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THE AGRIBUSINESS AND MARKET SUPPORT ACTIVITY: FINAL EVALUATION

USAID: EDH-I-00-05-00004-00 AND EDH-I-04-05-00004-00

JUNE 2011

This publication was produced for review by the United States Agency for International Development. It was prepared by David Neubert, consultant for Weidemann Associates, Inc.

The Agribusiness and Market Support Activity (AMARTA): Final Evaluation

USAID: EDH-I-00-05-00004-00 AND EDH-I-04-05-
000004-00

Contracted under AID-OAA-TO-10-00017

Work Assignment #10 AMARTA Evaluation

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EXECUTIVE SUMMARY

Background: The objective of the AMARTA project was to improve the quality and quantity of commodities produced within selected value chains and establish strong and transparent linkage between producers and other stakeholders, resulting in enhanced knowledge, greater access to appropriate technology, improved access to markets and improved incomesⁱ.

AMARTA was launched on 29 September 2006 with a planned ending date of 20 September 2009. After two project extensions, AMARTA was closed on 30 April 2011. The Papua Agribusiness Development Alliance (PADA), a sub-component within AMARTA, will continue through 30 June 2011.

Shortly after project startup, the contractor for AMARTA, DAI Inc., was tasked with strengthening nine value chains. These included cocoa, coffee, fruits and vegetables, aquaculture, rubber, livestock (cattle), bio-fuel and seaweed. In 2008, USAID instructed the project to only focus on three core value chains (cocoa, coffee and horticulture) and close activities on the remaining value chains. In addition to the value chain work, the project was involved in promoting farm-level advocacy through its RACA (Regional Agribusiness Competitive Alliance) activity.

The project's initial budget was 13.74 million dollars. This was increased to 20.60 million dollars and included 17.3 million dollars for core value chain activities (cocoa, coffee, and horticulture) plus RACAs, and 3.3 million dollars for other value chain development activities.

Achieving Objective:

The Evaluation Team believes that the strategy and resource allocation employed in implementing AMARTA were generally sound and provided an effective path to achieving objectives and ensuring long-term sustainable growth in the targeted value chains. However, the timing of some activities was uneven resulting in a dampening of the project's full potential.

- The Evaluation Team

Contractor Performance and Target

Indicators: AMARTA had eight core target indicators that were used to measure the project's progress toward reaching its objectives. Data provided by AMARTA shows that the project surpassed its delivery targets on six of the eight indicators. The project fell short in delivering improved technology and management practices to beneficiaries in the livestock, fish and aquaculture sector. Activities in livestock, fish and aquaculture were suspended midway through AMARTA's implementation period. Had the project continued work in this area, the evaluation team believes that AMARTA would have met or surpassed this target.

AMARTA also fell short in fully delivering on target number 6; percent change in value of

purchases from smallholder farmers of targeted commodities as a result of US Government assistance. In the cocoa, coffee, horticulture, flowers and seaweed value chains, the project actually met or exceeded this target. The short fall in Target 6 seems to be associated with low performance in the aquaculture value chain where the project achieved 52% of target. Aquaculture activities were suspended mid-way through the project. If aquaculture was kept active through LOP, there is a good probability that AMARTA would have met or achieved this target.

Job creation was not listed in the target indicators as measurable; therefore, there is no information available on the project's impact on creating employment. Nevertheless, the evaluation team feels that

the project made significant improvements in household cash income and this income flows back into communities, stimulating economic growth and job creation.ⁱⁱ

Overall performance by the prime contractor, DAI, was sound. “Customer satisfaction” among beneficiary farmers was also positive. Over 90% of farmers trainedⁱⁱⁱ said that they benefited from the information and skills the project provided in production, post-harvest and market development.

Cocoa Activity: The project had a significant positive impact on the cocoa sector. Much of this positive impact is the result of farm-level capacity building. AMARTA provided training in improved management practices and technology transfer to an estimated 129,625 farmers (farming over 38,000 HA)^{iv}. The vast majority of these beneficiaries were located in Sulawesi; however, AMARTA also worked with cocoa farmers on Bali. In total, the project worked with 1,126 farmer groups.

Based on field interviews with farmers and review of project documents, the evaluation team estimates the training and technology transfer has resulted in cocoa yields increasing from a mean of about 600 kg/HA to about 995 kg/HA over the 4 year project period (a gain of 395 kg/HA). Assuming that Indonesian cocoa farmers receive 80% of the March 2011 mean international (ICCO) cocoa price, the marginal increase in gross farmgate income is \$1,072/HA.

In terms of future increases in gross income, the evaluation team has projected that under a best case scenario^v, when farmers receive \$2,500/MT farmgate on a yield of 1.35 MT/HA, gross revenue will reach \$3,375/HA. The base (most likely) case considers a farmgate price of \$2,000/MT with a yield of 1.25 MT/HA, resulting in a gross farmgate revenue of \$2,500/HA. The worst case scenario shows a farmgate of \$1,500/MT on a yield of 1.15 MT/HA, this results in a farmgate gross income of \$1,725/HA.

Private sector cocoa exporters were among AMARTA’s greatest supporters. As a group, the industry unanimously praised the project for improving cocoa bean quality and organizing farmer groups so as to make the supply chain operate more efficiently. This allowed exporters to buy more cocoa directly from farmers, thereby reducing transaction costs for both parties.

Exporters in Sulawesi report that in 2011 cocoa farmers received 80% of the International Cocoa Organization (ICCO) price. This fact was reconfirmed by AMARTA field staff based in the Makassar office. Selling cocoa at farmgate 20% below the ICCO price is very competitive in term of the global market. As a comparison, a 2007 study of the West African cocoa market (funded by USDA) found that Ivory Coast farmers, the largest cocoa producer in the world, received 43% of the ICCO price. Farmers in Liberia only received 22% of the ICCO price. Only Nigerian farmers get a higher percent of the ICCO price, at 83%, compared to the 80% received by Indonesia – AMARTA farmers.

AMARTA worked with a number of private sector partners/exporters to introduce quality standards for cocoa. These quality standards included threshold levels for moisture content, foreign matter and bean size. This activity is a model that can be used in developing an industry wide quality standard and pricing system.

When looking at the aggregate impact on gross income, the evaluation team estimates that in 2011 only, AMARTA added 32.9 million dollars to marginal farmgate gross income, based on the March 2011 mean ICCO price, with a 20% differential between the ICCO price and the farmgate price and an 80% adoption rate by farmers of improved cocoa production practices.

Coffee Sector Activity: AMARTA’s expenditures in the coffee sector totaled 3.3 million dollars over the life of the project. Funds were spread out over eight geographies including North Sumatra, Sulawesi, Bali, Papua, Moanemani, Jakarta, Flores and Aceh. Wamena, Papua, received the largest fraction of the coffee budget at 1.3 million dollars, or 39%.

In the 1980's and 1990's, the Papua Regional Government promoted the planting of coffee. The marketing campaign to encourage farmers to plant coffee referred to the crop as "The Big Pig". The government was successful in its promotional efforts; however, it failed to link production with the market. Before AMARTA, farmers had begun abandoning their coffee groves because they did not have a market. AMARTA developed a market for the Wamena farmers by linking it to Paragon Coffee Inc. Given the quality of Wamena coffee, the future is bright for the cooperative.

The project reported in its target indicators that it trained and provided support services to 19,378 coffee farmers in 985 farmer groups. This included the Baliem Arabica Cooperative in Papua, which is comprised of 689 members.

In 2011, the Baliem Arabica Cooperative plans to sell 38 tons of green beans to the Paragon Coffee Company of White Plains, New York at a value of \$198,000 FOB port Makassar. There is a potential for future growth in sales by the cooperative. It is estimated that the Wamena area produces between 100 – 200 metric tons of coffee annually. At this point, less than half of the potential amount is being sold by the cooperative. In 2011, the cooperative estimates that its FOB cost to deliver 1 kg of coffee to Makassar is approximately \$3.¹⁷ With the contract selling price of \$5.²⁵/kg, the cooperative expects to generate a net income of \$2.⁰⁸/kg.

The Wamena Cooperative expects to make a net profit of \$78,600 on sales of \$198,000 in 2011. Based on USAID's total investment in the cooperative of 1.3 million dollars, the return on investment (ROI) to USAID will be approximately 6%. This ROI looks modest; however, the Mission needs to keep in mind that the project is in very early stages and will require an ongoing commitment by the donor. The underlying business fundamentals suggest that the Baliem Arabica Cooperative can be successful. If promoted as a single origin product, the Baliem Blue Coffee trademark name can generate a profit and support the development of a sustainable coffee cooperative in Wamena. Developing a sustainable coffee cooperative in Wamena will take a long-term approach and will most likely require assistance beyond the EOP of PADA III.

In North Sumatra, the AMARTA project has attempted to link farmers with export buyers by providing buyers with farmer group contact information. This is a more passive approach, and does not appear to be as effective as the approach taken in Wamena, where the project became actively involved in linking the buyers and sellers.

To a large degree, the coffee activities undertaken by AMARTA are in their early stages. The training provided by AMARTA in the coffee sector will eventually improve yields; however, the evaluation team was able to only visit areas in North Sumatra that had been working with the project for one year or less. Because of the short duration of the intervention, the evaluation team cannot predict what the ultimate outcome on yield improvements will be at this time.

