⁶ Table 13 summarizes the types of interventions and Table 14 describes key characteristics of FARMA grantees. Additional descriptive statistics on the grantees are provided in Annex VIII.

FARMA implemented a variety of practices to improve the beneficiaries' competitiveness. As seen in Table 13, the majority of the FARMA technical assistance activities were implemented as technical trainings and field visits, meetings, developing concept papers, and financing coaching. As illustrated by Table 14, the FARMA grantee list indicated that more than 40 percent of the grantees were in the F&V sub-sector. These grantees received the highest amount of grants valued at more than 1.7 million KM. Moreover, more than 40 percent of the grantees are private companies.

FARMA beneficiaries can be broadly classified as either POs or government institutions/agencies as discussed in Section 2. Next, we discuss our findings separately for these two categories because they received different types of assistance.

⁶ FARMA disbursed a total of 93 grants through its DF. This number does not include the flood relief recovery grants.

Table 13. FARMA Intervention Summary

Type of Technical Intervention	Number of Interventions
Technical assistance and trainings	2197
Field visits and assistance	399
Meetings	2923
Study tours	95
Round tables	79
Type of Financial Intervention	Number of Interventions
Financial training	136
Trade fair attendance support	45
Get-to-grants training	13
Information session	79
Subcontracts	53
Concept papers	270

Source: Authors' calculations based on FARMA Implementation database.

Table 14. Grantees' Characteristics

Sector	Number of Grantees
All	5
Dairy	24
Fruits and Vegetables	38
MAPs	26
Total	93
Sector	Amount of Grants (KM)
All	129,311,64
Dairy	893,099.08
Fruits and Vegetables	1,736,389.14
MAPs	1,099,208.41
Total	3,858,008.27
Organization Type	Number of Grantees
Association	9
Cooperative	26
Crafts Organization	14
NGO	4
Private Company	39
Public Institution	1
Total	93

Source: Authors' calculations based on FARMA Implementation database.

Producer Organizations (PO) Assistance

Among PO key informants, there are recipients of both technical and financial assistance of the FARMA activity. In their discussion of FARMA implementation achievements, the recipients of grants were able to provide the most concrete examples of FARMA's positive contributions to their business results. We conducted interviews with 17 key informant POs, 9 of which received grants to co-finance 50 percent of the requested investment. We found that the majority of the grantees used the grants to purchase agricultural equipment, such as plant extractors, semi-automatic liquid filling machines, vacuum machines, lines for automatic cleaning, and hydro diffusion distillery equipment. Moreover, FARMA grants also supported after-production activities for beneficiaries such as marketing campaign to reach the end customer.

In BiH, some vegetables cannot be grown outdoors. "Thanks to FARMA and its predecessor activity LAMP, BiH greenhouse production has reached its current level." The amount of vegetables now being produced in BiH has significantly reduced imports.

Many key informants reported their positive experience with FARMA activity implementation, such as significant increase in production of vegetable seedlings by an agricultural cooperative which in turn distributed the seedlings to its large membership thus multiplying positive impacts, significant increase of production of vegetables due to greenhouse facilities purchased with FARMA assistance, activation of the first irrigation system in the region which exponentially increased production of one large PO, and product line expansion with an assortment ranging from semi-final to final products for a large MAPs producer.

All key informant POs expressed that FARMA staff provided the necessary assistance to them during the grant application process. Key informant POs also emphasized that FARMA staff were at their disposal when they needed them. The type of the assistance that FARMA team provided to POs with regards to the grant applications varied among beneficiaries: some POs were able to fill out the application form on their own, some asked family members or friends for help, but none stated that they paid a third party to complete the grant application. Besides making its staff available to grant applicants, the FARMA team also organized formal "Get to Grants" trainings to educate POs on how to fill out the application. Overall, based on our analysis of key informant interviews, grants were used to improve business operations of all but one POs we interviewed.

In terms of technical assistance, we found that FARMA's interventions were generally demand-driven and were organized on a group or individual (one-on-one) basis. In general, these technical assistance interventions included group training or education, such as education on quality standards (e.g., HACCP),⁷ field visits, promotional activities, trade fair attendance support, providing diverse educational materials on FARMA website (e.g. about cultivation of different types of MAPs) and handouts, and study tours. One MAPs producer explained during the interview how the training on farmers' cultivation of immortelle and the technical training about improving immortelle distillation was crucial in enabling the producer to increase production by 30 percent. The producer stated that he would not have been able to continue his business operations with this rare raw material/input without FARMA's assistance.

Several key informants expressed their appreciation of the one-on-one assistance and field visits provided by FARMA technical experts, such as land sample analyses, mock inspection of the farms for adherence to certification standards, and urgent assistance in animal health issues (e.g. with a calved cow). Also, technical assistance for promotional activities (such as participation in TV shows, organizations of journalists' visits to the POs, organizations of POs, and presentation to BiH diplomatic core) and visits to fairs (e.g. BioFach, Cheese Olympics) were cited as extremely useful in reaching new customers by several beneficiaries we interviewed.

⁷ Hazard Analysis Critical Control Points

FARMA implementation team also made efforts to multiply positive effects and transfer technical knowledge to the POs that did not receive grants by organizing open-day events. During these events, FARMA grantees who have purchased new equipment demonstrated its use and modernization technique to peer POs. Similarly, large POs and associations that have purchased equipment or have received

“Seeing how the world does it, helped a lot...It is not the same when you know something theoretically and when you see it with your own eyes.” FARMA study tours covered different topics such as rural tourism and meat products for restaurants, among others, and included visits to Austrian farms.

trainings transferred the knowledge by extending the use of the equipment and/or training to their associated farmers. Finally, FARMA assisted inter-PO networking and peer to peer learning by activities such as facilitating joint PO-led event on “Perspectives in the Production of Medical Plants” and “Production of Medical Plans as a Generator of Job Creation”, both with over 100 attendees from around BiH.

Although the overarching goal of the FARMA activity is to improve agricultural competitiveness by providing demand-driven assistance and expanding production, processing, and

sales of value-added agricultural products in all three targeted sub-sectors, the interventions were designed to carefully take into account specific needs of each sub-sectors. The heterogeneous impact estimates across the three sub-sectors, as seen in findings of evaluation questions 1 and 2, highlights the importance of sector specific implementation approach.

Sub-sector specific challenges addressed by FARMA interventions in the dairy sub-sector included low quality and production of milk, fragmentation of the producers, narrow and low value-added product range, lack of the EU safety standards, as well as the need to strengthen the capacity of cooperatives, associations, and market integrators. One example of FARMA’s assistance in the dairy sub-sector that directly contributed to its product quality increase was the promotion of good practice under EU Nitrates Directive, which, according to one PO we interviewed who received a financial grant for waste depot expansion and cistern procurement, resulted in decreased pollution of ground and surface water on the farm. To facilitate the application for EU standards in dairy sub-sector, FARMA implementation team organized the preparation for the EU FVO inspections, which was mentioned by one large dairy producer which we interviewed to be quite invaluable. In addition, to reduce the fragmentation of the dairy producers and strengthen the associations, FARMA facilitated the networking and cooperation among cheese producing FARMA beneficiaries which ultimately resulted in the establishment of country-wide Association of Cheese Producers. FARMA assisted the association by providing different training events aimed at quality standardization, fair attendances, publishing of BiH Cheese Catalog with cheeses from fifteen producers, etc.

Sub-sector specific challenges addressed by FARMA interventions in the F&V sub-sector included out-of-date production technology and standards for increased yields and product quality, lack of berry varieties for capturing long-term competitive advantage, and low market inter-linkages, and noncompliance with food quality and safety standards. Examples of FARMA interventions in the areas of production technology and market linkages in the F&V sub-sector mentioned during key informant interviews included purchasing juice bottling machines and cold storage. When paired with relevant training and other technical assistance, these interventions have significantly increased productivity of respective producers, facilitated the business networking between juice producers and berry growers, and organized several producers for their joint entry into the Austrian market. To achieve EU standards in the F&V sub-sector, FARMA implementation team provided comprehensive facilitation of the BiH application for exporting potatoes to the EU.

Sub-sector specific challenges addressed by FARMA interventions in the MAPs sub-sector included inconsistency in product quality and need for production modernization, low linkages with foreign markets (especially for higher value-added MAPs products), lack of organic certification, need to move up the value chain and improve cultivation and distillation of medicinal plants. Key informant interviews revealed several

FARMA interventions to address these challenges, such as the visit to Biofach Fair. Participating in the Biofach Fair resulted in production of final cosmetic products. FARMA interventions have also improved distillation mechanisms and provided trainings and materials to increase immortelle cultivation. Moreover, numerous POs were certified for organic production with help from FARMA.

As a cross-cutting area, the FARMA implementation team provided assistance in access to finance. The main tool for this component was DCA guarantee, although financial trainings were also provided. According to implementation documentation that we obtained from the FARMA implementation team, FARMA supported DCA credit guarantees that mobilized 2.111 million KM from local lenders to finance infrastructure projects and small and medium sized businesses. Table 15 examines DCA utilization for the period of 2010 to 2014. Eight of the 17 key informant POs reported that they were familiar with the availability of DCA guarantee, but none of them actually used it. Several POs were aware that this tool existed even before FARMA, but noted that it was rarely used, as specificities of agricultural sector were not understood properly by the banking sector. Only one of the POs we interviewed (a focus group participant) was a DCA guarantee user, who had positive experience and positive attitudes towards its continuity. Only one representative from a government institution that we interviewed was aware of this type of assistance available to the POs.

Our interview respondents who were aware of this guarantee mainly stated that they did not take advantage of the guarantee for the following reasons:

- Did not have any loans, and consequently had no need for this type of loan guarantee.
- This guarantee was offered only by three banks and the FARMA beneficiaries were often long-standing customers of certain banks that did not have that option. One respondent stated, “I did not use the DCA guarantee because the relationship between the bank and the client is more important.”
- The legal form of the beneficiary prevented the use of DCA guarantee. Although many of them gained the VAT number, they were in principle treated as natural persons, and as such they had no formal possibility to employ workers or apply for the loans in the banks.

Government Institutions Assistance

FARMA provided full support to different stakeholders, including government institutions/agencies, to enable them to meet the export standards/conditions for the EU. FARMA’s assistance to government institutions/agencies was especially important because Croatia became an EU member state in July 2013.

The FARMA team formed a Coordination Body and an Advisory Council to ensure the effective exchange of information. The Coordination Body was comprised of representatives from relevant institutions in BiH, while the Advisory Council was comprised of representatives from the private-sector. FARMA staff arranged bi-annual Coordination Body meetings. Besides the representatives from relevant ministries⁸ and public sector agencies, individual producers and cooperatives’ representatives also attended the meetings. The Coordination Body meetings provided government representatives with firsthand information of producers’ experiences in the field. The Coordination Body meetings also provided attendees with an opportunity to identify the areas for inter-agency cooperation. All of the government beneficiaries we interviewed noted that such coordination would not have happened without FARMA.

⁸ Relevant ministries include the State Ministry for Foreign Trade and Economic Relations (MOFTER), Agriculture and Rural Development department, the two entities’ Ministries of Agriculture and the corresponding Department in District Brcko, and relevant Federation of BiH canton representatives.

Individual FARMA assistance to government beneficiaries was based on needs identified by these beneficiaries themselves and it almost entirely consisted of the support for fulfilling some of the technical standards/conditions for exporting to the EU. One example is FARMA assistance to and coordination of several government institutions to ensure permission to export potato to the EU. Assistance in this area took different forms, such as training for the phytosanitary control and potatoes monitoring program, taking samples and conducting phytosanitary visual control of potato, informing quarantine pests, and simulation of Food and Veterinary Office (FVO) Inspections⁹. The FVO mission last year gave a positive opinion on BiH's system of safety and quality control for potato exporting and it is expected that the final approval of BiH potato exports to EU will be made by middle of 2015. Our interview respondents mentioned other specific areas in which FARMA assistance was involved, such as the introduction of an integrated pest management system, drafting the legislation in the field of seed and planting materials, education of phytosanitary inspectors concerning the "hygienic package" simulation of FVO mission for milk, and so forth.

Among the different types of technical assistance provided to the government instructions/agencies, interview respondents unanimously praised the capacity of the phytosanitary laboratories (providing services necessary for exporting BiH agricultural products) built with FARMA assistance. The implementation of practical and on-the-job training proved to be most effective. An example of a significant achievement is over thirty accredited and validated methods by BiH laboratories in 2014, as compared to none in 2010.

EVALUATION QUESTION 5

What were the main challenges to implementation and how these could be addressed?

FARMA faced several challenges in implementing this program and in meeting beneficiaries' needs and making improvements in POs' competitiveness. FARMA beneficiaries articulated a repeated theme in interviews and focus group: there was a lack of resources to implement new practices. This theme explains the FARMA program's inability to significantly impact business results despite its intensive technical assistance interventions. For example, the average age of agricultural equipment on BiH farms was estimated to be 22 years; financial assistance provided by FARMA was insufficient to tackle the low investment stock among the POs.

Several interview respondents noted that one of the program's main implementation challenges was the complex policy environment in which FARMA operated, and the lack of political will for more comprehensive improvements in strategic planning in agricultural sector. While some of our key informants acknowledged progress in some policy areas resulting from FARMA, such as improved capacities in standards and certifications and the development of a road map for exports to the EU, qualitative interviews with the FARMA implementation team, core PO beneficiaries, and government institutions identified several areas that influenced the FARMA implementation. Specifically, we found that FARMA's implementation was inefficient because of the fragmentation and, in some cases, duplication of authority in different government levels and institutions that oversaw agricultural production.

Analyzing qualitative information we collected through key informant PO interviews, a frequent concern over FARMA implementation that the POs expressed was FARMA's lack of clarity about grant selection criteria and the complicated procedures for the grant application. Several beneficiaries reported that they underwent a process of intensive coordination with FARMA implementation team staff and a lengthy process to apply for the grant, while in the end they did not receive the grant and were never informed about the grounds for rejection. On a few occasions, beneficiaries specifically noted that after they inquired about the reasons why their grants were rejected, they were informally informed that the grant was

⁹ The FVO works to assure effective control systems and to evaluate compliance with EU standards within the EU, and in third countries in relation to their exports to the EU. The FVO does this mainly by carrying out inspections in Member States and in third countries exporting to the EU. BiH is a potential "third country".

rejected because the same PO had already received a grant on a previous occasion, although it was never communicated to them that this would be an eliminating factor in the grant selection process. Although FARMA staff provided significant assistance to POs applying for grants, as described before, some key informants stated that the grant applications were overly complex, redundant (some information is requested in several places in the same applications), and time consuming.

We did not find sufficient evidence that beneficiary selection criteria took into account aspects laid out in the FARMA objectives, which included PO characteristics such as size, value-added level, exporting potential, and channels related to economies of scale and market integration. Moreover, FARMA implementation database did not contain necessary information for detailed analysis of such issue. Other limitations of FARMA implementation database included some inconsistencies between the database and on-the-ground situation. For example, one PO we interviewed was registered as a beneficiary while according to that PO no assistance was provided by FARMA. Similarly, a couple of POs we interviewed noted that they had not been in contact with FARMA for several years although they were listed as continuing beneficiaries in FARMA implementation database.

While most of the beneficiary respondent stated that the technical assistance provided by FARMA positively contributed to their business results, in few instances, some POs expressed that the assistance was repetitive or not in line with their needs (for example, poor match between PO maturity and the type of trainings provided). Moreover, while FARMA's assistance to government institutions/agencies in the area of EU standards was quite successful¹⁰, the POs faced other, sometimes more pressing, on-the-ground challenges in the context of the policy environment, which negatively affected FARMA's implementation from their perspectives. The following were among the challenges identified by POs:

- High labor taxation, and perverse employment policies and business registration rules, which do not take into account the special needs of agricultural sector (e.g., seasonality effects), and incentivize unofficial employment and hinder their access to finance. For example, one PO key informant estimated that around half of the POs in RS were registered as commercial farms in which only one employee could be registered as full-time employee, which hampered access to loans for such farms.
- Lack of harmonized policies between the two Entities makes cross-Entity business cooperation difficult and prevents the existence of single economic space (e.g., different tax rates, different farm registration categories and rules, different treatment of exports under corporate taxation legislation, different standards important for productions such as allowable level of iron in water, and inability to receive agricultural subsidies in the case of inter-Entity sales) which would have made FARMA implementation more smooth.
- As the first point of contact for FARMA PO beneficiaries, lower level government institutions, such as the municipal agricultural services, inspections, etc., lacked the necessary capacities to carry out activities related to FARMA implementation and they did not receive assistance from FARMA.
- Certain institutions which provide services for exporting agricultural products (e.g. control of custom authorities at the borders) have overtly complex and expensive procedures that ultimately decrease PO's competitiveness (e.g. shorter working hours of customs authorities in comparison to some other countries in the region) and effectiveness of FARMA implementation.

Some government institution beneficiaries expressed that the communication and exchange of information with the FARMA implementation team sometimes slowed down the activity implementation and may have negatively affected the beneficiaries' demand for FARMA assistance. For example, many government beneficiaries did not receive an explanation on available funds and possible types of assistance in a timely manner. In addition, the government institutions did not receive detailed data on PO beneficiaries of financial and technical assistance from FARMA despite their repeated requests for the data. While this

¹⁰ Several POs noted that additional assistance was needed in ensuring that adopted standards were adequately implemented such as preparing clear implementation rulebook/bylaws and conducting on-the-ground demonstrations for farmers.

lack of responsiveness may have been a result of USAID's data confidentiality considerations, the lack of information has challenged the FARMA implementation.

Turning to access to finance, a large majority of the beneficiaries were not aware of the DCA guarantee. Furthermore, those that were aware of it noted that POs' main problem with access to loans could not be solved with loan guarantee program alone. In summary, PO respondents testified to the large remaining needs in access to finance in the agricultural sector. Meanwhile, the specificities of the agricultural sector, such as revenue seasonality, weather condition risks, legal registration status, agricultural asset registration, and employment status, are not understood properly by the banking sector. Accordingly, banks deem agricultural sector enterprises risky.

EVALUATION QUESTION 6

What were the stakeholders' perceptions of the model of joint financing of FARMA by two donors?

FARMA is jointly funded by USAID and Sida. An agreement signed in December 2008 between USAID and Sida set the parameters for financial and technical coordination and management of FARMA by the two donors. We found that the joint financing/management scheme is viewed positively by all stakeholders. Most of the key informant PO and government institution beneficiaries were aware that FARMA was funded by two donors and they believed that joint financing did not cause any additional paperwork or any additional complications. No single respondent mentioned any negative experience related to the model of joint financing. Only a couple of beneficiaries we interviewed were not aware of FARMA's joint-donor model but all of them believed that joint financing did not cause any additional complications.

The beneficiaries that we interviewed anonymously agreed that joint financing allowed to better focus a large amount of aid in the agro-food sector and to avoid any wasteful duplication of assistance received from different donors in the same sector. For example, one beneficiary stated that, in addition to joint-donor programs' benefit in terms of combined funding, they also provide different profile of expertise and different perspectives. The beneficiaries' positive perception of FARMA's financing model resulted from clear identification of procedures and cooperation that took place between the two donors.

As for USAID and Sida, both donors believe that joint financing/management permitted the establishment of a more ambitious and structured program such as FARMA. They also feel that they have achieved greater economies of scale and enhanced harmonization and coordination of donor support in the agro-food sector in BiH.

4.2 CONCLUSIONS

USAID/BiH and Sida designed an integrated and complementary set of demand-driven interventions with ambitious performance targets to improve the competitiveness of BiH's agricultural products.

We conducted a rigorous impact analysis based on BiH's administrative AFIP/AFIP data and FARMA's implementation database. We found suggestive empirical evidence that FARMA interventions had positive effects on sales (2 percent) and long term loans (89 percent), and negative effects on short term loans (-35 percent). But these estimates are not statistically significant at a conventional level (5 percent). In general, we did not find significant impacts in our full sample. The sub-sector analysis revealed heterogeneities among the dairy, fruits and vegetables, and MAPs sub-sectors, which spoke directly to the demand-driven approach of FARMA with its focus on targeted sub-sectors. The only statistically significant impact that we found was in the dairy sub-sector: FARMA interventions had a positive impact of 76 percent on the dairy sub-sector's sales. These impact estimates should be interpreted with considerable caution as the relatively weak quasi-experimental design that was fleshed out near the end of FARMA's implementation with a relatively small PO sample size does not justify strong causal inferences about the

activity's impacts, especially at the sub-sector level. There likely were also unobservable differences between FARMA treated POs and our comparison group, which potentially biased our results.

Several important findings emerged from our detailed examination of the FARMA implementation. We found that FARMA applied a demand-driven approach for the types of technical assistance provided to specific beneficiaries to some extent. However, in terms of the selection of the PO beneficiaries, the approach appeared to be less demand-driven, as most beneficiaries were carried over from the previous USAID/BiH agricultural activity (LAMP). We also saw evidence that FARMA welcomed new beneficiaries who approached them and used outreach events to offer assistance to POs.

There was no evidence that FARMA interventions increased the share of female-owned businesses (which was low at 17 percent). On the other hand, data from FARMA's implementation database suggested that the number of female full-time, part-time, and seasonal employees increased by 17 percent during the FARMA activity. Consideration of female-employment in FARMA grant selection may have contributed to this, although we lacked empirical evidence of this.

We found that FARMA's implementation approach was appropriately specific to each sub-sector and responded to the most important needs of POs in that sub-sector. Furthermore, FARMA's approach in combining financial grants used for equipment purchase paired with the relevant practical training seemed to have effectively contributed to improved business results for many POs, according to key informant interviews. FARMA's facilitation of networking among POs also proved successful in reaching domestic and especially foreign markets in many instances.

Our analysis revealed that FARMA did not provide enough assistance to the government institution beneficiaries to substantially improve the overall policy environment for the POs, partially due to lack of political will. FARMA assistance to government institution beneficiaries was limited to harmonization with the EU technical standard and did not address the most pressing issues that faced POs concerning the different levels of government institutions, such as high labor taxation, perverse employment policies and business registration rules, and lack of capacities in lower level government institutions/agencies to carry out activities related to FARMA interventions. This factor, as well as unanticipated external economic environment challenges (global economic crisis and floods), might have contributed to null significant impacts of FARMA's interventions on POs.

Moreover, although FARMA's interventions were largely deemed to positively contribute to the operations of POs based on our qualitative findings, there were numerous examples of implementation challenges. While almost all the grantees we interviewed reported that FARMA grants helped to improve their business operations and results, there were general concerns expressed by numerous POs over the grantee selection criteria. We found that the criteria were not clear or clearly communicated to the potential applicants, and if some of these applicants got rejected, the feedback was not communicated effectively to the applicants. Moreover, the criteria for FARMA technical assistance did not sufficiently take into account the characteristics of the potential assistance recipients (for example, their value-added level or market integration potential), which might have limited FARMA's overall impact.

Although FARMA succeeded in integrating existing institutions into the interventions, and also significantly increasing the communication between donors, beneficiaries, and counterparts, by organizing different joint collaborative events, there is room for improvement of communication between the FARMA implementation team and government institution beneficiaries. Flexible approach of assistance to government institutions/agencies based on their expressed needs for EU standards contributed positively to a better policy environment. Especially useful was practical training which resulted in direct institutional process strengthening. However, major policy environment issues were left unaddressed, partially due to the lack of political will.

Interventions in the access to finance area are generally not effective. The DCA guarantee was underutilized by FARMA beneficiaries and their level of awareness about this tool was low. Beneficiaries

had a consensus that such a tool was not an ideal way to increase their access to finance in the agricultural sector, although their needs for easier access to capital remain large.

Lastly, FARMA promoted and facilitated a joint donor approach, including joint policy dialogue and prioritization of financing, information sharing, and coordination. FARMA was a positive example of the integration and cooperation between partners and joint donor actions.

4.3 RECOMMENDATIONS

As a result of our study, we offer the following lessons and suggestions to future programs considering activity similar to FARMA:

- **The design of future activities for specific sub-sectors should be informed by a timely comprehensive assessment of the overall agricultural sector.** This would provide recommendations on targeted sub-sectors, which are most likely to fulfill the objectives of the future intervention. The potential for increasing sales, exports and value-added should be thoroughly assessed and targeted increases in sales and exports based upon rigorous analysis.
- **Future activities should continue to be customized based on sub-sector specificities,** both for PO beneficiaries and government beneficiaries.
- **In future activities, ensure that the selection criteria of the activity's beneficiaries are comprehensive and clearly documented.** This will avoid the activity beneficiary selection bias (to avoid continuously selecting same beneficiaries in the case of multiple activities and over time). The selection criteria must be clearly defined in order to ensure the internal validity of activity evaluations. Further, selection criteria should be based upon the potential of the beneficiaries to increase value-added, sales, and exports.
- **Ensure that the criteria for technical and financial assistance clearly track the activity's objectives and targets, and that both selection criteria and selection decisions are clearly communicated to all applicants.** If the intention of the activity is to improve the competitiveness of the sector, then the beneficiaries with the greatest potential should be selected and the assistance packages they receive specifically tailored to achieving activity objectives. Adequate funding should be provided to these beneficiaries in order to achieve increased production, quality, sales, and exports, if these are the overall activity objectives.
- **Policy constraints need to be more aggressively confronted in future programming through high-level dialogs and leveraging of assistance.** These include fragmentation of agricultural jurisdictions among and within different government levels; lack of comprehensive strategic planning in agricultural sector; perverse employment registration and taxation incentives and business registration rules that are inapt for agricultural sector; as well as the lack of capacities of the institutions which are the first point of contact for the POs, such as lower level government institutions/agencies, custom authorities, and inspection agencies. It would be useful to strengthen the bottom-up approach, in which agricultural producers (who are the ultimate beneficiaries of such activities) identify the most problematic policy aspects for their business.
- **Continue policy interventions on EU food safety requirements.**
- **Access to finance interventions should be based on careful study that takes into account the specificities of the agricultural sector.** Traditional interventions to improve access to finance among businesses are usually used for general private sector development interventions. These are not well suited to the agricultural sector in BiH given its many specificities.
- **In the design stage of future activities, integrate appropriate impact evaluation early in the program cycle.** If the intervention is amenable to a rigorous impact evaluation, it should be designed at the start of the intervention. Baseline data for both beneficiaries and non-beneficiaries should be collected if possible (including surveys, if needed) and power calculation

and minimum detectable effects should be taken into account at the activity design stage to ensure that reasonable sample sizes are available for analysis.

- **Ensure that the activity data collection is comprehensive and accurate.** An activity M&E database should track the number of beneficiaries in a systematic fashion clearly, and, if possible, separately track beneficiaries based on the assistance nature/intensity. Data collected for performance monitoring and indicator tracking should be differentiated with data collected for impact evaluation, in which large amounts of covariates usually are needed to justify the identifying assumptions of many evaluation methodologies. Certain outcome measures, such as measures for access to finance, should be collected through surveys. Moreover, financial data submitted by the beneficiaries should be verified with official administrative records.
- **Ensure transfer of activity database to the following activity in the same sector.** The transfer of all activity data would help to avoid spillover bias in the impact estimates for subsequent activities.
- **Facilitate and assist cooperation among different local activity stakeholders.** The successful cooperation of internal stakeholders, including public and private sector actors, as well as within the public sector (among different government institutions) and private sector (among POs), can increase the local ownership of the activity and the probability of sustainable internal cooperation after the activity is completed. Better cooperation among the producers could be facilitated by the approach of communities of practices (in which producers would change their experiences and explore possibilities for business collaboration) or mentoring schemes, if appropriate.
- **Establish clear communication protocols between the activity and the main local stakeholders to ensure that donor interventions and local government interventions do not overlap.** Informing beneficiaries about the activity's available funds and the types of possible assistance, as well as sharing data on the activity's beneficiaries with the government institutions could contribute to a stronger demand-driven approach and help avoid overlaps between government and donor assistance.
- **Multi-donor approach to activity development and funding.** As much as circumstances permit, the joint donor approach should be used in comparison to the single donor effort.