Horticultural Activity: AMARTA's approach in selecting and developing high-value horticultural (HVH) value chains (VCs) was to: 1) Work in value chains that provide significant income and employment growth potential, 2) focus on increasing competitiveness through improvements in production practices and post-harvest technologies, 3) increase the marketing skills of beneficiaries with emphasis on understanding market prices cycles, and 4) support farmers and agribusiness in ways that result in increased market share.

AMARTA's horticultural project focused on a number of key activities, for example:

- The project worked in six value chains (banana, broccoli, citrus, strawberry, green beans and carrots)^{vi} creating improved supply chain links between producers and buyers: Carrefour, Yojo, Bimandiri, PT Momenta Agrikultura, and PT Alamanda.

- The project introduced superior germplasm and provided training as well as technologies that resulted in cost savings in production, post-harvest handling, branding, and direct marketing to exporters and hyper-markets
- The project identified and developed market opportunities. Most of the HVH VCs enjoy access to very profitable markets, but there isn't significant competition among buyers at the wholesale, export or retail level

Generally, the training and technologies provided by AMARTA were successful. HVH VCs were cost-effective and afforded greatly increased access to competitive market opportunities. Farmers seem eager to adopt new technology, quickly assessing that their income will increase significantly; and, they are making investments on their own (e.g., broccoli and banana). However, more effort was needed to develop an outreach strategy to increase the number of farmers in order to meet the increased demand for quality products developed by AMARTA.

AMARTA's approach to high-value horticultural value chains was sound and should be continued. More emphasis should be placed on post-harvest handling, marketing and processing, beginning with the supply chains already developed.^{vii} More emphasis should be placed on continuous economic evaluation/analysis of selected value chains focusing on marginal increases of income, employment and competitiveness relative to USAID's investment for each value chain.

More emphasis should be given to increasing productivity in West Java because farmers own and operate small plots (0.3 HA). In North Sumatra, more investment in cost-efficient cold chains and transport is needed to reduce field and transport loss and to improve shelf life for commodities. More development of branding was requested by buyers and retail outlets. Development and/or use of commodity prices, grades, and cultural practices are needed to improve price discovery. Grading for price is not widely practiced throughout the chains even though this information is generally known.

More assistance to improve horticultural supply chain efficiency should be provided to exporters, traditional markets and retail supermarkets. Buyers of farm produce seem willing to invest in post-harvest handling operations. Future AMARTA activities should consider ways to support private sector investment in cold chains, packing lines and transport systems. Future AMARTA activities should place emphasis on increasing the number of partnerships and to secure cost-sharing investment in post-harvest handling.

Institutional Development, Policy and Grant Activities: AMARTA partnerships and networks with the private sector and national and local government agencies were generally effective in improving market access and supporting the sustainability of project activities. Results have been positive, particularly in comparison to many efforts in comparable projects in other developing countries. The project's most effective partnerships were with private sector firms including PT Freeport, LPMAK, and Syngenta in horticulture, PT OLAM, Armajaro and Tunas Jaye in cocoa, and in coffee with, the SCAI industry association and local and provincial public agencies such as GERNAS, universities and research institutions including ICCRI and IVEGRI.

The project, however, was less effective at the central government level. Partnerships and even communication with agencies in the central government were difficult to develop in part due to GOI policies since the early 2000s to decentralize responsibilities to provincial and local government authorities. Stronger efforts to develop central government interaction are needed.^{viii}

AMARTA's ability to leverage resources was most effective through private sector partnerships such as with Carrefour horticultural purchase contracts and PT Freeport and LPMAK contracts to purchase PADA coffee output. The project also effectively leveraged public agency resources including those of

GERNAS in training their trainers, and those of research institutes such as ICCRI by using cloning material. Less effective was cooperation with other donor agencies, such as the World Bank, ADB and AusAid, which have only limited programs in agriculture.

The impact of AMARTA on the agribusiness policy and regulatory environment has been limited due to the project's focus on improving production and quality rather than on policy advocacy. However, the RACA initiative is a good start in encouraging farmers and other stakeholder to "speak up". Although most RACAs have begun only recently, several now have input into local and provincial budget policies, have won road and infrastructure improvements and have established formal and regular dialogue with local policy-makers. In future, RACAs must increase their influence at higher levels where more decision-making authority is located, on policy issues such as export taxes on cocoa (and potentially coffee), cocoa and coffee standards and certification, uniform premium payments, traceability and infrastructure issues.

In its small grants program^{ix}, AMARTA achieved mixed results. The most effective were targeted at cocoa that improved productivity in S. Sulawesi, coffee production in Papua and horticulture in N. Sumatra, where citrus production in particular increased. Less successful support included coffee in Aceh, due in part to being located relatively near a large organic commercial coffee plantation and with few grant monitoring visits made, and for secondary products such as rubber, aquaculture, seaweed and spices, which were dropped from the AMARTA budget in late 2009 due to low impact. One reason for the mixed results was that grants were initially spread too thinly to too many value chains and crops in various locations. Also, project grants were not always managed and monitored effectively, with no grants manager in place after late 2009.^x

The PADA Activity: With generally positive results in Papua under the PADA II initiative, plans appear justified to expand support under PADA III. In particular, strong opportunities exist for expanding coffee production and coffee export sales via contract with US importers. Activities supporting livelihoods and income should focus in particular on fisheries and horticulture. Also critical will be closer partnerships with PT Freeport and LPMK that more effectively leverage their funding and in-kind contributions to expand the impact of PADA activities.

Recommendations: The evaluation team's recommendations fall into four broad categories including: 1) on-farm production, 2) post-harvest, 3) markets, 4) policy and institutional.

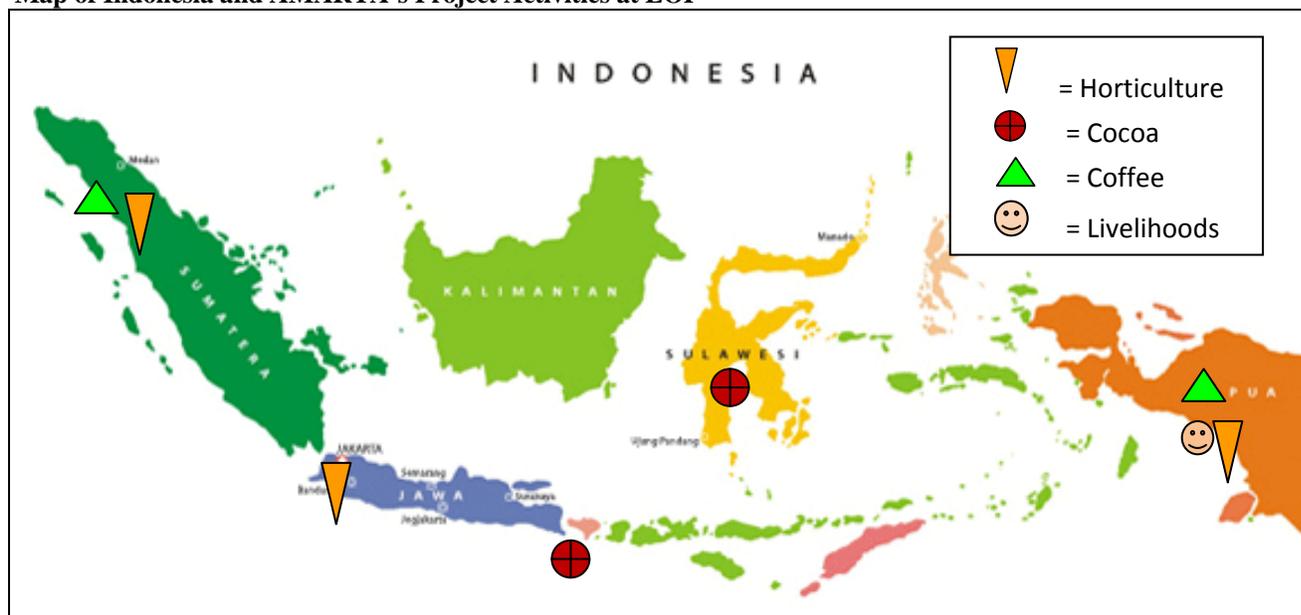
At the farm level, future activity needs to focus on continued training of farmers, and expanded training into new geographies. For selected farm groups that have already benefitted from training, the project should provide advanced training in topics such as IPM. AMARTA II should also continue its work to improve coffee and cocoa genetic material by developing a certified nursery program and creating parent material nurseries in key coffee and cocoa production regions.

Future post-harvest activities should include training in grading and sorting of products (for coffee, cocoa and horticulture), as well as value-addition techniques such as cocoa fermentation, fully-washed coffee/ coffee fermentation, as well as fruit and vegetable grading, packing, cooling and labeling.

Recommendations for market-related activities include training farmers in price discovery and basic business skills. The project should also consider developing SMS systems with private sector partners to provide farmers with daily updates in market price. Future activities should work with partners to create a traceability system that maintains product identity throughout the supply chain. Developing a quality grade bonus system that is broadly accepted throughout the industry is another important focus area that should be included in any future activity.

In terms of institutional recommendations, future activities need to form better relationships with national-level government. Additionally, emphasis needs to be put on training RACAs in advocacy to allow them to become effective change agents with the ability to influence policy and regulatory outcomes. AMARTA II should continue supporting the SCAI through selected grants that support market and appellation development activities, but should not provide grants to cover SCAI's overhead.