ANNEXES

ANNEX I. EVALUATION STATEMENT OF WORK

Statement of Work (SOW)

FARMA Impact Evaluation

PURPOSE OF THE EVALUATION

Fostering Agricultural Markets Activity (FARMA) provides technical assistance to farmers in Bosnia and Herzegovina (BiH) through demand-driven assistance aimed at improved competitiveness of BiH agricultural products. FARMA has been funded by USAID/BiH and Sida since 2009. As guided by USAID's Evaluation Policy, USAID/BiH requires an impact evaluation of this development intervention. The FARMA evaluation will contribute to knowledge and learning in USAID/BiH related to four specific areas:

- 1) Effectiveness of demand-driven technical assistance programs in sub-sectors of agricultural markets in BiH;
- 2) Helping USAID/BiH better understand activity implementation, lessons learned, and best practices; and
- 3) Providing USAID/BiH with empirical evidence and information that could inform future funding decisions and program designs.

As part of the MEASURE-BiH activity, IMPAQ International will design and implement a rigorous impact evaluation as well as an implementation study of FARMA. The design and implementation of the impact evaluation studies will be closely coordinated with USAID/BiH Mission and the FARMA implementing partner.

ACTIVITY BACKGROUND AND DEVELOPMENT HYPOTHESIS

Background

While BiH has made a significant progress in economic reforms over past several years, substantial reforms are still needed to meet the European Union's (EU) accession criteria (or Copenhagen Criteria) for economic readiness, particularly the "existence of a functioning market economy and the capacity to cope with competitive pressure and market forces within the Union." As BiH prepares for accession into the EU, BiH producers will have to be able to withstand competitive pressures emanating from open borders and a globalized business environment. The Central European Free Trade Agreement (CEFTA), while presenting substantial trade opportunities, also requires BiH agricultural producers and processors to compete with high-quality and low-cost imports.

BiH continues to have a large agriculture and food sector trade deficit, with consumer preferences evolving towards higher quality, diverse and safer products. Imports are cited as the primary "cause" of BiH's problems in the agriculture sector. This is not the case; instead, the large amounts of imports are "symptom" of BiH's competitiveness problems in the agro-food sector. The focus of both private and public sector efforts should move from complaining that BiH can't compete with imports, to asking how BiH can compete with imports. Producers must be proactive in engaging with their markets. They need to know both what their markets want and when they want it. They must be able to produce for the market, be flexible enough to adjust to changing markets, and be able to directly market their goods. Generally, smaller BiH producers lack these skills.

Program Description

The purpose of the FARMA project is to provide demand-driven technical assistance aimed at improved competitiveness of BiH agricultural products. FARMA technical assistance is expected to expand environmentally sustainable production, processing and sales of value-added agricultural products. FARMA assistance provides targeted and demand-driven assistance to agricultural associations, cooperatives, market integrators, and small and medium enterprises (SMEs). FARMA is also expected to assist BiH agriculture producers and processors to improve their ability to withstand pressures emanating from the CEFTA and the accession process to EU, and also to enable ag-businesses to capture opportunities in domestic, regional and EU markets emanating from activation of CEFTA and the EU accession process. Together, these FARMA services are expected to contribute to poverty reduction in BiH.

FARMA is organized into the agricultural sub-sectors of (1) dairy, (2) fruits and vegetables, and (3) medicinal and aromatic plants. Additionally there are cross-cutting areas of grants, agricultural finance, and policy and standards. Key agriculture and agribusiness constraints for FARMA subsectors and cross-cutting areas include:

Dairy:

Milk yields are below EU average and only about 56% of milk produced in BiH meets EU milk quality requirements. Farms do not fully comply with EU standards related to animal welfare, farm management and environmental standards. There is insufficient value-adding. Most of BiH dairy exports are confined to UHT milk and other lower value dairy products. The priority challenges are: improving hygiene and milk quality and reaching EU standards; improving the quality and volume of on-farm forage, while reducing costs; improving dairy herd genetics; improving record keeping; and increase in production of higher value products.

Fruit and Vegetables:

Although average yields for fruit production are modest and some products are competitive in export markets, there is room for improvement. By introducing new varieties and providing training, productivity will increase. New berry production has tended to utilize more up-to-date technologies which have resulted in higher yields and the ability of the farmers to further expand their production. Improved post-harvest handling and meeting quality standards are also critical. The priority challenges are: Introducing new production technologies and standards in production and processing; Introducing new berry varieties to ensure the sector gains a competitive advantage in the long run; Facilitating market linkages, through participation in fairs and direct contacts with potential buyers, to help POs access higher paying markets.

Medicinal and Aromatic Plants (MAPs):

Given the large biodiversity in BiH, this sub-sector has traditionally been an important source of income for a significant portion of the rural population. The sub-sector was, is and will continue to be export-oriented, with more than half of production exported. BiH is recognized in the world and the EU markets as a supplier of cheap, raw, diverse MAP material, particularly essential oils. However, product quality is inconsistent, resulting in relatively low prices in foreign markets. To further develop this sub-sector, domestic producers need to move further up the value chain and also need to improve direct marketing. A challenge is also to cultivate some of these plants to reduce the potential for overharvesting from the wild.

Access to Finance

While in the first half of 2008 liquidity was not considered a problem in the banking sector in BiH, with the global financial crisis, the liquidity situation in BiH has changed. In the period 2009-2012, BiH noted negative economic growth that was manifested through real decline in domestic demand and exports, reflecting the overall recessionary environment in the region and globally. Banking sector changed, new foreign banks appeared in the region, the number of commercial banks reduced from 31 to 28, lending slowed down significantly affecting the smaller and medium-sized enterprises and especially those in the agriculture sector as access to credit is typically more stringent for them. In the same period, the BiH banking sector (commercial banks and leasing) started facing problems in the collection of receivables, so in 2012 the amount of due receivables increased by 15.6% compared to 2011. The priority challenges are: Increasing the ability of POs to obtain new financing or funding from commercial or other institutions; Increasing the ability of POs to attract new foreign investments; assist to POs to improve their financial management (management of A/R and liquidity, VAT, taxations, etc.).

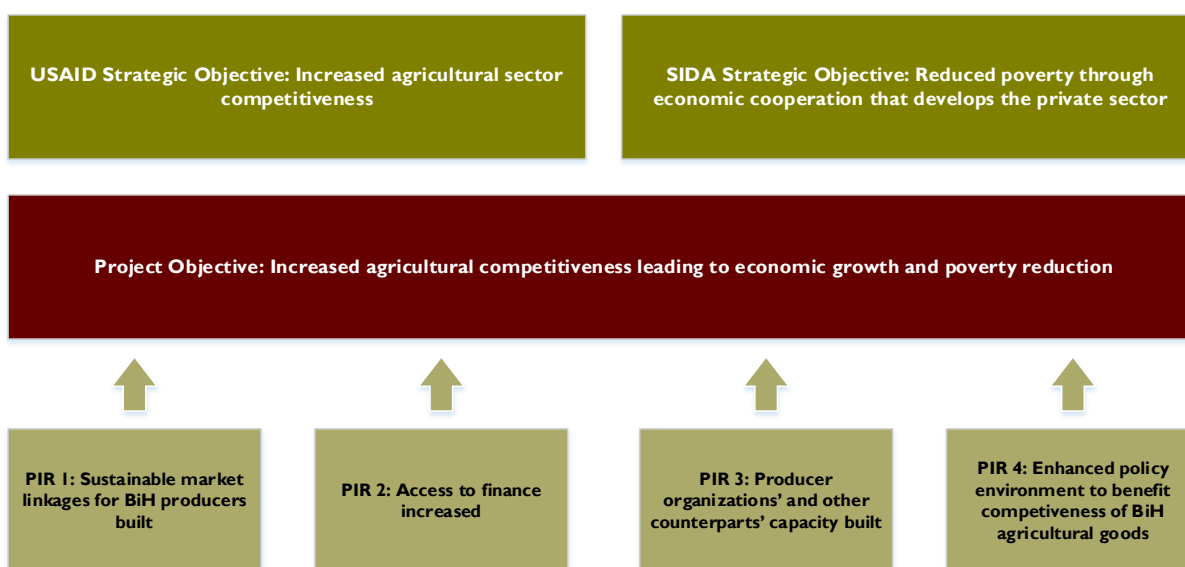
FARMA Logic Model and Development Hypothesis

Exhibit I presents the logic model for FARMA. The logic model conveys the development hypothesis linking the necessary and sufficient intermediate results (referred to as activity intermediate results, PIR) with the activity's strategic objective, SO. As FARMA is funded by both USAID and Sida, we present two, yet inter-linked, strategic objectives. These have been combined to form a project objective: Competitiveness of BiH agricultural products enhanced to expand environmentally sustainable production, agri-processing, and sales of value-added products demanded by markets. The logic model provides a guide to FARMA activities required to accomplish intended results. As such a logic model is a necessary foundation for work-planning and performance monitoring. By complementing the basic structure of USAID's and Sida's strategic objectives for BiH, the logic model ensures that project activities are designed within USAID's and Sida's strategic interests and contribute to Mission results.

There are four project intermediate results in the FARMA logic model which, when achieved, will lead to the project and strategic objectives. These are PIR #1: sustainable market linkages for BiH producers built, PIR #2: access to finance increased, PIR #3: producer organizations' and other counterparts' capacity built, and lastly PIR #4: enhanced

policy environment to benefit competitiveness of BiH agricultural goods. Success in all four project intermediate results will be taken as indication that the project and strategic objectives have been achieved.

Exhibit I. Logic Model for FARMA



FARMA is being held accountable for achieving the following results as measured by the performance indicators described below.

Indicator	Base period	Option period	Extension period
Number of Producer Organizations (POs)	40% ¹¹	40%	50%
Increased sales	35%	+15%	+15% when compared to the extension baseline data
Employment	25%	+10%	+10% when compared to the extension baseline data
Access to Finance	25%	+15%	+15% when compared to the extension baseline data
Number of new products eligible to enter EU markets	2	+1	+2 when compared to the extension baseline data

EVALUATION QUESTIONS

The evaluation answers the following research questions, informed by the FARMA's goals, structure, and logic model:

Impact Analysis

- I. What were the impacts of FARMA interventions on POs' sales and exports? Did the impacts vary by sub-sectors?

¹¹ 40% represents the percentages of sub-sectoral output.

2. What were the impacts of FARMA interventions on POs' access to finance? Did the impacts vary by sub-sectors?

Implementation Study:

3. What were the characteristics of the POs served by the FARMA program?
4. How were FARMA interventions implemented?
5. What were the main challenges to implementation and how could these challenges be addressed?
6. What are the stakeholder' perceptions of the model of joint financing of FARMA by two donors?

METHODOLOGICAL APPROACH

Impact Analysis

FARMA has been working with more than 500 producer organizations (POs) that collectively are connected with about 34,000 cooperating farmers. Considering FARMA's wide outreach, there is no reasonable sized subset of non-FARMA beneficiaries that are comparable to the FARMA beneficiaries in BiH. Furthermore, there is a strong self-selection bias, as companies and farmers that tend to be innovative and progressive are more likely to participate in FARMA-led activities that encourage the application of new technologies and management practices. The wide coverage and self-selection of beneficiaries pose a significant methodological challenge to the design and implementation of a rigorous impact evaluation of the FARMA intervention as a whole.

To overcome these challenges and to implement a rigorous impact evaluation, we propose to focus the impact evaluation on specific key activities that may have an impact on producers in a particular subsector in addition to overall impact analysis for all POs. For these subsector evaluations, it may be possible to identify an appropriate a comparison group. These FARMA interventions are representative of the type of work that FARMA has been implementing and thus are relevant for an evaluation of FARMA impacts on income and sales. Thus, after analyzing the overall effects of FARMA interventions on POs' sales, exports and access to finance, we will evaluate the impact of FARMA's intervention activities in the following subsectors:

- **FARMA's assistance in introducing new berry varieties and production technologies to improve farmer's yields and incomes.** Considering the small average farm size in BiH, FARMA focused its interventions in the fruit and vegetable sector on high-value, labor intensive crops, such as berries, that can profitably be grown on small land plots. FARMA's efforts involved increasing production, acreage and productivity, as well as introducing varieties that offer more options beyond freezing. FARMA continued activities aimed at ensuring propagation of the new berry varieties, development of land and plants for commercial exploitation, and implementation of new technologies in berry and vegetable farming, such as: high tunnels for growing berries and production of vegetables in protective enclosure including foils in order to increase the fruit quality and to extend the harvesting season. Additional support was also provided to demo plots in Butmir (berries) and in Čelić (strawberries).
- **FARMA's assistance on dairy farm management and introducing EU standards to improve quantity and quality of milk produced and farmer's incomes.** Experiences of other countries accessing the EU show that, sooner or later, the farms that do not comply with the EU standards for milk quality and animal living conditions were prevented from delivering their milk to the processors. The majority of small farms in BiH will not manage to attain such high standards and will have to go out of business. This could have serious socio-economic implications for many people, especially in the less developed region of the country. The only way to remain competitive is to increase farm size and meet the required hygiene standards.
- **FARMA's assistance to improve processing technologies to increase value adding i.e. specifically increase the production of quality essential oils.** The MAPs sector is characterized by the collection of indigenous wild plants that are then purchased and processed by small companies into a wide variety of teas, creams, essential oils, tinctures, and homeopathic remedies; or sold in bulk for export. The excessive reliance on wild resources and the lack of significant value-adding remain the key challenges in the MAPs sector. Raw materials from MAPs are in high demand; yet many local MAP companies cannot obtain these raw materials locally and are forced to import plant material from other countries. Consequently, the FARMA project focuses on interventions designed to achieve rapid production growth,

such as introduction of cultivated MAPs, as well as more efficient processing techniques and value-adding to maximize the utilization of raw materials and sector profitability. FARMA used both the grants mechanisms and technical assistance to facilitate improved processing technologies to increase value-adding.

To address evaluation research questions 1 and 2, we will combine FARMA implementation database with external administrative AFIP data across years 2008 to 2014 and apply Difference-in-Differences (DID) approach to all POs, and the POs in the three sub-sectors separately. The AFIP data contains a wealth of PO baseline characteristics before FARMA implementation, which will help us to identify a comparison group of POs that closely matches the FARMA-assisted POs. Specifically, we will estimate the following multivariate regression model for outcome variables related to sales, exports, and access to finance:

$$\text{Outcome} = \alpha + \beta T + \gamma F + \delta (T \cdot F) + \lambda X + \varepsilon. \quad (1)$$

The left-hand side of the equation is the outcome variable of interest such as PO annual sales and exports amount and measures for access for finance. The variables on the right-hand side include:

- A dummy variable T that is equal to 1 if the observation is in the treatment group and zero if otherwise. The estimate of β captures the group effect. In other words, T controls for any differences in the outcome variable that are associated with being in the treatment group.
- A dummy variable F that is equal to 1 in the years that FARMA intervention is taking place and zero in the baseline year. The estimate of γ captures the time effect. In other words, F controls for any changes in the outcome variable that occur over time and are common for treatment and comparison group members.
- An interaction term $(T \cdot F)$ that is equal to 1 if the observation is in the treatment group and in the years that FARMA intervention is taking place, and zero otherwise (i.e., for comparison group members in both the baseline and FARMA years, and for the treatment group in the baseline year). The estimate of δ captures the impact of FARMA on the outcome variable—this is the parameter of interest.
- A vector X of other relevant explanatory variables that may be related to the outcome of interest and will help control for baseline PO characteristics.

For each regression model, we will estimate: the parameters α , β , γ , δ , and the elements of the vector λ . All things being equal, the positive parameter estimates will indicate that the corresponding right-hand side variable is associated with an increase in the outcome measure. Likewise, negative parameter estimates will indicate a negative association. We will use t-tests to measure the statistical significance of the parameter estimates. Where we find statistically significant differences, we can be confident that the corresponding right-hand side variable has an effect on the outcome variable.

Implementation/Performance Study

IMPAQ will supplement impact analysis of FARMA program with implementation/performance study. Implementation and performance studies are an important complement to our impact evaluations. Although an impact analysis can assess the extent to which an intervention resulted in changes in key outcomes, an implementation study provides us with the understanding of what was actually implemented and how; why the intervention changed outcomes or did not; and, if it did, how it might have done so. Implementation studies can provide important documentation of how a program was implemented for subsequent refinement and program scale-up, if successful.

Making use of FARMA program documentation and available data sources, IMPAQ will conduct desk research, interviews with the USAID/BiH and the FARMA activity team, and key stakeholder interviews and focus groups to examine evaluation questions 3 to 6. Specifically, desk study of FARMA implementation documentation including FARMA Corporate Agreement, Annual Work Plan, and Annual Report combined with semi-structured interviews with the FARMA implementing partners will be used to address evaluation research question 3. Semi-structured interviews and focus group discussions with selected beneficiaries will be the main data source to address research question 4. All the above data source, coupled with Performance Monitoring Plan (PMP) and Quarterly Performance Reports and interviews with key stakeholders such as USAID/BiH and Sida staff, FARMA Coordination Body member and external stakeholders will be used to address evaluation research questions 5 and 6.

AVAILABLE DATA

The following FARMA reports are available and will be used extensively for the evaluation:

- M&E Plans that will allow documentation of implementation progress against specific performance indicators;
- Annual Work Plans, listing project activities, counterparts, short term consultants and training needs, and other tools and activities aiming at achievements of overall targets and project objectives.
- Annual Reports, which provide summary information on implementation of the approved annual work plans, activities undertaken and problems faced, deviations from the planned activities and reasons for that, as well as annual report on PMP, ROI and overall budget expenditures;
- Quarterly Performance Reports, providing technical information and project progress in the previous quarter. This report follows the logic of Annual Reports.

Other sources of existing data to be reviewed are previous evaluations (NIRAS evaluation 2011); financial/operations audits; FARMA database containing lists of beneficiaries/partner organizations; grants and subcontracts manuals; FARMA contract detailing technical and operational directions for project implementation; other industry/country specific reports. We will use BiH administrative data (AFIP data) in our impact analysis to identify comparison group of POs through the wealth of baseline PO characteristics contained in the AFIP data.

Listed above are project reports and background documents that provide basis for us to understand the project design, evaluate its impacts and performance, and identify gaps in implementation, based on the implementer's information provided in those documents. They can also serve as basis for own research into activity performance and implementation through interviews and focus groups with the various stakeholders and counterparts, as selected by MEASURE-BiH.

TENTATIVE TIMELINE AND DELIVERABLES

Activities/Deliverables	2014		2015	
	12	1	2	3
Activity 1: Evaluation Design and Planning				
Evaluation Planning and Drafting Design Memo				
<i>Deliverables: Devaluation Design Memo and Survey Instruments</i>				
Activity 2: Evaluation Implementation, Data Collection Support, Data Analysis, and Reporting				
Data Collection (Administrative, FARMA Documentation, Stakeholder Interviews)				
Data Analysis				
Preparing Preliminary Results Memo				
Preparing Final Evaluation Report				
<i>Deliverables: Preliminary Results Memo</i>				
<i>Deliverables: Final Evaluation Report</i>				
<i>Deliverables: Evaluation Briefing to USAID/BiH</i>				

ANNEX II. EVALUATION MATRIX

Primary Evaluation Questions	Data Sources	Research Design
1. What were the impacts of FARMA interventions on Producer Organizations' (PO) sales and exports? Do the impacts vary by sub-sectors?	FARMA implementation documentation and database, Administrative AFIP/APIF data	Quasi-experimental design with difference-in-differences method, implemented through multivariate regression models
2. What were the impacts of FARMA interventions on POs' access to finance? Do the impacts vary by sub-sectors?	FARMA implementation documentation and database, Administrative AFIP/APIF data	Quasi-experimental design with difference-in-differences method, implemented through multivariate regression models
3. What were the characteristics of the POs served by the FARMA program?	FARMA implementation documentation and database, Administrative AFIP/APIF data, Key informant PO interviews, PO focus group discussion, Chemonics FARMA implementation team interviews, government institution beneficiaries interviews	Mixed methods, with a focus on quantitative data
4. How were FARMA interventions implemented?	FARMA implementation documentation and database, Key informant PO interviews, PO focus group discussion, Chemonics FARMA implementation team interviews, government institution beneficiaries interviews	Mixed methods, with a focus on qualitative data
5. What were the main challenges to implementation and how these could be addressed?	FARMA implementation documentation and database, Key informant PO interviews, PO focus group discussion, Chemonics FARMA implementation team interviews, government institution beneficiaries interviews, USAID/BiH and Sida COR interviews	Mixed methods, with a focus on qualitative data
6. What are the stakeholder perception of the model of joint financing of FARMA by two donors?	FARMA implementation documentation and database, Key informant PO interviews, PO focus group discussion, Chemonics FARMA implementation team interviews, government institution beneficiaries interviews, USAID/BiH and Sida COR interviews	Mixed methods, with a focus on qualitative data

ANNEX III. DATA COLLECTION INSTRUMENTS – KEY INFORMANT SEMI-STRUCTURED INTERVIEW PROTOCOLS

KEY INFORMANT INTERVIEW PROTOCOL FOR PRODUCER ORGANIZATIONS

This interview is being conducted for the purpose of evaluating USAID/BiH and Sida's FARMA activity.

Our purpose in meeting with you today is to learn your thoughts, feelings, and experiences with the FARMA activity. Your insights will help us understand how the FARMA project has been implemented and how the USAID can improve similar projects in the future.

All your comments are confidential and you won't be identified by name in any report. [NOTE: Make sure you make note of name, position, and organization]

Would it be alright if I record this interview?

Do you have any questions before we begin?

Organization Characteristics

First I'd like to ask you about the characteristics of your organization.

When was your organization established?

What would you say is the primary function of your organization (i.e. cooperative, producer, processor, etc.)?

In what ways does your organization work with farmers? And how many farmers?

What types of products were you/members of your organization producing *prior* to receiving assistance from FARMA?

Have there been any changes in the products you/your members have been producing *since* receiving assistance from FARMA?

- **PROBE:** What have these changes been?

Experience with FARMA

Next, we'd like to ask you some questions about your experience with FARMA.

How did your organization first become involved in FARMA?

- **PROBE:** Who did you initially speak with about FARMA?

What type of assistance did you receive from FARMA?

- **PROBE:** Financial assistance, technical assistance, etc.

Who provided each type of assistance?

How did each type of assistance come about? Did you request it? Was it suggested by FARMA?

For how long did you receive each type of assistance? How often did you receive it? At what points did you receive it?

How useful did you find this assistance?

- **PROBE:** What were the most useful parts of this assistance? What were the least useful parts?
- **PROBE:** What kinds of changes did your organization make as a result of the assistance? What kinds of changes did your constituent farmers make as a result?
- **PROBE:** *Note to interviewer – Probe on any of the following items that weren't already mentioned. Get examples whenever possible.*
As a result of this assistance, did you see substantial changes in any of the following among either your organization or farmers: overall competitiveness, production processes or technologies, product quality, sales, exports, employment, market linkage, rural development, care for the environment?
- **PROBE:** What kind feedback have you received from farmers about the assistance?
- **PROBE:** Did you encounter any difficulties throughout your participation in FARMA?

Have you received the DCA guarantee through FARMA?

- **PROBE:** *If yes, how easy or difficult was it to get the guarantee? How easy or difficult was it to then access the loan?*

In your experience, have you seen any changes in access to finance for farmers or producer organizations over the last five years?

- **PROBE:** *If yes, what would you attribute this change to?*

Donors

Next, I'd like to ask about your thoughts on any assistance you've received from donors other than FARMA.

Have you received donor assistance from any sources other than FARMA?

- **PROBE:** *If yes, Were you a beneficiary in the LAMP project? When?*
- **PROBE:** *For any other donor assistance, When did you receive this assistance and from which donor(s)? What were the goals of the assistance? How effective were these other assistance programs in achieving their goals in comparison to FARMA?*
- **PROBE:** *If they have received assistance from other donors, Has the assistance you received from other donors been from a single donor or have these been assistance programs funded by joint donors (for example, FARMA is funded by USAID and SIDA)? Note to interviewer: Make note of the project names and which were single donor and which were joint donors.*
 - **PROBE:** *If they have received assistance from both single and joint donors, How would you compare the effectiveness of the single donor projects to those funded by joint donors? Are the challenges any different?*

Policy/Sustainability

Finally, I'd like to ask you about FARMA's long-term effects on agricultural policies and institutions.

Have you noticed any changes in policies or institutions relevant to the agricultural sector in recent years?

- **PROBE:** *If yes, what changes have you noticed? How have these changes affected your organization? How have these changes affected your constituent farmers? Do you know if these changes were related to efforts under FARMA?*

What are the biggest challenges you currently face in terms of regulation or policies?

What can government do to make your job easier?

As you know, FARMA is currently ending. After FARMA ends, do you know which organizations you will be able to go to for technical and/or financial assistance?

KEY INFORMANT INTERVIEW PROTOCOL FOR GOVERNMENT INSTITUTIONS

This interview is being conducted for the purpose of evaluating USAID/BiH and Sida's FARMA activity.

Our purpose in meeting with you today is to learn your thoughts, feelings, and experiences with the FARMA activity. Your insights will help us understand how the FARMA project has been implemented and how the USAID can improve similar projects in the future.

All your comments are confidential and you won't be identified by name in any report. [NOTE: Make sure you make note of name, position, and organization]

Would it be alright if I record this interview?

Do you have any questions before we begin?

FARMA Organization Characteristics

First I'd like to ask you about your organization's participation in FARMA.

How did your organization first become involved with FARMA?

- **PROBE:** At what stage of the program did you become involved in FARMA?

What do you consider to be objectives for the FARMA project?

- **PROBE:** Do you think these objectives reflect the needs of the agricultural sector in Bosnia?

Which of FARMA's objectives are most relevant to your organization?

- **PROBE:** Do you think these objectives reflect the needs of your organization?

Experience with the implementation of FARMA

Next, we'd like to ask you some questions about your experience with FARMA implementation.

Do you know how FARMA selected the specific types of assistance to offer to beneficiaries (i.e. financial, technical assistance)?

Do you think the types of assistance offered by FARMA (i.e. financial, technical assistance) reflect the needs of farmers?

Has FARMA provided any type of assistance to your organization?

- **PROBE:** What type(s) of assistance did you receive? Who provided this assistance?

- **PROBE:** For how long did you receive this assistance? How often did you receive it? At what points did you receive it?
- **PROBE:** How did each type of assistance come about? Did you request it? Was it suggested by FARMA?
- **PROBE:** Did this assistance reflect your needs?

How useful did you find this assistance?

- **PROBE:** What were the most useful parts of this assistance? What were the least useful parts?
- **PROBE:** What kinds of changes did your organization make as a result of this assistance? What kinds of outcomes did you see as a result of these changes?
- **PROBE:** *Note to interviewer – Probe on any of the following items that weren't already mentioned. Get examples whenever possible.*

As a result of this assistance, did you see substantial changes in any of the following: overall competitiveness of the agricultural sector/chosen sub-sectors, production processes or technologies, product quality, access to finance, sales, exports, employment, market linkage, rural development, care for the environment, new products developed?

- **PROBE:** Did you encounter any difficulties throughout your participation in FARMA?

Policy

Next, I would like to ask you more specifically about FARMA's effects on general policy and institutions relevant to the agricultural sector in Bosnia and Herzegovina.

What were the biggest *challenges* in terms of the policies or government institutions relevant to the agricultural sector prior to FARMA (i.e. in 2008/2009)?

- **PROBE:** Were there any challenges specific to the dairy sector? Fruit and vegetable sector? Medicinal and aromatic plants and honey sector?

What have been the most substantial *changes* in policies or government institutions relevant to the agricultural sector in the last five years?

- **PROBE:** What have been the most substantial changes in policies or institutions in the dairy sector in the last five years? Fruit and vegetable sector? Medicinal and aromatic plants and honey sector?

Was your organization involved in initiating or preparing advice on these changes?

- **PROBE:** *If yes, How? Did you receive FARMA assistance in making these changes?*
 - **PROBE:** *If yes, What was this assistance? Did you find it useful? Why or why not?*

How have changes in policies or government institutions affected your organization?

How have these changes affected the agricultural sector?

Currently, what are the biggest legislative and institutional challenges for farmers?