Map of Indonesia and AMARTA's Project Activities at EOP



Methodology

The Weidemann Associates consulting team began work on the AMARTA final evaluation on or about 1 April 2011. The team was provided with six weeks of field time to gather and analyze data for the questions outlined in the Scope of Work. In addition, the team leader was provided with an additional five days of report writing time to prepare the draft document and up to five additional days of LOE to address questions raised by USAID on the draft document.

Responsibility within the AMARTA evaluation team was divided up as follows:

- Ray Morton covered the horticulture activity, the Papua livelihood activities and designed the evaluation farmer survey
- Lindsey Wellons covered management, policy, regulatory, institutional, grants, advocacy activities plus managed the evaluation team's local logistics
- David Neubert was responsible for analyzing the coffee and cocoa activities, targets budgets, recommendations and acted as evaluation team leader

The evaluation team began the assignment by reviewing work plans, quarterly reports and the MandE plan. After this, the team met with USAID and AMARTA project management to discuss the project and the methodology to be employed in the final evaluation. The evaluation team submitted a work plan and a report document outline to USAID, both of which were approved.

Throughout the month of April and the first week of May 2011, the evaluation team traveled to project sites throughout Indonesia, including West Java, South Sulawesi, North Sumatra, Bali, and Papua.

During the second week of May, the evaluation team presented a PowerPoint presentation summarizing findings to USAID and submitted a six page evaluation report executive summary (included in this report).

The original AMARTA project was designed and implemented with eight activities in twelve separate geographies within Indonesia. Following a midterm evaluation, the project refocused to include just four core areas (coffee, cocoa, horticulture and advocacy) in five locations (islands). The final evaluation only considers these core activities and geographies. The evaluation does not include information on activities such as aquaculture, rubber, spices, seaweed production, livestock and other activities that were dropped from the work plan at mid-project.

The organization of the AMARTA Final Evaluation Report generally follows the layout and organization of the Evaluation - Scope of Work (SOW). The only modifications made were 1) to replace the data on crop production, employment, income and poverty reduction at the project sites both at Kabupaten and Provincial levels with national level data and 2) employ a simplified cost benefit calculations as outlined in sections 3.8 and 5.7 of this document. Both of these changes were approved by USAID staff managing the evaluations activity.

ACKNOWLEDGEMENTS

The evaluation team would like to thank Michael Nehrbass, Director, Economic Growth Office, USAID, Jakarta and Sanath K. Reddy PhD, Senior Economic Growth Advisor for their guidance and insight in the project evaluation process. A debt of gratitude is owed to William Levine, Chief of Party, AMARTA for assisting the team in gathering information from a broad variety of sources and for making his staff available to the evaluation team. Thanks also to the many USAID staff members who joined the evaluation team in the field over the course of the assignment. These new USAID employees brought enthusiasm and a fresh approach to the evaluation.

ACRONYMS

AEKI	Association of Indonesia Coffee Exporters
AMARTA	Agribusiness and Market Support Activity
ASKINDO	Asosiasi Kakao Indonesia (Indonesian Cocoa Association)
BAPPENAS	Ministry of National Development Planning
BAC	Baliem Arabica Cooperative
BPS	Badan Pusat Statistik
COTR	Contracting Officer's Technical Representatives
CPB	Cocoa pod borer
DAI	Development Associates International
EOP	End of Project
FG	Farmer Group
FO	Farmer Organization
GERNAS	National Movement for Improvement of Cocoa Production and Quality
GOI	Government of Indonesia
HA	Hectares
HVH	High-Value Horticulture
ICE	Intercontinental Exchange (formerly the New York Board of Trade)
ICCO	International Cocoa Organization
ICCRI	Indonesian Coffee and Cocoa Research Institute
IPM	Integrated Pest Management
IVEGRI	Indonesian Vegetables Research Institute
LOP	Life of Project
LPIAK	Lembaga Pengembangan Masyarakat Amungme dan Kamoro
MT	Metric Ton
M and E	Monitoring and Evaluation
NCBA	National Cooperative Business Association
NGO	Non-Government Organization
PADA	Papua Agribusiness Development Alliance
PSC	Personal Service Contractor
RACA	Regional Agribusiness Competitive Alliance
ROI	Return on Investment
Rp	Indonesia Rupee (@ an exchange rate of 8500 Rp : \$1 per April 2011)
SUCCESS	Sustainable Cocoa Extension Services for Smallholders
TA	Technical Assistance
TOT	Training of Trainers
USAID	United States Agency for International Development
\$	US Dollar
USDA FAS	United States Dept of Agriculture Foreign Agricultural Service
VC	Value Chain
VCD	Video Compact Disc
VSD	Vascular-Streak Dieback

BACKGROUND

Overview of the AMARTA Project

AMARTA was launched on 29 September 2006 with a planned ending date of 20 September 2009. After two project extensions, AMARTA was closed on 30 April 2011. The Papua Agribusiness Development Alliance (PADA), a sub-component within AMARTA, will continue through 30 June 2011.

Shortly after project startup, the contractor for AMARTA, DAI Inc., was tasked with strengthening nine value chains. These included cocoa, coffee, fruits and vegetables, aquaculture, rubber, livestock (cattle), bio-fuel and seaweed. In 2008, USAID instructed the project to only focus on three core value chains (cocoa, coffee and horticulture) and close activities on the remaining value chains. In addition to the value chain work, the project was involved in promoting farm-level advocacy through its RACA (Regional Agribusiness Competitive Alliance) activity.

The project’s initial budget was 13.74 million dollars. This was increased to 20.60 million dollars and included 17.3 million dollars for core value chain activities (cocoa, coffee, and horticulture) plus RACAs, and 3.3 million dollars for other value chain development activities.

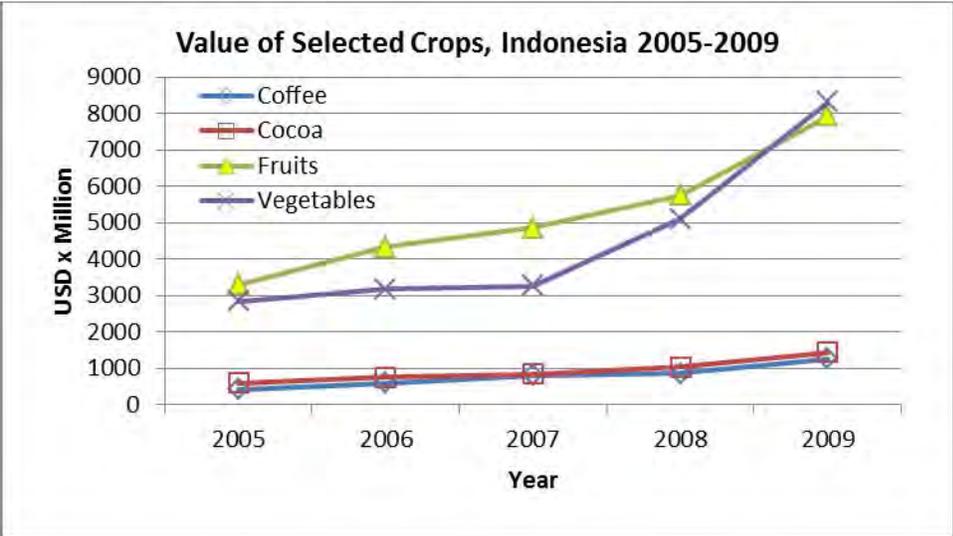
Project Objectives

The objective of the AMARTA project was to improve the quantity and quality of the commodities produced within selected value chains and to establish strong and transparent linkages between producers and other stakeholders, resulting in expanded capacity, enhanced knowledge, greater access to appropriate technology, improved access to markets, and, most importantly, improved incomes.

Importance of the Agricultural Sector in the Indonesian Economy

In 2010, Indonesia’s gross domestic product was estimated at 1.033 trillion dollars. Of this, industry is the largest subsector, totaling about 46.4%. This is followed by the service sector at about 37.1%, and finally agriculture at about 16.5%.

FIGURE I: VALUE OF SELECTED CROPS, INDONESIA 2005-2009



Source: GOI BPS

The AMARTA project focused on a subset of crops within the agricultural sector, including coffee, cocoa and horticulture. Within the horticulture sector, the project targeted a wide variety of high-value crops including citrus, French green beans, bananas, strawberries, carrots, broccoli and others.

To date (May 2011), the Government of Indonesia (GOI) has released national statistics on agricultural crop values through 2009. As can be noted in Figure 1, both the coffee and cocoa sectors were valued at over one billion dollars each. The fruit and vegetable sector in 2009 each had an estimated value of approximately eight billion dollars.

Since 2009, coffee and cocoa prices have continued to rise very significantly and once the final statistics are in for 2010 and 2011, it is likely that these sectors could have total values in excess of 1.5 billion dollars each.

Purpose of AMARTA Project Final Evaluation

The purpose of the AMARTA evaluation is three-fold. First, it is intended to provide documentation on the project's successes and challenges. Second, it attempts to identify what activities worked well and which activities and management functions have underperformed. Finally, the third purpose of the evaluation is to provide USAID staff with insight when planning future activities in Indonesia, specifically, the AMARTA II and PADA (Papua Agribusiness Development Alliance) III projects.

Project Targets and Results Summary

AMARTA had eight core target indicators (numbered 1.a, 1.b, 2-7) that were used to measure the project's progress toward reaching its objectives. These indicators are noted in Table 1 below. Data provided by AMARTA shows that the project surpassed its delivery targets on six of the eight indicators. The project fell short in delivering improved technology and management practices to beneficiaries in the livestock, fish and aquaculture sector. Activities in livestock, fish and aquaculture were suspended midway through AMARTA's implementation period. Had the project continued work in this area, the evaluation team believes that AMARTA would have met or surpassed this target (1.b.).