- **PROBE:** For the dairy sector? In the fruit and vegetable sector? In the medicinal and aromatic plants and honey sector?

Have you seen any changes in *access to finance* for businesses in the agricultural sector in the last five years?

- **PROBE:** *If yes, what would you attribute this change to?*

Are you familiar with the DCA guarantee, which was available to beneficiaries through FARMA?

- **PROBE:** *If yes, In what ways do you think that the DCA guarantee was useful? How easy or difficult was it for farmers to get the guarantee? How easy or difficult was it for farmers to then access the loan? Were there any challenges associated with the DCA guarantee?*

Sustainability

As you know, FARMA is currently ending. After the project ends, do you know which organizations you will be able to go to for technical and/or financial assistance?

Do you think that the beneficiaries/farmers would need further assistance similar to that received by FARMA?

- **PROBE:** *If yes, Do you know which organizations they would be able to go to for technical and/or financial assistance?*

Donors

Next, I'd like to ask about your thoughts on any financial or technical assistance you've received from donors other than FARMA.

Have you received donor assistance from any sources other than FARMA?

- **PROBE:** *For any other donor assistance, When and from which donor(s)? How effective were these other programs in achieving their goals in comparison to FARMA?*
- **PROBE:** *If they have received assistance from other donors, Has the assistance you received from other donors been from a single donor or have these been projects among joint donors (for example, FARMA is funded by USAID and SIDA)? Note to interviewer: Make note of the project names and which were single donor and which were joint donors.*
 - **PROBE:** *If they have received assistance from both single and joint donors, How would you compare the effectiveness of the single donor projects to those funded by joint donors? Are the challenges any different?*

KEY INFORMANT INTERVIEW PROTOCOL FOR DONORS

This interview is being conducted for the purpose of evaluating USAID/BiH and Sida's FARMA activity.

Our purpose in meeting with you today is to learn your thoughts, feelings, and experiences with the FARMA activity. Your insights will help us understand how the FARMA project has been implemented and how the USAID can improve similar projects in the future.

All your comments are confidential and you won't be identified by name in any report. [NOTE: Make sure you make note of name, position, and organization]

Would it be alright if I record this interview?

Do you have any questions before we begin?

Design of FARMA

First I'd like to ask your organization's participation in the design stages of FARMA.

Did you participate in the design-stage of the FARMA activity?

What did your organization consider to be priorities for the FARMA activity to achieve in the design-stage?

What were the challenges associated with designing the FARMA activity?

Experience with the implementation of FARMA

Next, we'd like to ask you some questions about your experience with FARMA implementation.

Can you describe how the FARMA beneficiaries were selected?

Can you describe types of assistance FARMA provided to various beneficiaries? Technical assistance, financial assistance, etc.?

Do you know how FARMA identifies which types of assistance to provide to beneficiaries?

How well do you think the types of assistance offered by FARMA (i.e. financial, technical assistance) reflect the needs of farmers? How well does FARMA assistance reflect the needs of other beneficiaries?

How useful do you think FARMA assistance was to beneficiaries?

- **PROBE:** What kinds of changes do you think the farmers/producer organizations saw as a result? What kind of feedback have you received from them, if any? What were the most useful parts of this assistance for them? What were the least useful parts?
- **PROBE:** *Note to interviewer – Probe on any of the following items that weren't already mentioned. Get examples whenever possible.*

As a result of this assistance, did you know if farmers/producer organizations saw substantial changes in any of the following: overall competitiveness of the agricultural sector/chosen sub-sectors, production processes or technologies, product quality, access to finance, sales, exports, employment, market linkage, rural development, care for the environment, new products developed?

- **PROBE:** What kinds of changes do you think relevant government institutions saw as a result? What kind of feedback have you received from them, if any? What were the most useful parts of this assistance for them? What were the least useful parts?

In what ways do you think that the DCA guarantee, which was available to beneficiaries through FARMA was useful?

- **PROBE:** How easy or difficult was it for farmers to get the guarantee? How easy or difficult was it for farmers to then access the loan? Were there any challenges associated with the DCA guarantee?

Policy

Next, I would like to ask you more specifically about FARMA's effects on general policy and institutions relevant to the agricultural sector in Bosnia and Herzegovina.

What were the biggest *challenges* in terms of the policies or government institutions relevant to the agricultural sector prior to FARMA (i.e. in 2008/2009)?

- **PROBE:** Were there any challenges specific to the dairy sector? Fruit and vegetable sector? Medicinal and aromatic plants and honey sector?

What have been the most substantial *changes* in policies or government institutions relevant to the agricultural sector in the last five years?

- **PROBE:** What have been the most substantial changes in policies or institutions in the dairy sector in the last five years? Fruit and vegetable sector? Medicinal and aromatic plants and honey sector?

Have you seen any changes in access to *finance* for businesses in the agricultural sector in the last five years?

- **PROBE:** *If yes*, what would you attribute this change to?

Sustainability

What is your perception about the sustainability of FARMA project?

- **PROBE:** Do you think that *beneficiaries/farmers* require further assistance similar to that received by FARMA? Do you know which organizations they will be able to go to for technical and/or financial assistance?
- **PROBE:** Do you think that *government institutions* require further assistance similar to that received by FARMA? Do you know which organizations they will be able to go to for technical and/or financial assistance?

Donors

Finally, I'd like to ask about the partnership between USAID and SIDA in administering FARMA.

From the point of view of your organization, what were reasons for working with [other donor agency] in implementing FARMA?

How effective has this partnership been in relation to FARMA?

- **PROBE:** What worked well? What were the challenges?

Have you previously been involved in single-donor administration? How about implementation?

Have you been involved in other joint-donor administration? How about implementation?

If they have been involved in both single and joint donor projects, How effective has the joint donor approach been in comparison to any experiences you've had as the single donor?

ANNEX IV. DATA COLLECTION INSTRUMENTS – FOCUS GROUP GENERAL GUIDELINE

This focus group is being conducted for the purpose of evaluating USAID/BiH and Sida's FARMA activity.

Our purpose in meeting with you today is to learn your thoughts, feelings, and experiences with the FARMA activity. Your insights will help us understand how the FARMA project has been implemented and how the USAID can improve similar projects in the future.

All your comments are confidential and you won't be identified by name in any report. [NOTE: Make sure you make note of name, position, and organization]

Would it be alright if I record this interview?

Organization Characteristics

First I'd like to briefly ask you about the main characteristics of your organization.

What would you say is the primary function of your organization (i.e. cooperative, producer, processor, etc.)?

In what ways does your organization work with farmers? And how many farmers?

Experience with FARMA

Next, we'd like to ask you some questions about your experience with FARMA.

How did your organization first become involved in FARMA?

- **PROBE:** Who did you initially speak with about FARMA?

What type of assistance did you receive from FARMA?

- **PROBE:** Financial assistance, technical assistance, etc.

How did each type of assistance come about? Did you request it? Was it suggested by FARMA?

How useful did you find this assistance?

- **PROBE:** What were the most useful parts of this assistance? What were the least useful parts?
- **PROBE:** What kinds of changes did your organization make as a result of the assistance? What kinds of changes did your constituent farmers make as a result?
- **PROBE:** What kind feedback have you received from farmers about the assistance?
- **PROBE:** Did you encounter any difficulties throughout your participation in FARMA?

Have you received the DCA guarantee through FARMA?

- **PROBE:** *If yes,* How easy or difficult was it to get the guarantee? How easy or difficult was it to then access the loan?

In your experience, have you seen any changes in access to finance for farmers or producer organizations over the last five years?

- **PROBE:** *If yes,* What would you attribute this change to?

Donors

Next, I'd like to ask about your thoughts on any assistance you've received from donors other than FARMA.

Have you received donor assistance from any sources other than FARMA?

- **PROBE:** *If yes, Were you a beneficiary in the LAMP project? When?*
- **PROBE:** *For any other donor assistance, When did you receive this assistance and from which donor(s)? What were the goals of the assistance? How effective were these other assistance programs in achieving their goals in comparison to FARMA?*
- **PROBE:** *If they have received assistance from other donors, Has the assistance you received from other donors been from a single donor or have these been assistance programs funded by joint donors (for example, FARMA is funded by USAID and SIDA)? Note to interviewer: Make note of the project names and which were single donor and which were joint donors.*
 - **PROBE:** *If they have received assistance from both single and joint donors, How would you compare the effectiveness of the single donor projects to those funded by joint donors? Are the challenges any different?*

Policy/Sustainability

Finally, I'd like to ask you about FARMA's long-term effects on agricultural policies and institutions.

Have you noticed any changes in policies or institutions relevant to the agricultural sector in recent years?

- **PROBE:** *If yes, What changes have you noticed? How have these changes affected your organization? How have these changes affected your constituent farmers? Do you know if these changes were related to efforts under FARMA?*

What are the biggest challenges you currently face in terms of regulation or policies?

What can government do to make your job easier?

As you know, FARMA is currently ending. After FARMA ends, do you know which organizations you will be able to go to for technical and/or financial assistance?

ANNEX V. DOCUMENTS REVIEWED

1. Action Memorandum for the Acting Mission Director: Activity Approval Amendment for Time and Cost Extension for the Fostering Agricultural Markets Activity (July 2012)
2. Action Memorandum for the Acting Mission Director: Approval of the Fostering Agricultural Markets Activity (December 2008)
3. Baseline Analysis Prepared by FARMA in 2009: Analyses of Access to Finance in Agriculture, Analyses of the Milk Production in Bosnia and Herzegovina
4. Baseline Analysis Prepared by FARMA in 2009: Analyses of the Beekeeping Industry in BiH, and Analyses of Medicinal and Aromatic Plants in BiH
5. Baseline Analysis Prepared by FARMA in 2009: Analyses of the EU Market Access Constraints for Agricultural and Food Products from BiH
6. Baseline Analysis Prepared by FARMA in 2009: Analyses of Fruits and Vegetables Sector in BiH
7. FARMA Activity Database
8. FARMA Annual Report: Project Year 1 (September 2009-August 2010)
9. FARMA Annual Report: Project Year 2 (September 2010-August 2011)
10. FARMA Annual Report: Project Year 3 (September 2011-August 2012)
11. FARMA Annual Report: Project Year 4 (September 2012-August 2013)
12. FARMA Annual Report: Project Years 5 and 6 (September 2013-August 2014)
13. FARMA Quarterly Reports (all quarters from quarter 4 2009 to quarter 4 2013)
14. FARMA Revised Performance Management Plan (February, 2010)
15. FARMA Revised Performance Management Plan for August 2010-August 2013
16. FARMA Performance Management Plan for September 2013-February 2015
17. FARMA Work Plan: Project Year 1 (September 2009-August 2010)
18. FARMA Work Plan: Project Year 2 (September 2010-August 2011)
19. FARMA Work Plan: Project Year 3 (September 2011-August 2012)
20. FARMA Work Plan: Project Year 4 (September 2012-August 2013)
21. FARMA Work Plan: Project Years 5 and 6 (September 2013-February 2015)
22. Mid-Term Evaluation of FARMA Program by Embassy of Sweden in Sarajevo (October 2011)
23. USAID Fostering Agricultural Markets Activity Contract Award (August, 2009)

ANNEX VI. LIST OF KEY INFORMANT INTERVIEWEES AND FOCUS GROUP PARTICIPANTS

#	Name of the Interviewed PO	Location	Date of the Interview
1	Lamaruž	Grude	16-Dec-14
2	Plantaže Capljina AGROHERC	Capljina	16-Dec-14
3	Elmar- Aroma Care	Bileca	17-Dec-14
4	Elmar	Trebinje	17-Dec-14
5	ZZ Agrisan	Sanski most	18-Dec-14
6	Perna F	Bosanska Krupa	18-Dec-14
7	Association of Dairy Farmers - Krajina Cazin	Cazin	18-Dec-14
8	Association of Dairy Producers- Jajce	Jajce	19-Dec-14
9	Jokic Farma	Prnjavor	22-Dec-14
10	Beladona	Laktasi	22-Dec-14
11	UNAPLOD	Kozarska Dubica	22-Dec-14
12	Mikroprom	Derventa	23-Dec-14
13	ZZ Farmer	Odzak	23-Dec-14
14	Vocar	Zvornik	23-Dec-14
15	ZOTT SEE	Gradacac	24-Dec-14
16	PROMILK	Prozor- Rama	29-Dec-14
17	Kuca prirode d.o.o.	Sarajevo	29-Dec-14

#	Name of the Interviewed Government Institution/Agency	Location	Date of the Interview
1	Federal Agriculture Institute	Sarajevo	6-Jan-15
2	Veterinary Faculty Sarajevo	Sarajevo	6-Jan-15
3	BiH Food Safety Agency	Mostar	8-Jan-15
4	FBiH Ministry of Agriculture, Forestry and Water Management	Sarajevo	12-Jan-15
5	Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina	Sarajevo	12-Jan-15
6	Brcko District Department of Agriculture, Forestry and Water Management	Brcko	12-Jan-15
7	BiH State Veterinary Office	Sarajevo	13-Jan-15
8	BiH Plant Health Administration	Sarajevo	13-Jan-15
9	Federal Agromediterranean Institute	Mostar	16-Jan-15
10	RS Ministry of Agriculture, Forestry and Water Management	Banja Luka	19-Jan-15
11	RS Agricultural Institute	Banja Luka	19-Jan-15
12	Veterinary Institute of RS	Banja Luka	19-Jan-15

#	Name of the PO Participants in the Focus Group Discussion (January 19th, 2015, Sarajevo)
1	Association of Cheese Producers in Bosnia and Herzegovina/Eko Vlasic
2	Association of Milk Producers in FBiH/ZZ Tarcin
3	Roing
4	Prirodno bilje
5	Jaffa komerc
6	Bios
7	Balatunka
8	Gracanka

ANNEX VII. STATISTICAL CLASSIFICATION OF ECONOMIC ACTIVITIES CATEGORIES USED TO DEFINE COMPARISON GROUP

FARMA Sub-sector	New Code	Name of the Classification (RS, 2008-2013 and FBiH, 2011-2013)	Old Code	Name of the Classification (FBiH, 2008-2010)
Fruits and Vegetables	10.31	Processing and preserving of potatoes	15.310	Processing and preserving of potatoes
Fruits and Vegetables	10.32	Manufacture of fruit and vegetable juice	15.320	Manufacture of fruit and vegetable juice
Fruits and Vegetables	10.39	Other processing and preserving of fruit and vegetables	01.413	Other agricultural services
			15.330	Processing and preserving of fruit and vegetables n.e.c
			51.310	Wholesale of fruit and vegetables
Dairy	10.51	Operation of dairies and cheese making	15.510	Operation of dairies and cheese making
Dairy	10.52	Manufacture of ice cream and other frozen mixture	15.520	Manufacture of ice cream and other frozen mixture
MAPs	10.83	Processing of tea and coffee	15.860	Processing of tea and coffee
MAPs	10.84	Manufacture of condiments and seasonings	14.400	Production of salt
			15.870	Production of spices and other food supplements
MAPs	10.85	Manufacture of prepared meals and dishes	15.810	Manufacture of bread, fresh pastry goods and cakes
			15.200	Processing and preserving of fish and fish products
			15.130	Production of meat and poultry meat products

FARMA Sub-sector	New Code	Name of the Classification (RS, 2008-2013 and FBiH, 2011-2013)	Old Code	Name of the Classification (FBiH, 2008-2010)
			15.330	Processing and preserving of fruit and vegetables n.e.c.
			15.850	Manufacture of macaroni, noodles, couscous and similar farinaceous products
MAPs	10.86	Manufacture of homogenized food preparations and dietetic food	15.880	Manufacture of homogenized food and dietetic food
MAPs	10.89	Manufacture of other food products n.e.c.	15.130	Production of meat and poultry meat products
			15.620	Manufacture of starches and starch products
			15.890	Manufacture of other food products
			15.810	Manufacture of bread, fresh pastry goods and cakes
MAPs	20.42	Manufacture of perfumes and toilet preparations	24.510	Manufacture of soap and detergents, cleaning and polishing preparations
			24.520	Manufacture of perfumes and toilet preparations
MAPs	20.53	Manufacture of essential oils	24.630	Manufacture of essential oils

ANNEX VIII. DESCRIPTIVE STATISTICS OF FARMA GRANTEES

Amount of Grants by Organization Type	
Organization Type	Amount of Grants (KM)
Association	281.253,06
Cooperative	1.183.128,57
Crafts Organization	248.414,33
NGO	110.955,10
Private Company	2.017.291,40
Public Institution	16.965,81
Total	3.858.008,27

Number of Grantees by Purpose of the Grant	
Purpose of the Grant	Number of Grantees
Building Construction	1
Construction	1
Equipment	42
EU Standards	18
Fair	4
Fairs	1
Marketing	1
MIS	1
New technology	10
Post-harvest handling	12
Training	2
Total	93

Amount of Grants disbursed by different Grant Purpose	
Purpose of the Grant	Amount of Grants (KM)
Building Construction	70.000,00
Construction	12.208,00
Equipment	1.952.085,79
EU Standards	345.253,12
Fair	94.820,74

Amount of Grants disbursed by different Grant Purpose	
Purpose of the Grant	Amount of Grants (KM)
Fairs	28.381,00
Marketing	16.400,00
MIS	42.876,00
New technology	450.024,96
Post-harvest handling	742.658,66
Training	103.300,00
Total	3.858.008,27

Purpose of the Grant	Amount of Grants (KM)	Grantees' contribution (KM)	Total Investment Cost (KM)
Building Construction	70.000,00	627.446,37	697.446,37
Construction	12.208,00	13.325,36	25.533,36
Equipment	1.952.085,79	3.956.718,12	5.908.803,91
EU Standards	345.253,12	667.296,19	1.012.549,31
Fair	94.820,74	261.927,80	356.748,54
Fairs	28.381,00	82.700,00	111.081,00
Marketing	16.400,00	16.648,00	33.048,00
MIS	42.876,00	43.400,00	86.276,00
New technology	450.024,96	751.614,37	1.201.639,33
Post-harvest handling	742.658,66	1.529.954,21	2.272.612,87
Training	103.300,00	137.932,00	241.232,00
Total	3.858.008,27	8.088.962,42	11.946.970,69

No.	Name of the Grantee	Amount of Grants (KM)	Amount of Grantees' contribution (KM)	Total Investment Cost (KM)
1	Agrar	28.307,70	39.498,33	67.806,03
2	Agrisan	25.504,25	33.135,75	58.640,00
3	Agrocentar	19.615,00	93.445,00	113.060,00
4	Agrodar	51.500,00	253.953,00	305.453,00
5	Agrogolub	9.695,00	14.090,00	23.785,00
6	Agrokoraj	48.222,20	65.110,00	113.332,20
7	Agrolink	42.876,00	43.400,00	86.276,00

No.	Name of the Grantee	Amount of Grants (KM)	Amount of Grantees' contribution (KM)	Total Investment Cost (KM)
8	Agromediteranski fakultet	16.965,81	18.324,19	35.290,00
9	Agromilk	69.230,87	95.396,84	164.627,71
10	Agromont	69.000,00	80.000,00	149.000,00
11	Andjelic	69.724,27	97.984,97	167.709,24
12	Arome	66.000,00	99.020,00	165.020,00
13	Arsenic Milorad	25.000,00	159.333,94	184.333,94
14	Balatunka	10.000,00	10.000,00	20.000,00
15	Baso	63.972,00	80.000,00	143.972,00
16	Bios	70.000,00	129.375,00	199.375,00
17	Bojin	66.800,00	80.000,00	146.800,00
18	Bosper	45.000,00	114.311,87	159.311,87
19	Brams	42.000,00	96.872,00	138.872,00
20	DARS Voce	10.000,00	25.986,39	35.986,39
21	Digesta	9.956,92	20.264,00	30.220,92
22	Drina	69.700,00	84.848,00	154.548,00
23	DS Farmer	25.000,00	27.000,00	52.000,00
24	Eco Line	50.261,98	61.035,83	111.297,81
25	Ein Natural	8.000,00	8.000,00	16.000,00
26	Eko flora	68.039,00	94.652,95	162.691,95
27	Eko sir Pudja	40.000,00	84.262,70	124.262,70
28	Eko Vlastic	59.583,76	60.916,14	120.499,90
29	Elmar	62.500,00	77.142,00	139.642,00
30	Elmar Aroma Care	40.290,10	61.000,00	101.290,10
31	Espo	13.747,92	7.448,08	21.196,00
32	Europlod	44.042,00	55.926,20	99.968,20
33	Faveda	42.250,00	43.392,00	85.642,00
34	Frutti Funghi	63.940,00	152.669,00	216.609,00
35	Frutti Funghi II	60.854,71	91.495,29	152.350,00
36	Gracanka	69.917,00	356.366,32	426.283,32
37	Gracanka II	9.687,76	38.150,00	47.837,76
38	Halilovic II	68.484,54	23.827,66	92.312,20
39	Heko	69.487,50	151.305,30	220.792,80

No.	Name of the Grantee	Amount of Grants (KM)	Amount of Grantees' contribution (KM)	Total Investment Cost (KM)
40	Heko doo II	60.890,00	295.610,00	356.500,00
41	Heljda Eko II	16.440,00	22.029,60	38.469,60
42	Insieme	47.917,84	74.000,00	121.917,84
43	Jaffa Komerc	73.000,00	107.000,00	180.000,00
44	Jokic Dragan	18.842,00	21.050,00	39.892,00
45	Katarina Petrovic	20.200,86	20.624,70	40.825,56
46	Kiko	66.418,70	255.598,68	322.017,38
47	Kuca prirode	65.600,00	163.810,00	229.410,00
48	Lamaruz	7.257,85	9.484,84	16.742,69
49	Ledenicka dolina	68.142,61	96.143,10	164.285,71
50	Linija voca	44.955,60	49.254,78	94.210,38
51	Lubrikum	12.208,00	13.325,36	25.533,36
52	Ljekobilje	46.500,69	54.382,31	100.883,00
53	Maocanka	70.000,00	131.193,87	201.193,87
54	Maticna mlijec Memisevic	24.000,00	24.320,00	48.320,00
55	Medicom	59.512,00	65.956,00	125.468,00
56	Mehmedovic Muhamed	24.000,00	24.209,64	48.209,64
57	Meli fungi	24.623,93	52.086,07	76.710,00
58	Mesanovic Zijad	21.000,00	31.170,20	52.170,20
59	Mlijekara Padjeni	40.000,00	248.085,22	288.085,22
60	Neven	16.666,55	22.596,33	39.262,88
61	Okusi hercegovinu	12.246,64	45.834,40	58.081,04
62	Organska kontrola	33.600,00	53.084,00	86.684,00
63	Pcelarstvo Muhtari	9.250,00	13.439,00	22.689,00
64	Plant II	64.300,00	76.473,00	140.773,00
65	Plus Biofarm	23.274,37	25.098,63	48.373,00
66	PMG ViP	9.742,00	9.490,00	19.232,00
67	Podrinje I	46.675,00	48.534,75	95.209,75
68	Prirodno bilje	70.200,00	110.898,00	181.098,00
69	Promilk	53.600,00	69.493,23	123.093,23
70	PZ VIP Krajina	41.330,00	145.488,53	186.818,53
71	Roing	63.590,00	64.286,80	127.876,80

No.	Name of the Grantee	Amount of Grants (KM)	Amount of Grantees' contribution (KM)	Total Investment Cost (KM)
72	Salih Ibisevic	7.850,00	7.902,80	15.752,80
73	Sanel Omicevic	18.000,00	31.500,00	49.500,00
74	Saradnja	64.200,00	113.618,00	177.818,00
75	Sezona	60.000,00	217.000,00	277.000,00
76	Smrcak	70.000,00	77.892,98	147.892,98
77	Stocar	19.152,00	19.152,00	38.304,00
78	Sumski plod	75.000,00	118.900,00	193.900,00
79	Tarevci	40.700,00	55.970,22	96.670,22
80	Terra Sana	17.381,50	18.854,86	36.236,36
81	Udruzenje proizvođjaca sira	16.400,00	16.648,00	33.048,00
82	Usorac Vladimir	25.000,00	56.709,29	81.709,29
83	Vanjskotrgovinska komora	32.654,00	59.143,00	91.797,00
84	ViP Krajina II	10.000,00	17.700,00	27.700,00
85	Vocar	70.000,00	109.381,86	179.381,86
86	Vrganj promet	42.512,16	121.980,00	164.492,16
87	VTK II	32.067,40	95.471,30	127.538,70
88	VTK III	17.852,70	61.479,10	79.331,80
89	VTK IV	28.381,00	82.700,00	111.081,00
90	Zalfija	70.000,00	627.446,37	697.446,37
91	Zene tesnja	40.950,00	40.950,00	81.900,00
92	Zlatna kap	48.766,58	105.159,23	153.925,81
93	ZZ Tarcin	70.000,00	460.413,62	530.413,62
Total		3.858.008,27	8.088.962,42	11.946.970,69

ANNEX IX. FARMA IMPLEMENTING PARTNER (CHEMONICS INTERNATIONAL) COMMENTS

Impact analysis - FARMA treatment vs comparison group

FARMA was expected to work throughout BiH with decentralized project management and a profound field presence. In the last 18 months of the project, FARMA was contracted to work with producer organizations that represent at least 50% of the targeted sector output, which FARMA has achieved and in some cases significantly exceeded. The project was expected to have a transformative impact for the whole value chain and subsectors it supports.

Considering the wide project outreach, we do not believe that the methodology used by the MEASURE evaluation team to identify a comparison (control group) as the counterfactual both at the processor and farmer level is valid for determining impact achieved by FARMA. For instance, even producers that are not targeted beneficiaries would likely have benefited from spillover or demonstration effects by adopting techniques supported by a given intervention with another beneficiary or with an institution. This is in fact a desirable outcome of agriculture projects, and quite common. As noted in the 2012 guide by the Millennium Challenge Corporation „Principles into Practice: Impact Evaluations of Agriculture Projects“¹², ***national-level interventions – projects that target agriculture-related national level policy reform or institutional change, such as improved phytosanitary and inspection services and improved linkages to export channels for targeted value chains, are not generally conducive to identifying a within-country counterfactual.***

Notwithstanding the above, we believe that the only way to adequately assess FARMA’s activities using a comparison group would be to identify a group for specific FARMA activities promoting the adoption of different practices. This would control for the fact that adoption of new practices by individuals do not occur uniformly, but consist of innovators/early adopters and laggards. The evaluation of FARMA beneficiaries that adopted new practices (and its impact on sales, exports etc.) versus those that have not (because they are late adopters or laggards) would have provided the MEASURE evaluation team with valuable information on whether FARMA interventions were useful, relevant, appropriate, and effective in reaching FARMA objectives including increasing PO sales and exports.

For example, the MEASURE evaluation Scope of Work listed the following key FARMA activities but they were not subsequently assessed:

- *FARMA’s assistance in introducing new berry varieties and production technologies to improve farmer’s yields and incomes.*
- *FARMA’s assistance on dairy farm management and introducing EU standards to improve quantity and quality of milk produced and farmer’s incomes.*
- *FARMA’s assistance to improve processing technologies to increase value adding i.e. specifically increase the production of quality essential oils.*

FARMA feels that a more relevant assessment would have been to evaluate specific FARMA activities’ impact on targeted groups, rather than MEASURE’s approach of comparing FARMA beneficiaries (FARMA

¹² <http://www.mcc.gov/documents/reports/paper-2012001116901-principles-impact-evaluations.pdf>

treatment group) to a comparison group that is not comparable to FARMA beneficiaries. Issues with the selection of the 495 companies used in the comparison group are outlined below:

Selection of POs for the comparison group

The selection of POs for the comparison group appear to have been conducted on the basis of statistical classification of economic activity categories without verification that the POs are engaged in the same activities or are working in the same sectors or are positioned in the value chain as FARMA POs. Furthermore, the POs selected to be in the comparison group (in cases where their activities are within FARMA supported sectors) could have benefited indirectly through spillover effects.