TABLE I: TARGET INDICATORS AND ACTUAL OUTPUT PER TARGET

Table I: Target Indicators and Actual Output per Target			
Indicator	Target	Actual	%
1.a. HA Under Improved Technology and Management	66,841	72,605	109%
1.b. Units of Animal, Fish, etc., under Improved Technology and/ or Mgt	354,430	319,500	90%
2. Number of Organizations Receiving Assistance	2,855	3,798	133%
3. Number of Agri-Related Firms Benefiting Directly from AMARTA	207	207	100%
4. Individuals Receiving Short-term Agri-sector Productivity Training	179,706	190,546	106%
5. % Change in Value of International Export of Targeted Commodities	60	75	125%
6. % Change in Value of Purchases from Smallholder Farmers	92	75	82%

7. New Technologies or Mgt. Practices made Available for Transfer	212	238	112%
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AMARTA also fell short in fully delivering on target number 6; percent change in value of purchases from smallholder farmers of targeted commodities as a result of US government assistance. In the cocoa, coffee, horticulture, flowers and seaweed value chains the project actually met or exceed this target. The short fall in target 6 seems to be associated with low performance in the aquaculture value chain where the project achieved 52% of target. Aquaculture activities were suspended mid-way through the project. If aquaculture was kept active through Life of Project (LOP) then there is a good probability that AMARTA would have met or achieved this target.

Job creation was not listed in the target indicators as a measurable; therefore there is no information available on the project’s impact on creating employment.^{xi} Nevertheless, the evaluation team feels that the project made significant improvements in household cash income and this income flows back into communities, stimulating economic growth and job creation.

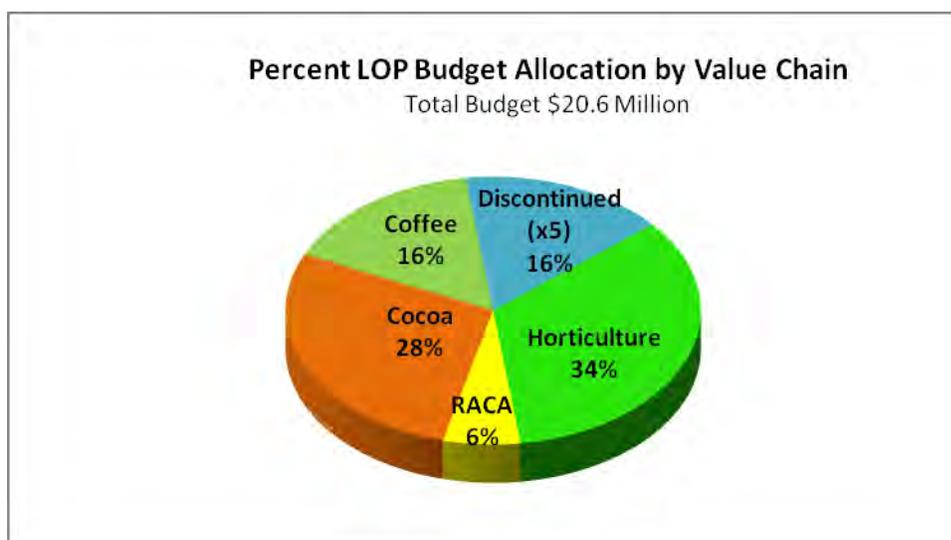
PROJECT MANAGEMENT

Resource Allocation, Effectiveness and Efficiency

Overall project management was generally sound on the part of both DAI/AMARTA and the USAID mission, although the timing of certain activities, such as project extension delays, appears to have somewhat dampened achievement of the project’s full potential. Resource allocation appears to have been carried out effectively for the most part, both in terms of resources allocated to specific crops/value chains and allocated to various geographic locations.

In terms of resources allocated to value chains, horticulture received the highest proportion of the budget over the life of project at 34%, followed by cocoa with 28% and coffee with 16%, reflecting the project’s focus on providing technical assistance to major value chains at the grass-roots level, as indicated in Figure 2 below.

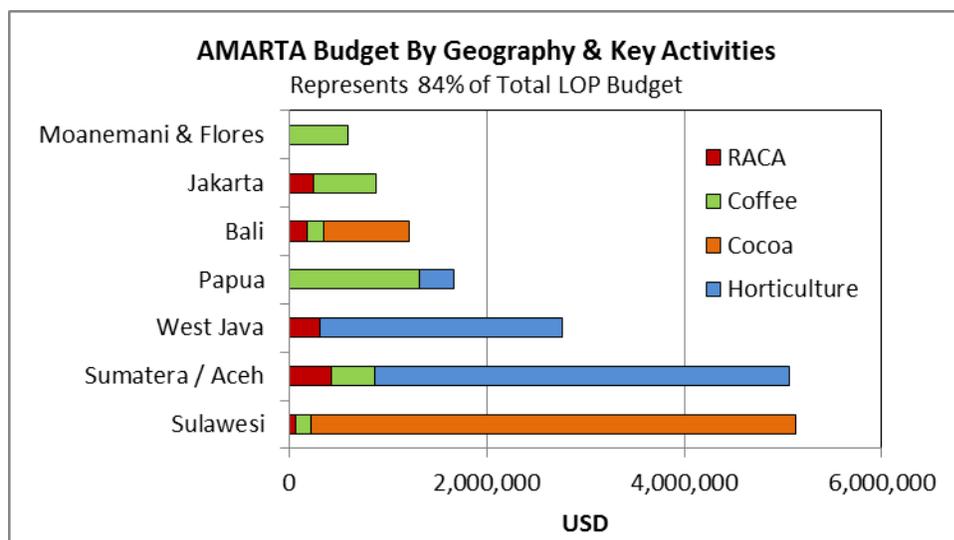
FIGURE 2: PERCENT LOP BUDGET ALLOCATION BY VALUE CHAIN



Source: DAI/AMARTA

About 16% of the total budget was allocated to activities in secondary value chains that were discontinued in September 2009 including rubber, bio-fuels, rice, and livestock and floriculture, which was later reinstated. The evaluation team believes that the decision by USAID to make budget cuts in funding secondary value chains was justified in order to avoid having project resources spread too thinly and was an effective mid-term adjustment in strategy.^{xii}

FIGURE 3: AMARTA BUDGET BY GEOGRAPHY AND KEY ACTIVITIES



Source: DAI/AMARTA

The breakdown of AMARTA budget allocations by geography and key activities shows the great majority of project funding going to Sulawesi, Sumatra and West Java, correlating to the main value chain locations, as indicated in Figure 3 (additional details available in Annex C).

The effectiveness and efficiency of resource allocations, however, was affected to some extent by the timing of some activities and developments, including delays in extending the project that coincided with staff transitions. Taken together, these tended to dampen achievement of the project's full potential.^{xiii}

The delay by USAID in providing a project extension from late September 2009 until early February 2010 resulted in a gap in project funding that led to a plateau in implementation for some activities. This continued for several months and is reflected in the leveling off of actual results achieved in key project indicators in late 2009/10. The program was initially scheduled to end on September 28, 2009; USAID extended it through two funded extensions—through April 30, 2011, for major activities in AMARTA, and through June 30, 2011, for PADA activities.

Throughout the program, USAID awarded 17 total contract modifications to AMARTA. Moreover, the project extension period coincided with a period of staff transition both at USAID and at AMARTA, which may have contributed to activity slowdowns to some extent. During this period, at USAID's Economic Growth office a temporary Contracting Officer's Technical Representative (COTR) took over supervision of AMARTA for several months, a Personal Service Contractor (PSC) agribusiness advisor arrived, and the former Economic Growth director was replaced. At DAI/AMARTA, a new Deputy Chief of Party arrived in February 2008 and the original Chief of Party was replaced in March 2010.

As a result of project extension delays and key staff transitions, project activities tended to slow down in late 2009 until about February/March 2010 when funding resumed and new managers arrived at both DAI/AMARTA and at USAID. AMARTA activities and results then picked up with most targets met by the end of project.

Delays in project extension and staff transitions both at USAID and DAI appeared to have hindered in particular activities such as grant supervision.^{xiv} Understaffing tended to limit the ability of USAID to make visits to some project field sites, such as in northern Sumatra near Banda Aceh including the PT Gaya Mountain Coffee grant recipient, where there were periods of several months in between visits.

Regarding the small grants program, uneven AMARTA grant management appeared to have contributed to the activity's mixed results. Grants were initially spread too thinly, to a relatively large number of value chains and crops in various locations, and most of the grants budget was dispensed relatively early in the project. The most effective grants were those for Papua coffee, Bali cocoa and N. Sumatra horticulture and citrus production. Less successful grants included those for Aceh coffee, complicated by local political issues and weak farmer group cooperation, as well as secondary products, e.g., rubber, seaweed, livestock and spices that were dropped from budget in late 2009. Grants appear to have been initially managed and monitored unevenly from the main AMARTA office. There was no full-time grants manager in place at AMARTA after late 2009 although grants continued to be disbursed to recipients in Papua.

Contractor Performance

Overall performance by the prime contractor, DAI, was generally sound. AMARTA surpassed its delivery targets on six of eight main indicators, and fell short only on targets tied to value chains that were dropped in 2009: delivering improved technology and management practices to beneficiaries in the livestock, fish and aquaculture sectors; and percent change in value of purchases from smallholder farmers of targeted commodities as a result of US Government assistance. Had work continued in these areas, the evaluation team believes that AMARTA would have met or surpassed all of its targets.