FARMA reviewed the full list of 495 POs used in the comparison group and found the following:

Fruit and vegetable (F&V) sector

- Based on FARMA's review of the POs listed in the comparison group, we have identified only 37 out of 117 companies (32%) that are comparable to FARMA POs in terms of their activities. Some of these could have also benefited indirectly through FARMA activities.
- The vast majority of POs in the F&V sector in the comparison group are trading companies that are involved in wholesale or retail trade, making them an inappropriate comparison group for the following reasons:
 - Wholesale and retail trade is not a primary activity for any FARMA beneficiary/treatment group in the F&V sector and thus these POs are not directly comparable with FARMA POs.
 - These trading companies may have also benefited indirectly from FARMA activities if they procure locally produced fruit and vegetables from FARMA beneficiaries.
 - These companies may have benefited from FARMA supported nation-wide agricultural price information system for fresh F&V by being able to source the lowest price F&V from BiH wholesale markets. In fact this is the target group for the FARMA-supported price information system.
 - These companies typically rely significantly on imports, including F&V that cannot be grown in BiH (tropical fruit). This also means that when BiH agricultural producers have lower yields due to adverse seasonal conditions, for example, the trading/wholesale companies will import more F&V thus their performance will be better even though the rest of the sector is in decline.
- For a number of POs, fruit and vegetable production and processing is only a minor activity. For example, we estimate that less than 10% of production by Teleoptic, which is a very large company, is based on fruit juices (and even in these cases this is based on imported syrups) while the rest of Teleoptic's sales are based on the sale of carbonated drinks (SINALCO brand) and sale of other products that are outside of the F&V sector (the company is one of the largest distributors of FMCG products in BiH, including the strongest multinational brands).

MAP sector

- Based on FARMA's review of the POs listed in the comparison group, we have identified only 31 out of 339 companies (approx. 9%) that are comparable to FARMA POs in terms of their activities. Some of these could have also benefited indirectly through FARMA activities.
- This is a very difficult sector to capture through statistical classification of economic activity categories. FARMA used the classification codes to identify the overall subsector value. FARMA provided the full codes to MEASURE but it seems that only the shorter codes were used or MEASURE included older classification codes from FBiH for the period of 2008-2010, which clearly are unrelated to the MAP sector. For example:

- Instead of the code 10.83 (Coffee and tea processing) MEASURE should have used 10.83.13 and 10.83.14 to include teas but exclude coffee.
- Instead of the code 10.85 (Manufacture of prepared meals and dishes) MEASURE should have used 10.85.14 to include pasta (e.g to capture products such as buckwheat pasta) but to exclude products based on meat, vegetables etc, which clearly do not belong to the MAP sector.
- Earlier classification of 10.89 in FBiH (2008-2010) seem to have included meat, poultry meat, and manufacture of bread, pastry and cakes, which clearly do not belong to the MAP sector, hence these codes should not have been used to identify POs for the comparison group.
- MEASURE could have also included the code 10.39.17.30 to include mushroom POs.
- Because of the above, numerous POs that are not comparable to FARMA POs in the MAP sector were included in the comparison group, including at least 125 bakeries, 23 coffee processing companies, 17 meat producers, as well as some POs covering tourism, swimming pools, transport, general trade, and restaurants.

Dairy sector

- Based on FARMA review of the POs listed in the comparison group, we have identified only 22 out of 58 companies (approx. 38%) that are comparable to FARMA POs in terms of their activities. Some of these could have also benefited indirectly through FARMA activities.
- While there are fewer issues in the selection of POs for the comparison group in the dairy sector, still only about 38% are comparable to FARMA POs in the dairy sector. The comparison group included POs such as pastry, pasta and meat processing companies, all unrelated to the dairy sector.
- A number of POs selected to be in the comparison group have also benefited indirectly through FARMA through spillover effects. For example, FARMA provided training to dairy producers that sell milk to dairy processors in the comparison group such as ZIM Zenica, Inmer, and Mljekara Livno.
- Some POs selected to be in the comparison group are FARMA beneficiaries, including Pudja Perkovic from Livno (changed its name to Eko Sir Pudja, but it is the same PO), Meggle (Meggle doo Posusje is connected to Meggle Bihac).

We also note that the average and median sales of the comparison vs. treatment group (as stated on page 18) is significantly lower (41% and 331% respectively), further reason that these companies are not directly comparable. Smaller companies (especially bakeries, coffee roasting shops, etc) can experience stronger growth in percentage terms than larger companies. Furthermore, a very large number of such POs were based in Sarajevo (83 out of 495) reflecting that the vast majority of POs are involved in wholesale trade and retail rather than agricultural production and processing.

MEASURE interpretation of impact analysis

In our view, due to the nature of analysis, MEASURE did not provide answers to important questions such as: Did FARMA activities have measurable impact on subsectors? Were FARMA activities in the fruit and vegetable and MAP sector useful, relevant, appropriate or effective (consider the significant growth in sales and exports of products such as berries, essential oils etc)? Were FARMA beneficiaries disadvantaged by participating in FARMA activities as the comparison group has performed better? Would FARMA beneficiaries have performed better or worse if they were not assisted by FARMA?

These questions do not seem to be adequately addressed in the report, and are even contradicted by examples of FARMA activities which were viewed positively by FARMA beneficiaries. On page 27, it was stated: *One MAPs producer explained during the interview how the training on farmers' cultivation (sic) of*

immortelle and the technical training about improving immortelle distillation was crucial in enabling the producer to increase production by 30 percent. The producer stated that he would not have been able to continue his business operations with this rare raw material/input without FARMA's assistance. Such statements indicate that FARMA activities had a positive impact on production and sales, suggesting benefits from FARMA activities that may not have achieved without FARMA assistance. **Such answers and conclusions could have been reached if MEASURE conducted an analysis of impacts of specific FARMA activities on adopters of such practices (beneficiaries) vs. non-adopters (comparison/control group).** Using that approach could have comprehensively answered the evaluation question: *What were the impacts of FARMA interventions on Producer Organizations' (PO) sales and exports? Did the impacts vary by sub-sectors?*

Lack of baseline information

Page 15 of the MEASURE Evaluation report states that there is *No baseline information against which to measure progress in the FARMA implementation database.*

It should be noted that for each producer/partner organization (PO), FARMA obtained the PO's figures on sales performance for the year prior to its collaboration with FARMA. That number is that company's baseline. It is a static number for each company. Each year that the PO collaborates with FARMA, data are gathered on its annual sales performance. The baseline is subtracted from that number to obtain the measure of the PO's performance change for the year. To accurately report the impact of FARMA's activities, the baseline is necessarily dynamic. As POs are added, a baseline for each is established. For instance, if a PO becomes a beneficiary in the third year of the project, then its business performance during the second year of the project, or the year prior to becoming a beneficiary, is its baseline.

Gender

MEASURE Report p 31 – stated “*Also, there is no evidence that FARMA interventions increased the share of female-owned businesses (which is low at 17%)*”.

Although we do agree that the share of female-owned businesses at 17% is low, it should be considered in context. According to European Commission Report – Statistical Data on Women Entrepreneurs in Europe – 2014¹³, the percentage of female entrepreneurs of total number of entrepreneurs by gender in Europe-37 countries in 2012 was 29% (Malta and Turkey had 17% and 15% respectively) while the percentage of women entrepreneurs in agriculture, forestry and fishing in Europe-37 countries in 2012 was even lower at 25%.

More importantly, the FARMA contract does not specifically seek to increase the share of female-owned businesses. Instead the FARMA contract (page 18) states the following: *The contractor will take into account the role of women in the FARMA project and facilitate where possible their involvement and professional development. Data will be collected, as appropriate, with particular attention to the TA provided to women-owned businesses. Where data indicates a gender bias in training or application of assistance, the implementing partner will recommend initiatives or revision to the design approach to ensure a more equitable sharing of project outcomes as appropriate.*

To facilitate the involvements and professional development of women, FARMA developed a number of training programs that specifically targeted women, including women empowerment through MAP cultivation and beekeeping and training in business planning and project skills targeting rural women. Also, effort was made to target women in other training activities including training in cheese production technologies and berry production. Women were also active participants in FARMA's training for public sector professionals including laboratory professionals; as well as the FARMA Coordination and Advisory

¹³ <http://ec.europa.eu/DocsRoom/documents/7481/attachments/1/translations/en/renditions/native>

Body. In addition, during the grant evaluation process, extra points were awarded for proposed grant activities that would benefit women.

Policy environment

The MEASURE report page 39 – stated: *Our analysis revealed that FARMA did not provide enough assistance to the government institution beneficiaries to substantially improve the overall policy environment for the POs, partially due to lack of political will. FARMA assistance to government institution beneficiaries was limited to harmonization with the EU technical standard and did not address the most pressing issues that faced POs concerning the different levels of government institutions, such as high labor taxation, perverse employment policies and business registration rules, and lack of capacities in lower level government institutions/agencies to carry out activities related to FARMA interventions. This factor, as well as unanticipated external economic environment challenges (global economic crisis and floods), might have contributed to null significant impacts of FARMA's interventions on POs.*

It should be noted that issues such as *different levels of government institutions, high labor taxation, and perverse employment policies and business registration rules*, are issues that are beyond the scope of the FARMA project. While important, they are issues that pertain to the whole business environment and not just agriculture and are being addressed by other EU and US-funded projects. Specifically, on pages 16 and 17 three out of the four tasks of the FARMA contract clearly define the scope of assistance related to EU technical standards:

- 1) *Building market linkages - Improve product quality to meet EU standards and certification requirements*
- 3) *Technical Assistance and Capacity building – Adopting Quality Management Systems and International Standards*
- 4) *Policy – Increase private and public sector capacity for product certification and standardization in line with the EU *acquis communautaire* and market requirements.*

The issue of EU alignment is also highlighted as a cross-cutting principle: *A key cross-cutting element and consideration for all FARMA activities is support for BiH's alignment processes in agriculture and food (sub) sectors with the EU *acquis communautaire* and EU-market requirements. Specifically, all FARMA assistance will focus on increasing capacity of all local actors (farmers, association, enterprises, cooperatives, NGOs, policy makers and regulatory bodies) for meeting EU accession processes and EU market requirements.*

The issue of EU market access is a pressing issue affecting agricultural producers and has been strongly emphasized by a series of farmer protests (namely the inability to export dairy products to Croatia) and has also received significant media attention. The harmonization with EU technical standards is a vast and complex area, which required significant resources and time to resolve. As stated on the website of the EU Delegation to Bosnia and Herzegovina¹⁴: *The European Union has invested 19 million EUR in support of establishing procedures and logistics to control the safety and quality of food in Bosnia and Herzegovina in the last ten years. The EU will continue to assist Bosnia and Herzegovina in this and in all other processes necessary to adapt to the European standards, but most of the work depends on Bosnia and Herzegovina.* The sum of money the EU has invested just on this issue exceeds the total FARMA budget – and there were many other objectives that FARMA had to achieve apart from policy objectives.

FARMA conducted intensive work with governments institutions (state, entity and local government level – various agencies and departments), educational institutions, laboratories, other international donors, and finally, domestic producers. In the potato sector, BiH has now complied with all EU technical requirements and first exports of potatoes are expected in 2015, while in the case of dairy products four out of six issues noted by the EU have been addressed. Organska Kontrola has been recognized in the EU

¹⁴ <http://europa.ba/News.aspx?newsid=5613&lang=EN>

and more than 50 POs have achieved standards and obtained certifications to access EU markets. These achievements were not sufficiently highlighted.

LAMP beneficiaries

The MEASURE report, page 2 stated: *However, in terms of selecting PO beneficiaries, the approach may have been less demand-driven, as most beneficiaries were carried over from the previous USAID/BiH agricultural activity (LAMP).*

It should be noted that to work with more than 50% of the subsector (contractual requirement), it is unavoidable to include a number of POs which were also supported through the predecessor LAMP project. FARMA considered all POs that applied for assistance and were selected through pre-established mechanisms and evaluation criteria, including that assistance was within the terms of FARMA contract and would contribute to FARMA objectives. FARMA had a very wide outreach and POs which were not involved in LAMP were also included in FARMA activities. Having reviewed the list provided by MEASURE, and the difficulty in identifying a comparison group, this point is now further reinforced – FARMA indeed had a very broad outreach and has worked with a large amount of POs both in percent terms of the subsector value and the number of POs supported.

DCA

FARMA found that a multitude of factors contributed to low utilization of DCA guarantees at one of the three banks supporting DCAs (the other two fully utilized their credit lines) including the existence of more favorable credit lines. It should be noted that two of the three DCAs were utilized entirely, and evidence suggests that the third line was underutilized because of unfavorable conditions demanded by the third bank.

Conclusion

FARMA has significant reservations about the validity of the methodology used by the MEASURE evaluation team to identify the impact on FARMA interventions on PO sales and exports. FARMA feels that a more relevant assessment would have been to evaluate specific FARMA activities' impact on targeted groups, rather than MEASURE's approach of comparing FARMA beneficiaries (FARMA treatment group) to a comparison group that is engaged in significantly different activities than FARMA beneficiaries. There are significant issues with the selection of POs in the comparison group; they appear to have been selected on the basis of statistical classification of economic activity categories without verification that they are engaged in the same activities, working in the same sectors, or similarly positioned in the value chain as FARMA POs. Based on FARMA's assessment, we have identified that about **82%** of POs that were included in the comparison group are not directly comparable to FARMA POs and should therefore not be in the comparison group.

In our opinion, there need to be substantial revisions to the report and a reassessment of the methodology used to answer the research questions. We believe that the only way to adequately assess FARMA's activities using a comparison group would be to identify a group for specific FARMA activities promoting the adoption of different practices. This would control for the fact that adoption of new practices by individuals do not occur uniformly, but consist of innovators and early adopters and laggards. The evaluation of FARMA beneficiaries that adopted new practices (and its impact on sales, exports etc.) versus those that have not (because they are late adopters or laggards) would have provided the MEASURE evaluation team with valuable information on whether FARMA interventions were useful, relevant, appropriate, and effective in reaching its stated objectives including increasing PO sales and exports. In our view, the methodology used by MEASURE, in addition to the issues with respect to the selection of the POs for the comparison group, was not appropriate and has not provided any valuable information on what has and has not contributed to achieving FARMA objectives.