“Customer satisfaction” among assisted farmers was also quite positive, according to a team survey of 70 beneficiaries of training and TA received. The team surveyed beneficiaries across all core AMARTA value chains, plus some government stakeholders. The survey rated DAI/AMARTA on the following questions: How did AMARTA affect your competitiveness? Was information provided by AMARTA useful? Which post-harvest AMARTA training do you use regularly? Over 90% of respondents said that they benefited from the information and skills the project provided in production, post-harvest and market development.

Public outreach activities were considerable and included: monthly newsletters; success stories; significant press coverage; brochures, fact sheets, and DVDs; and the AMARTA website <http://www.amarta.net>.

DAI's subcontractors on AMARTA were Winrock International, Michigan State University, Wilbur Smith Associates, National Cooperative Business Association (NCBA), The QED Group, LLC, and Training Resources Group, Inc. all of which appear to have performed adequately. The timing of their TA input however, was heavily front-loaded early in the project. The USAID Mission reportedly has not conducted a Contractor Performance Review (CPR), as contractually required, for an extended period, despite repeated requests by prime contractor DAI.

Monitoring and Evaluation Plan

The performance monitoring plan (PMP) of the project, as approved by USAID, had a strong tendency to measure and focus reporting on only a few quantitative indicators required by USAID. This meant that results reported to the Mission and then to USAID headquarters did not necessarily reflect all of the project's achievements fully. For example, job creation was not listed in the target indicators as a measurable; therefore there is no information available on the project's impact on creating employment, nor on income. Nevertheless, the evaluation team feels that the project made significant improvements in household cash income and that this income has flowed back into communities, stimulating economic growth and job creation.

Additionally, several USAID performance indicators required by USAID did not correlate well to the Mission's Results Framework. This was the case particularly in horticulture, which tended to skew results reported towards counting of activities, e.g., events, training, participants. Consequently, attribution or success as reported for horticulture and the other VCs was not as robust as it could have been.^{xv}

Recommendations to Improve Future Project Structure and Management

Project management needs to be strengthened under AMARTA II particularly in regional offices, such as in North Sumatra, where technical skills are strong but management and planning skills need to be reinforced.

The management of small grants will need to be improved under AMARTA II by ensuring that grant amounts are sufficient to achieve goals, that targeting for results is more focused, and that there is closer monitoring and tighter management.

Performance monitoring under AMARTA II needs to be improved by simplifying indicators and including job creation, on- and off-farm, as well as income targets to reflect overall Mission assistance objectives, particularly the goals of helping to increase income and employment.^{xvi}

COCOA SECTOR ACTIVITY

Project Impact on Cocoa Sector

TABLE 2: SULAWESI COCOA PRODUCTION SNAPSHOT

Source: GOI BPS 2009

Cocoa Farmers in Sulawesi	800,000
Cocoa Area, HA	450,000
Annual Production, MT	215,000
Mean Farm Size, HA	0.56
Value, \$/MT - Apr 2011, NY	3,100
Aggregate CIF Value, NY (\$)	666,500,000
Value of Export Tax @ 10%	66,650,000

AMARTA's main geography of focus in their cocoa activity was in Sulawesi. In total, AMARTA reported that it trained 129,000 farmers in improved cocoa cultural practices. Of this total, AMARTA counted 46,000 who were trained by trainers attending AMARTA cocoa workshops. As can be noted in Table II, in Sulawesi there are approximately 800,000 cocoa farmers on 450,000 HA producing 215,000 MT of cocoa beans.

The U.S. Government has supported projects in the Indonesian cocoa sector for eight of the past

ten years. In 2001 and 2002, the USDA FAS supported technical assistance to the cocoa sector through its monetization program. This evolved into the SUCCESS cocoa activity funded under USAID in 2003 – 2005. USAID again became involved in the cocoa sector with the initiation of the AMARTA project in September 2006. All of these projects focused on providing technical assistance to cocoa farmers through training of farmer groups and working with key institutions involved in cocoa research and extension.

Building on the history of USAID involvement in Indonesia's cocoa sector, AMARTA was able to make a significant positive contribution to on-farm incomes by increasing yields. Another change that occurred in the cocoa sector that may be attributable (at least in part) to AMARTA's involvement was an increase in percent of New York ICE price received by cocoa farmers.

AMARTA's Effect on Yield: Through interviews with farmers and exporters, the evaluation team estimates that cocoa yields on farms that were actively involved in the AMARTA project increased from approximately 600kg/year¹ to 995 kg/year. This is an increase of 395 kg/year. At the current New York ICE price of around \$3,100/MT and the assumption that farmers receive 80% of New York price (\$2,480 /MT), this would provide the beneficiaries with an additional \$979.60 annually in marginal gross sales revenue.

Maximum yields reported by AMARTA farmers reached 1.6 MT/HA. These are considered exceptionally good yields and are achieved by farmers who employ the best cultural practices (as per AMARTA training) including optimized plant populations, use of updated genetic material, control of pests and pathogens through well-timed pesticide applications, good soil fertility management and pruning. To achieve a yield of 1.6 MT/HA, farmers also need to be farming on soils that do not have nutrient deficiency problems, drainage problems or other negative environmental factors that would depress yields.

Exporters interviewed in the course of the evaluation estimated that top yields of 2 MT/HA are possible. In future projects such as AMARTA II, contractors may want to set yield targets as one of the objective measurable indicators², ^{xvii}. If this is done, methodology should be developed that includes randomly selecting beneficiary farms to be sampled for the target yield measurement and a multi-year tracking from selected farms. Target indicators should use averages of multiple farms rather than using data from a small number of farms or demonstration plots. This will take considerable effort by future project management, but it would provide a strong measurable on which to evaluate future cocoa technical assistance against.

Cocoa bean size is an important bean attribute. Bean size can be influenced by plant nutrition, plant genetics, pruning practices, as well as a wide variety of environmental factors such as water availability, soil chemistry (including pH, fertility and toxicity issues), pests and pathogens, shading, etc. AMARTA worked with farmers, training them to employ cultural practices that maximize bean size. As a result of the project's efforts, exporters reported that AMARTA farmers' bean size increased from 130 beans/100 grams before the project to 123 beans/100 grams after the project. This is a significant improvement.

¹ The Government of Indonesia statistical service (BPS) estimated that the mean yield for cocoa farmers in 2009 was 480 kg/HA. During interviews with AMARTA farmers and exporters, the beneficiaries estimated that their yields averaged about 600 kg/HA, significantly better than the national average. The improved yields among AMARTA farmers relative to the 2009 national average may be attributed to ongoing TA programs provided to the farmers by USAID, as well as other factors such as the climate and soils in which the AMARTA farmers produce their crops. AMARTA tended to work in the major cocoa areas where climate and soils are favorable relative to more marginal cocoa producing areas.

² Exporters suggested setting future target yields for AMARTA II farmers at 1450 kg/HA by EOP. This would be an aggressive target to hit, but would be a reasonable challenge over a five year project period.

Bean size is so important that Olam (one of the largest exporters of cocoa beans from Indonesia) included a bean size in their purchase price calculation. Olam paid farmers a premium of 100 Rp/kg for beans that were sized at 110/100 grams or larger. For beans that sized at 115/100 grams, farmers would receive a discount on price. This incentive encourages farmers to adopt cultural practices that maximize bean size and farmgate revenues.

Technical Assistance in Building Cocoa Sector Capacity

The AMARTA project's cocoa activity was focused on Sulawesi and Bali, where 83,000 farmers were reported trained (directly through the project) in improved cultural practices. The training included stumping and grafting of existing cocoa trees to improve yields. The project also developed nurseries and trained farmers in a variety of other grafting techniques. Another important areas of training included improving drainage in heavier lowland soils, pest and pathogen control/ management, agricultural chemical safety, shade trees (canopy management), pruning, tree height management, soil fertility and crop nutrition, as well as harvest techniques.

Additionally, the project worked with a smaller number of cocoa farmers in Bali, again training them in techniques to improve yields and in post-harvest handling. Cocoa fermentation was included in training in both Sulawesi and Bali, but tends to be practiced more in Bali than in Sulawesi. At the current margins paid for fermented cocoa beans (about a 10% premium), many farmers in Sulawesi do not view this as a large enough incentive, given the additional labor required in the fermentation process. Bali farmers tend to ferment their beans more and thus enjoy a premium.

The project worked with partners such as the Syngenta Foundation to train farmers in cocoa pod borer (a serious pest) control using a combination of technologies, including industrial pesticides, pheromone traps, and crop sanitation practices that help break the life cycle of the offending cocoa pod borer (CPB). These were all well-chosen topics and training in these areas should be included in future cocoa activities. That said training methods and topics need to be modified so that farmers can realize the maximum benefit from these technologies.

For example, AMARTA provided CPB pheromone traps to farmers. Farmers believed that these traps were useful in affecting CPB populations to the extent that they would have a positive impact on quality improvements as a result of lower CPB infestation rates. In fact, the traps' primary benefit is to allow farmers to understand (predict) the life cycle of the CPB. The traps should be monitored on a daily basis during the growing season and when farmers see a higher incidence of CPB showing up in their traps, they will know that the insect hatch has begun and it is now time to apply a pesticide to control the CPB population. During interviews, it was not apparent that any farmers were trained in trap monitoring as a tool for determining pest population life cycles and pesticide timing. This is a more sophisticated IPM tool that needs to be included in future training activities.

Another area where AMARTA had a positive impact was in the introduction of new plant materials (genetics) that provided protection against key pathogens such as vascular streak disease (VSD). One farmer interviewed reported that several years after grafting on new genetic material, he saw a 70% reduction in the incidence of VSD in his cocoa garden. This is a very significant improvement and work should continue to identify clones and introduce VSD-tolerant plant materials to cocoa farmers throughout Indonesia under future USAID projects.

Generally, farmers were very pleased with the training AMARTA provided. The subjects were well chosen and relevant to the farmers' needs and interests. The amount of training provided was also very significant. The interviewers actually heard comments from beneficiaries that they received more than enough training in some technical areas. This may not just be the legacy of AMARTA, but is the result of eight years of TA programs targeting the cocoa sector in Sulawesi. The same farmers who said they had

enough training in certain TA areas also mentioned that they wanted more training in subjects such as agribusiness and farm management. This type of training may include simple record-keeping, calculating costs and revenues, and comparing the costs and returns of planting (for example) cocoa to other crop options.

Another area that was left out of the AMARTA program that should be included in future activities is training on price discovery. At the current time, cocoa prices are at record highs and farmers are very happy with their returns. As the market comes off of its current position, farmers will be perplexed as to why prices being offered by exporters have changed and invariably, some will feel they are being taken advantage of³. Farmers need to understand the price discovery system and differentials that are used to calculate farmgate price.

The Importance of Infrastructure Support to Cocoa Growers and Processors

The cocoa activity under AMARTA did not provide a significant amount of infrastructure development. Farmer groups in Sulawesi were provided with the materials to construct a small cocoa solar dryer for demonstration purposes. This technology was well received and was being used by farmers; however, the evaluation team did not see any new solar dryers being built by beneficiaries at their own cost.^{xviii}

USAID cocoa projects in West Africa (Liberia) have also trained farmers in using solar dryers. The Liberian models are larger walk-in units with a footprint of approximately 4 meters x 7 meters. The solar drying technology has been adopted by some farmers in Liberia and they have begun constructing their own units, sometimes with the help of USAID grants to cover (for example) the cost of the plastic sheet. The solar dryers in Indonesia (provided through the AMARTA project) were much smaller, approximately 1.5 meters x 5 meters. Regardless of their size, the smaller units worked efficiently. USAID will need to wait a year to see if this technology is more widely adopted by cocoa farmers. As an incentive, AMARTA II may consider providing grants to cover the cost of plastic sheets and require farmers to cover the cost of the wooden frame and construction of the units.

Both the Government of Indonesia (Extension Service) and AMARTA have trained farmers in cocoa fermentation techniques. Site visits included villages that were provided fermentation boxes through the Ministry of Agriculture programs. Many farmers considered the additional work associated with fermentation to be a poor investment, given the premiums paid for fermented beans. Fermenting cocoa beans would provide a significant quality improvement; however, to significantly affect the amount of beans being fermented, the market will need to adjust its premium upwards so that farmers are paid a higher price in return for the additional labor they invest, as well as to help cover the cost of the fermentation boxes required for the process.

Project Impact on Cocoa Producer – Buyer Linkages

Indonesia is a major player in the global cocoa market, but it has a very specific market profile. Most of the West African cocoa is fermented, has higher cocoa butter content, and therefore can be sold into higher value markets. Essentially, all of the cocoa beans sold into the EU for chocolate manufacturing are West African. Indonesian cocoa's primary market is in the US, where markets do not demand the same

³ On 17 May 2011, Cargill announced that it resumed exporting cocoa bean from the Ivory Coast. The Ivory Coast supplies about 40% of the world's cocoa (Indonesia produces about 13% of the world's cocoa bean supply). As a result of political infighting among presidential candidates, the Ivory Coast stopped exporting cocoa in January 2011. With a resumption of Ivory Coast exports, global cocoa prices are expected to fall from their recent high levels.

level of quality as in the EU. In many cases, US chocolate manufacturers will blend Indonesian non-fermented cocoa with West African fermented cocoa to reach the desired quality.

As a result of the market structure described above, the vast majority of Indonesian cocoa is sold to US processors and thus the price is tied either directly or indirectly to the New York ICE price. The West African cocoa price is primarily linked to the London Liffe price. Given its long history and close ties to West Africa (the world’s largest cocoa producing region), Liffe is considered the leading global cocoa exchange.

AMARTA has forged very strong relations with key players in the global cocoa market. The evaluation team met with cocoa exporters and export finance organizations including Cargill, Olam, Armajaro and BNP Paribas Corporate and Investment Banking Commodity Finance Management. All of these organizations praised the efforts and results of AMARTA I in improving farmgate quality, increasing yield, decreasing transaction costs, and creating a more efficient cocoa supply chain. All of the exporters expressed a strong interest to continue working with AMARTA II. This willingness/interest in continuing a relationship with the USAID project is the best testament to the success of AMARTA.

FIGURE 4: ICCO 5 YEAR COCOA PRICE HISTORY



Source: ICCO, cocoa price history

Part of the driving force that encouraged exporters to work in partnership with AMARTA was the strong upward price trend for cocoa in the global market (see Figure 4). Over the course of AMARTA’s five year life cycle, cocoa price has doubled. With the doubling of price, profits within the exporting firms increased significantly, and this caused them to become much more willing/ interested in working with groups such as AMARTA that would help them improve their supply chain through higher quality, larger volumes, and lower transaction costs.

It is estimated that AMARTA delivered an additional 7.500 MT + of cocoa beans⁴ to exporters as a result of increased yields produced through project training programs. This volume has a value of 23.2 million dollars in the New York market.

⁴ The 7,500 MT aggregate marginal increase in bean production assumes 19,000 HA of cocoa production adopting new management practices that result in an average increased yield of .395 MT/HA. At a market price of \$3,100 /MT, this product has an aggregate value of 23.26 million dollars (New York).

Assuming the average cocoa farm size of about 0.5 HA, and 38,000 farmers achieving a marginal yield increase of .395 kg/HA, and a farmgate price of \$2,480/HA (assuming that farmgate is 80% of New York price), then the marginal aggregate increase in farmgate value would be about 18.61 million dollars or about \$490/household/year.

Olam, along with Mars, Nestle, MasterFoods, Continaf, UNICOM and Cargill, all took part in the SUCCESS project (the predecessor to the AMARTA cocoa activity), which ran from 2002 through 2005. Building on the earlier work of SUCCESS, AMARTA was able to expand the role of many of these companies, working in partnership to train farmers and provide improved market access to producers. For example, under AMARTA, Olam worked in partnership with the project to train 820 farmer groups (over 20,000 farmers). Olam also set up 20 rural buying centers. These warehouses were utilized by farmers selling directly to the exporter, as well as by many local traders. One warehouse visited by the evaluation team was associated with approximately 270 local traders who picked up product in villages and sold it to the buying center.

Olam worked with farmers as well as with local traders to improve product quality. The manager of the Olam, Palopo warehouse said that after instituting payment incentives for reduced foreign matter levels, the exporter realized a drop in cocoa foreign matter from 7% to 4%. This was done in concert with AMARTA training that helped educate farmers on how to clean cocoa and why it was in their economic best interest to deliver clean cocoa (exporters buy cocoa on a bone dry clean basis. This means that they do not pay farmers for water content or foreign matter. There is no advantage to delivering cocoa that is not clean and dry. It only makes more work for the farmers as they have to haul more product/weight if it is wet or dirty).

One other important area that Olam instituted (which should be considered for a roll out across the industry) is the introduction of a SMS messaging delivery service for cocoa price information. This service is provided free of charge and allows farmers to access the daily New York closing price and the farmgate price offered by Olam (New York less Olam's differential). This type of price information system should be made available from other organizations. It encourages competition and transparency. USAID can support the commercial development of this type of price information system by providing training to farmers on price discovery. This training would include information on how the New York market operates, why prices constantly fluctuate, competitive factors in the market, New York farmgate price differentials, as well as other factors.

Certification and Traceability: One of the challenges that Indonesia faces in extracting added value from its Rainforest Alliance, UTZ⁵ Certified, Fair Trade and/or organic cocoa is that product identity needs to be maintained throughout the supply chain. The product needs to remain traceable as it moves from the farm to the consumer. Today, all European processors demand sustainable cocoa (UTZ, Rainforest or Fair Trade). As this type of requirement becomes more widely demanded within the global market, Indonesia will need to modify its supply chain to accommodate traceability. AMARTA worked with processors and farmer groups to encourage them to deliver traceable product. As cocoa entered the warehouse, it was stored in lots denoted by individual farmer groups. This way, there is traceability back to the village. Future cocoa activities need to continue focusing on traceability issues.

⁵ Cargill owns and operates cocoa processing plants in Europe. They sell to Nestle, Mars, Hershey and other global companies. Cargill is interested in purchasing UTZ or other certified sustainable cocoa beans. In an effort to help encourage more farmers to move to more sustainable farming practices, Cargill told the evaluation team that they would be willing to fund sustainable cocoa demonstration plots in concert with AMARTA II farmer groups.