ANNEX X. MEASURE-BiH REJOINDER



Rejoinder to Comments on FARMA Impact Evaluation Draft Report

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In this rejoinder, we address the major points made by Chemonics International (Chemonics) on the Fostering Agricultural Markets Activity (FARMA) impact evaluation draft report. Chemonics is the prime contractor of the USAID/BiH and Sida FARMA. Chemonics' comments focused on the methodology that the MEASURE-BiH impact evaluation team used to construct the comparison group and the design developed to carry out the impact analysis. In Section 1, we clarify the approach used to select the producer organization (PO) comparison group, the data limitation, and our non-experimental difference-in-differences (DID) design. In Section 2, we compare the baseline characteristics and outcome variables among FARMA assisted POs (i.e., treatment group), the MEASURE-BiH comparison sample, and an alternative comparison sample suggested by Chemonics. Section 3 provides additional empirical results based on impact analysis using the alternative comparison group and Section 4 concludes.

I. Comparison group Selection and Impact Analysis Methodology

As correctly pointed out by Chemonics, we conducted our initial PO comparison group selection on the basis of statistical classification of economic activity categories. We obtained the 4-digit category codes from the sector coverage calculation methodology files forwarded to us by Chemonics. Although the BiH administrative AFIP/APIF data contained a wealth of financial information that were very valuable in correcting selection bias in our impact analysis, it did not contain six-digit or eight-digit codes for statistical classification of economic activity categories. Given this data limitation, we did the best that the data would permit to narrow down the list of POs that belong to the same sub-sector as the FARMA assisted POs. In addition, as pointed out in our report, the statistical classification of economic activity (industry sector classification) in the two Entities was not harmonized until 2011. Namely, the FBiH classification adopted the EU classification in 2011, while this classification was in place in RS throughout the entire observed period (2008 to 2013). In order to ensure maximum comparability across Entities and across different time periods, we used a bridging table between the two different classifications (one for FBiH for 2008 to 2010 and the other for FBiH for 2011 to 2013 and for the entire evaluation period for RS). The bridging table was provided by TRON Systems (for more detail, see Annex VII in the draft report).

To evaluate FARMA impacts, we used a non-experimental design with DID methodology. This methodology is the most commonly used non-experimental impact evaluation design. The DID design, as demonstrated in Figure 2 of our report, allowed us to take into account the observable differences between treated POs and comparison POs in organizational characteristics as well as prior year outcome measures, such as assets, equity, number of full

time employment, sales, exports, etc. In other words, our selection process and methodology attempted to remove observable differences at baseline between FARMA assisted POs and the comparison group.

2. Alternative Comparison Groups

As a result of Chemonics' concern about the comparison sample, Chemonics staff reviewed the full list of the 495 POs that we initially selected for the comparison group. Based on this review and their knowledge of PO activities, Chemonics suggested a subset of the 495 POs as a preferred comparison group. It should be noted that this ad-hoc approach to selecting a comparison group does not meet the requirements of the scientific process which requires that it is possible for the study to be replicated by other researchers. Without the ability to replicate Chemonics' comparison selection process, researchers cannot reproduce the results obtained from an impact evaluation.

Although we firmly believe that MEASURE-BiH used an appropriate methodology for the comparison sample selection and the impact analysis given the available data, MEASURE-BiH has taken great efforts to replicate the impact analysis using the comparison group selected by Chemonics. Specifically we re-ran all the econometric analysis using the Chemonics hand-picked comparison sample. This exercise could be viewed as a sensitivity test and robustness check.

In Table I, we compared the baseline PO characteristics for (a) FARMA assisted POs, (b) our original comparison group, and (c) the alternative subset comparison group suggested by Chemonics. At baseline, as seen in Table I, the average FARMA treated PO had total assets valued at almost 5 million KM. This average value was driven mostly by some large POs, as the median value stood at about 700,000 KM. Both comparison groups were smaller both in total assets and in equity value than the treatment group. For example, baseline average equity for the treated sample was 2.7 million KM while the corresponding values for our original comparison group and Chemonics comparison group were about 1.2 million KM and 667,000 KM.

As for indicators of access to finance, the average value of short term loans was about 350,000 KM for the treated POs, 230,000 KM for our original comparison group, and 65,000 KM for Chemonics comparison sample. Baseline sales figure averaged about 3 million KM in the treated sample with a median value of about 470,000 KM. In our original comparison sample, the sales in 2008 had a mean 140,731 KM, much smaller than the treated sample. In the Chemonics comparison sample, the sales in 2008 had a mean value of about 1.2 million KM and a median value of about 76,000 KM, closer to the treated POs relative to our original comparison group. About 45 percent of the all the POs in the FARMA core PO beneficiaries already had exported their products before FARMA assistance while the proportion of POs that exported in our original comparison sample and Chemonics comparison sample were both lower, at 20 percent and 32 percent, respectively.

Table I. Baseline Characteristics for FARMA Treated POs and Alternative Comparison Groups

Characteristics <i>(KM unless specified otherwise)</i>	(a) Treatment		(b) Comparison (Original)		(c) Comparison (Chemonics)	
	Average	Median	Average	Median	Average	Median
Assets	4,989,706	709,094	2,769,817	234,881	2,114,553	308,052
Equity	2,703,367	168,166	1,233,832	31,903	667,417	32,143
Employment (full time equivalent)	11	2	15	2	8	1
Short term loans	357,149	189	230,134	0	65,596	0
Long term loans	654,497	17,881	468,881	0	572,365	0
Sales	3,022,265	466,148	2,150,174	140,731	1,180,356	76,764
Percentage of POs that export	45	-	20	-	32	-
Exports	1,107,175	0	168,940	0	149,835	0

We tested the baseline equivalence between treatment and comparison groups using statistical t-tests. In general, we found that key treatment-comparison differences were present in our sample. Although FARMA assisted POs and Chemonics comparison POs were equivalent in employment and long term loans, there are statistically significant differences in other baseline PO characteristics and outcome variables (as correctly pointed out by Chemonics).

These differences highlighted the non-random nature of FARMA beneficiary selection and the associated challenges for impact evaluation. But more importantly, we took into account these observable differences in our impact analysis by conditioning on them in the multivariate regression framework. As a result, these observable differences do not bias our impact estimates in the DID design.

3. Empirical Results on FARMA Impacts based on Chemonics Comparison Sample

Impact estimates based on Chemonics comparison group are presented in Table 2 and Table 3. For comparison purposes, we also included our original estimates in these tables. As seen in Table 2, we did not find any statistical significant effects of FARMA interventions on sales and exports in the whole sample using Chemonics comparison group, the same overall findings we reported in the original report. In Table 3, not only the impact estimates on access to finance measures shared similar statistical significance (not significant at conventional levels), they also shared similar magnitudes. For example, looking at the estimated effect on short term loans, the point estimate for FARMA impact was -0.349 using the original comparison sample, while the impact estimate was -0.346 when we switched to Chemonics comparison group. Looking across sub-sector analysis results in the tables, we still found significant amount of heterogeneities across the three sub-sectors, speaking directly to FARMA's sub-sector specific

demand-driven implementation approach. Moreover, we found that in dairy sub-sector, based on impact analysis of treated POs and the Chemonics comparison sample, FARMA interventions had a positive effect on the proportion of POs that export their products (34%). Even though the estimated impact of FARMA interventions on dairy sub-sector sales, which was statistically significant at 5% level in the report, became statistically insignificant when we switched to Chemonics comparison group, the magnitudes were very similar (76% vs. 53%).

Chemonics' comments mentioned potential spillover effects. While this is a reasonable concern, the goal of the FARMA impact evaluation was to identify the direct effects of development aid using rigorous impact evaluation design. The identification and estimation of spillover effects is beyond the scope of the evaluation and not feasible within the resources available for the evaluation. Nonetheless, we believe that the findings of our sensitivity analysis and robustness checks based on Chemonics comparison sample strongly suggested that it is very unlikely that the spillover effects are important enough to cancel out the treatment effects that we found.

Table 2. FARMA Impacts on Sales and Exports

Outcome Variable	Sales		Export		Percentage Exports	
	Original	Chemonics	Original	Chemonics	Original	Chemonics
Whole Sample	0.021	-0.019	-0.162	0.582	0	0.137
	(0.205)	(0.756)	(0.665)	(0.764)	(0.088)	(0.125)
Fruits and Vegetables	-0.142	-0.147	0.377	0.248	-0.077	0.063
	(0.363)	(0.543)	(0.717)	(0.983)	(0.143)	(0.174)
Dairy	0.762**	0.529	-1.232	-1.599	0.208	0.337*
	(0.389)	(1.178)	(1.435)	(1.342)	(0.134)	(0.191)
MAPs	0.085	0.248	-0.953	1.194	-0.041	0.086
	(0.323)	(0.437)	(1.182)	(3.392)	(0.157)	(0.082)


Table 3. FARMA Impacts on Access to Finance


Outcome Variable	Short term loans		Long term loans	
	Original	Chemonics	Original	Chemonics
Whole Sample	-0.349	-0.346	0.896	1.284
	(0.683)	(0.877)	(0.746)	(0.956)
Fruits and Vegetables	0.065	-0.916	0.145	0.685
	(1.126)	(1.277)	(1.198)	(1.384)
Dairy	0.724	1.414	0.605	0.09
	(1.330)	(1.654)	(1.552)	(1.964)
MAPs	-1.978	-1.467	2.023	3.582
	(1.211)	(1.548)	(1.299)	(2.548)

4. Conclusion

In this rejoinder, we further clarified our approach of PO comparison group selection, data limitation, and our non-experimental DID design. We conducted sensitivity and robustness analysis by re-running all our econometric analysis using Chemonics' comparison group. Overall, our impact analysis, using comparison POs suggested by Chemonics, yielded very similar results to our findings in the original report. These findings demonstrated the robustness of MEASURE-BiH's original impact analysis results and supported the conclusions drawn in our original impact evaluation report.

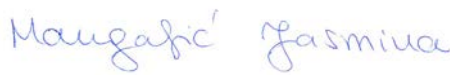
ANNEX XI. DISCLOSURE OF ANY CONFLICTS OF INTEREST

Name	Ye Zhang
Title	Principal Investigator
Organization	IMPAQ International, LLC
Evaluation Position?	<input checked="" type="checkbox"/> Team Leader <input type="checkbox"/> Team member
Evaluation Award Number <i>(contract or other instrument)</i>	Monitoring and Evaluation Support Activity (MEASURE-BiH), implemented by IMPAQ International, LLC, Contract No. 168-C-14-00003
USAID Project(s) Evaluated <i>(Include project name(s), implementer name(s) and award number(s), if applicable)</i>	Fostering Agricultural Market Activities (FARMA), USAID-BiH, implemented by Chemonics International Inc., Contract No. 168-C-00-09-00102-00
I have real or potential conflicts of interest to disclose.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>If yes answered above, I disclose the following facts:</p> <p><i>Real or potential conflicts of interest may include, but are not limited to:</i></p> <ol style="list-style-type: none"> 1. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated. 2. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation. 3. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project. 4. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated. 5. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated. 6. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation. 	<p>I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.</p>
Signature	
Date	February 20 th , 2015.

Name	Naida Carsimamovic Vukotic
Title	M&E Specialist for Economic Growth
Organization	IMPAQ International, LLC
Evaluation Position?	<input type="checkbox"/> Team Leader <input checked="" type="checkbox"/> Team member
Evaluation Award Number (contract or other instrument)	Monitoring and Evaluation Support Activity (MEASURE-BiH), implemented by IMPAQ International, LLC, Contract No. 168-C-14-00003
USAID Project(s) Evaluated (Include project name(s), implementer name(s) and award number(s), if applicable)	Fostering Agricultural Market Activities (FARMA), USAID-BiH, implemented by Chemonics International Inc., Contract no.168-C-00-09-00102-00
I have real or potential conflicts of interest to disclose.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>If yes answered above, I disclose the following facts:</p> <p><i>Real or potential conflicts of interest may include, but are not limited to:</i></p> <p>7. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.</p> <p>8. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.</p> <p>9. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.</p> <p>10. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.</p> <p>11. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.</p> <p>12. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.</p>	
<p>I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.</p>	
Signature	
Date	February 20 th , 2015.

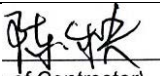
Name	Jasmina Mangafic
Title	STTA
Organization	MEASURE-BiH
Evaluation Position?	<input type="checkbox"/> Team Leader <input checked="" type="checkbox"/> Team member
Evaluation Award Number (contract or other instrument)	Monitoring and Evaluation Support Activity (MEASURE-BiH), implemented by IMPAQ International, LLC, Contract No. 168-C-14-00003
USAID Project(s) Evaluated (Include project name(s), implementer name(s) and award number(s), if applicable)	Fostering Agricultural Market Activities (FARMA), USAID-BiH, implemented by Chemonics International Inc., Contract no.168-C-00-09-00102-00
I have real or potential conflicts of interest to disclose.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>If yes answered above, I disclose the following facts:</p> <p><i>Real or potential conflicts of interest may include, but are not limited to:</i></p> <p>13. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.</p> <p>14. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.</p> <p>15. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.</p> <p>16. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.</p> <p>17. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.</p> <p>18. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.</p>	

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Signature	
Date	February 20 th , 2015.

Name	Yang Chen
Title	Research Associate
Organization	IMPAQ International, LLC
Evaluation Position?	<input type="checkbox"/> Team Leader <input checked="" type="checkbox"/> Team member
Evaluation Award Number (contract or other instrument)	Monitoring and Evaluation Support Activity (MEASURE-BiH), implemented by IMPAQ International, LLC, Contract No. 168-C-14-00003
USAID Project(s) Evaluated (Include project name(s), implementer name(s) and award number(s), if applicable)	Fostering Agricultural Market Activities (FARMA), USAID-BiH, implemented by Chemonics International Inc., Contract no.168-C-00-09-00102-00
I have real or potential conflicts of interest to disclose.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>If yes answered above, I disclose the following facts:</p> <p>Real or potential conflicts of interest may include, but are not limited to:</p> <p>19. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.</p> <p>20. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.</p> <p>21. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.</p> <p>22. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.</p> <p>23. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.</p> <p>24. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.</p>	

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Signature	
Date	February 20 th , 2015.

U.S. Agency for International Development/Bosnia-Herzegovina
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Bosnia and Herzegovina