The Role of Cocoa Partnerships and Alliances

In addition to commercial partnerships, AMARTA worked with a number of foundations including CropLife International and the Syngenta Foundation. The project also worked with 1,126 cocoa farmer groups and helped form Regional Agricultural Competitive Alliances (RACAs) throughout the project area. AMARTA's work in creating and mentoring RACAs are covered in detail in Section 6.0 of this document.

CropLife International is a non-profit organization funded by the major global players in the agricultural chemical business. Members include Syngenta, Monsanto, Dow AgroScience, BASF, Bayer AgroScience, DuPont, Sumitomo and FMC. The primary areas that the organization is involved in include biotechnology, crop protection, sustainability, intellectual property, counterfeiting, international trade and communications. Their interest in AMARTA is primarily driven by their focus on sustainability.

The cocoa industry uses significant amounts of organophosphate pesticides such as Matador (manufactured by Syngenta) and Lorsban (manufactured by Dow AgroScience). These are Class I pesticides and are highly regulated in most markets around the world. They are highly toxic to aquatic systems and the companies selling these products understand the need to train farmers in their safe application. Most farmers in Indonesia do not have exposure to pesticide safety training. Partnering with foundations like CropLife and Syngenta helped effectively leverage project resources by bringing in expertise in pesticide applications and safety.

Cocoa Yield Forecast for Project Beneficiaries

One of AMARTA's focus areas was to provide improved plant material for grafting. The new genetic material was usually acquired by identifying a strong producing local plant and taking grafting material from it. Much of this work began in earnest two years before the end of the project. At this time, it is too early to say for certain what the results of the grafting will be. Early indications show that the new genetic material is developing well. Orchards that had been cut back to stumps are re-growing with the new scion material and yields are expected to improve over historical norms.

It is difficult if not impossible to predict what markets and the weather will do; however, Table III examines three different scenarios of changing yields and market conditions looking ahead five years from today (to 2016). As can be noted, the best case scenario shows a farmgate price of \$2,500/MT and a 35% yield increase from a base yield of 1 MT/HA. Under this scenario, the farmer would realize a yield of 1.35 MT and a farmgate gross income of \$3,375. Under the base case scenario, yield increases at 25% in five years to an average of 1.25 MT/HA, generating \$2,500 in sales assuming that farmgate price is \$2,000/MT. The worst case scenario shows farmgate price at \$1,500/MT, a yield increase of just 15%, resulting in a sellable harvest of 1.15 MT, generating \$1,725 of gross income.

TABLE 3: PROJECTED COCOA YIELDS AND FARMER INCOME 5 YEARS AFTER AMARTA

Table III: Projected Cocoa Yield and Farmer Income Five Years After AMARTA					
Scenario	Farmgate Price @ 80% of ICCO Price \$/MT ⁶	Base Yield MT/HA	Yield Δ Resulting From New Practices	YR 5 and > Yield Potential kg/HA	YR 5 and > Gross Income Potential \$/HA
Best Case	2,500	1.00	35%	1.35	3,375
Base Case	2,000	1.00	25%	1.25	2,500
Worst Case	1,500	1.00	15%	1.15	1,725

Measuring Competitiveness by Tracking the Percent of New York Price Received at the Farmgate

Commodity markets for cocoa and coffee are global. They are valued in the billions of dollars and are affected by events throughout the world. Expecting a project such as AMARTA to affect market price is not realistic; however, by tracking the percent of the market price that farmers receive at the farmgate is one way of gauging how efficiently the supply chain is working and how much revenue farmers receive for their efforts relative to other players in the market. Future projects should consider using this as a measurable indicator.

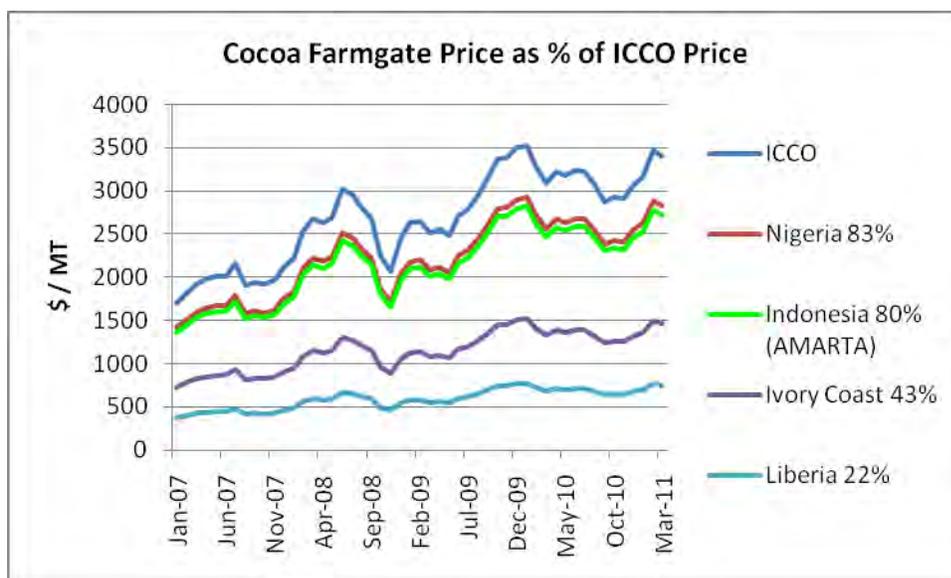
The Effectiveness in Fostering Cocoa Development and Competitiveness

Interviews with farmers and exporters indicate that AMARTA fostered greater competitiveness. For example, one farmer interviewed in Sulawesi (9 April 2011) explained to the evaluation team that if farmers sold beans to a local trader, they would receive 17,000 Rp/kg. If they sold directly to an exporter such as Olam, they would receive 19,000 Rp/kg, about a 10% + premium. In Bali, farmers reported slightly higher prices offered at the farmgate. Local traders were purchasing fermented beans for 25,000 Rp/kg and non-fermented beans for 22,000 Rp/kg (Bali, 6 May 2011).

Another way to look at competitiveness at the farmgate is to examine what percent of the ICCO price the farmer receives. This relationship is illustrated in Figure 5.

⁶ The ICCO daily price for cocoa beans is the average of the quotations of the nearest three active futures trading months on NYSE Liffe Futures and Options and ICE Futures US at the time of London close. London prices are converted into \$/ MT by using the current six-month forward rate of exchange in London at closing. The time for shift to the next three-month period is the fifteenth of the month preceding the nearest active maturing month. It is estimated that the farmgate price in Indonesia is 80% of the ICCO daily cocoa price.

FIGURE 5: COCOA FARMGATE PRICE AS % OF ICCO PRICE



Source: ICCO, Michael Wilcox/ USDA, Liberia LIFE Phase 1 Assessment/ USDA

In 2007, Michael Wilcox, Assistant Professor at the University of Tennessee, prepared a Liberia cocoa market and information systems report for the USDA. In that report, Wilcox calculated the West Africa farmgate price farmers received as a percent of the ICCO price. Using the Wilcox data as a base, a comparison of farmgate prices received by cocoa producers in selected countries can be compared. Based on the Wilcox model, Indonesia cocoa farmers are getting a higher farmgate price even though the quality of Indonesia cocoa is generally below that of West African cocoa. The higher price offered to Indonesian farmers may be (at least in part) attributed to the highly competitive supply chain environment in Indonesia.

As can be noted in Figure 5, a farmer in Liberia can expect to receive only 22% of the ICCO price, whereas an Indonesian farmer (working with AMARTA) could expect to receive 80% of the ICCO price. To illustrate the importance of competitiveness in Liberia, one company controls about 85% of all cocoa exports. This monopsony has led to a non-competitive environment where farmers are held hostage to a system that does not allow strong price competition to occur at the farmgate. The only country that offers a higher farmgate price (noted in Figure 5) is Nigeria at 83%.

The cocoa export tax has reduced farmer income. AMARTA and its RACAs missed an opportunity to advocate against this tax, which was first announced by the government in March, 2010. The tax is based on a sliding scale and ranges from 5% to 15% of export value, depending on the New York ICE price. The Indonesian Cocoa Association estimates that this tax will reduce farmer incomes by 1.5 trillion Rp/ year (165 million dollars/ year).

Simplified Cost Benefit and Return on Investment for the Cocoa Subsector

Tables 4 and 5, below, illustrate the simplified cost benefit ratio and return on investment (ROI) for the project's cocoa sector activity. As can be noted, the cocoa sector activity provided an estimated 239% ROI and a cost benefit ratio of 3.57:1.

TABLE 4: SIMPLIFIED ROI ON MARGINAL INCREASE IN NET FARMGATE INCOME

Simplified ROI on Marginal Increase in Net Farmgate Income ⁷	Unit
Marginal Increase in Yield, MT/HA	0.395
<u>Farmgate Selling Price \$/MT</u>	<u>2,714</u>
Marginal Gross Farmgate Income, \$/HA	1072
<u>Marginal Production Cost Increase (includes labor), \$/HA</u>	<u>355</u>
Marginal Net Income (after production, post-harvest and transport), \$/ HA	718
<u>Area Under Improved Practices, HA</u>	<u>19,199</u>
Marginal Net increase in Aggregate Farmgate Income, \$	13,778,892
AMARTA Cocoa Activity Budget, \$	5,768,000
ROI based on Marginal Increase in Net Income	239%

TABLE 5: SIMPLIFIED COST/BENEFIT OF COCOA ACTIVITY

Simplified Cost/ Benefit of Cocoa Activity	Unit
After AMARTA - Yield MT/HA	0.995
<u>Before AMARTA - Yield MT/HA</u>	<u>0.600</u>
Marginal Change MT/HA	0.395
ICCO Mean Cocoa Price March 2011, \$/MT	3,393
<u>Farmgate Price % of ICCO Price (coefficient)</u>	<u>0.80</u>
Farmgate Price , Sulawesi \$/MT	2,714
Farmgate Income Marginal Increase, \$/HA	1,072
Cocoa Area Under AMARTA, HA	38,398
<u>Adoption Coefficient (conservative rate)</u>	<u>0.50</u>
Area Using Improved Technology and Mgt, HA	19,199
Aggregate Increase in FG Income, \$	20,584,937
AMARTA Cocoa Activity Budget, \$	5,768,000
Cost Benefit Ratio	3.57

COFFEE SECTOR ACTIVITY^{xix}

Project Impact on Coffee Sector

Over the life of the AMARTA project, USAID expended approximately 3.29 million dollars on coffee sector training activities and grants. This represented 16% of the project's total budget. The coffee activity took place in eight of the twelve geographies covered under AMARTA, including Jakarta, where the project supported the Specialty Coffee Association of Indonesia (SCAI). In total, by EOP, AMARTA reported that it trained over 19,000 coffee farmers producing coffee on 11,000 hectares of land.^{xx}

⁷ The AMARTA project did not collect information on baseline production costs or change in gross or net income for beneficiaries at the farmgate or beyond the farm (further up the value chain). Given the lack of beneficiary cost and income data over time, the evaluation team has opted to measure the project's benefits by estimating the change in marginal aggregate gross income at the farmgate using the estimated mean marginal change in beneficiary yield times March 2011 market prices divided by AMARTA's total investment for selected value chains. The yield data used in the simplified cost benefit analysis and ROI calculation was obtained from beneficiary interviews.

The final evaluation focused on the primary coffee activities that were retained within AMARTA's portfolio through the end of the project. These include the Baliem Arabica Cooperative located in Wamena, Papua which had a funding level of 1.31 million dollars and the North Sumatra coffee activity (in multiple districts), which had a funding level of \$329,600.

Over the life of AMARTA, the project provided ten grants to non-profit and for-profit organizations involved in the coffee sector. This included \$151,577 through five separate grants to the Baliem Arabica Cooperative, Wamena. Two grants totaling \$135,403 were provided to private coffee businesses in Aceh and Flores. SCAI received three grants totaling \$68,802 for activities including advanced cupping training, coffee production area maps (appellations), and an international coffee exhibition/marketing. The balance of the expenditures within the coffee sector was primarily spent on training activities.

The bulk of AMARTA's training activities focused on production and post-harvest processing, including nursery/seedling production, shade tree production, pruning, pest management (focused mainly on coffee pod borer), harvesting and post-harvest processing/pulping and washing.^{xxi}

In the late 1980's and early 1990's, the Government of Papua promoted coffee in the Wamena area. The government used the slogan "The Big Pig" to emphasize the wealth that coffee could bring to local households. Hundreds of hectares of coffee were planted by rural farmers. By the mid-1990's, coffee production was starting to flow; however, the government made no provisions for marketing the crop. Tensions between local coffee farmers and the government grew to the point that in the mid-1990's, rural farmers went to the city of Wamena and burned down a government building in protest. By the late 1990's, many farmers had either cut down their coffee trees, or allowed them to go wild. Coffee remained an abandoned commodity in Wamena until the AMARTA project arrived in 2007.

The project began working with Wamena coffee farmers in 2007. The process began with the development of the Baliem Arabica Cooperative. Given the history of coffee in Wamena, developing trust with the local coffee farmers was a major issue. Trust remains a major issue even today. The Baliem Arabica Cooperative's executive management, to their credit, recognizes the fact that at this point in the organization's development, building trust is a precursor to building a sustainable enterprise.

After helping to establish the Baliem Arabica Cooperative, USAID continued its assistance with ongoing training programs and grants that provided coffee pulpers in rural villages, radios that linked rural villages with the cooperative headquarters, a coffee parchment processing facility in Wamena, and training for cooperative management in market development.

Today, the cooperative has 689 members farming approximately 542 hectares of coffee. Five hundred and eighty three members have been certified as organic producers. The cooperative sells its coffee internationally under the Baliem Blue Coffee label. In 2011, they expect to sell 38 MT of green coffee beans to the Paragon Coffee Company of New York at a contractually-agreed price of \$5.25/kg, FOB port Makassar. The total contract value for the Paragon Coffee Company sale is estimated at (+/-) \$200,000. Additionally, the cooperative sells coffee to the PT Freeport Company, which uses it locally as part of their catering services to their employees.^{xxii}

In North Sumatra, AMARTA began work in the coffee sector in March 2010^{xxiii}. By the time the evaluation team met with beneficiaries in the field, the project had only completed one year of work in this geography. The types of training that AMARTA provided in North Sumatra were similar to training provided in Papua. These included nursery development (two nurseries will produce 50,000 seedlings in 2011), shade tree production, pruning, pest management (focused on coffee pod borer control), harvesting, and post-harvest handling. Beneficiaries in North Sumatra were generally pleased with the types of training being provided and the results that they saw to date; however, it should be noted that since the project had only operated there one year, there was no tangible results yet in terms of increased

yields. That said, the evaluation team is confident that the types of training provided by AMARTA in North Sumatra will result in increased yields over the next three years.^{xxiv}

Market development in North Sumatra was handled quite differently than in Wamena. In the Wamena case, the project helped bring together the buyer and seller (the cooperative and Paragon Coffee). In North Sumatra, project staff reported that they provided lists of farmer groups to buyers/exporters in Medan, but left it up to those companies to contact the farmer groups themselves. This passive approach does not seem to be generating a lot of positive results.

The evaluation team was not able to document any cases where coffee export buyers were moving up the supply chain to buy directly from farmers. This is probably a missed opportunity, as normally exporters would be happy to buy directly from producer groups (thereby reducing transaction costs) so long as volumes are large enough to make the transaction worthwhile.^{xxv}

Constraints that could be affecting the willingness of buyers/exporters to purchase directly from farmer groups include a desire not to disrupt their current supply chains by cutting out some of their local trader/suppliers. A second issue is the fact that the farmers produce parchment. This parchment needs to be milled. There are about 500 small companies in Medan that specialize in buying parchment from local traders, milling it and reselling it to exporters. For farmer groups to sell directly to exporters, they will need to start milling their parchment. This is already being done in Wamena, and certainly the opportunity exists to add value by parchment milling in North Sumatra.

Technical Assistance in Building Coffee Sector Capacity

As mentioned in the above section, coffee training has focused on a variety of on-farm production and post-harvest activities. These included seedling production, fertilization, pruning, pest control, harvesting, pulping and washing. In the area of pest management, the project has provided cocoa pod borer pheromone traps to farmers in Wamena. Some of the same issues around the use of pheromone traps in cocoa also apply to coffee. Specifically, farmers view the pheromone traps as a mechanism to control pest populations. This is a misconception. The traps are a tool that allows farmers to monitor pest populations as they move through their life cycles. Ideally, farmers should be trained in IPM methods so they can check traps on a daily basis and identify when pest insect hatches occur. With this knowledge, they will know how to optimize their pesticide application timing. It does not appear that this type of IPM training occurred under AMARTA. That said, it needs to be included in future activities.

Pheromones have been identified for both cocoa pod borer and coffee pod borer. This technology can be brought to the next level by manufacturing pheromone applicators that automatically dispense a small amount of pheromone into the orchard at a selected time using a digital clock and battery-operated spray actuator. This technology is in use in orchards around the world for pests such as codling moth, and can most likely be adapted for use in control of coffee and cocoa pod borer. The technology is non-toxic (allowed under organic certification rules) and is cost-effective relative to chemical pesticide control methods for pests such as codling moth.

AMARTA did not deliver agribusiness training to coffee growers. General training on bookkeeping, cost and return calculations, as well as price discovery were not part of AMARTA's training program. Farmers have asked for this type of training in the future.^{xxvi}

Impact of Infrastructure Support to Coffee Growers and Processors

The AMARTA project did not invest heavily in infrastructure support to coffee farmers. In Wamena, the project assisted in the purchase of a parchment milling machine and hand-operated coffee pulpers for villages along with plastic buckets for washing coffee.

Project Impact on Coffee Producers – Buyer Linkages

In Wamena, AMARTA played a critical role in linking the producer cooperative with the buyer. The project also funded a marketing trip to the Specialty Coffee Association of America's annual convention in Anaheim, California, for the chairman of the cooperative. This trip was useful in that it provided first-hand knowledge to cooperative management on how the international coffee market operates. It also introduced Wamena coffee to a broad section of the US market.

At the current time, and for the foreseeable future, finding a premium market for Wamena coffee, as well as North Sumatra coffee will not be a problem. These geographies produce high-quality specialty coffee. There are markets available for these producers to tap into. The constraints to reaching these markets involve several factors including 1) developing production volumes that generate interest among international importers, 2) creating a quality product and delivering that quality consistently to the export buyer.

The Wamena Cooperative has begun to develop its coffee's potential. The cooperative has organized its farmers to deliver a superior product (although there are improvements that can be made in quality in Wamena), and Wamena is adding value to its coffee by milling parchment and sorting and bagging its green beans before export.^{xxvii}

In North Sumatra, the project has not matched the value-addition efforts it has realized in Wamena. This is understandable in that AMARTA has operated in Wamena for four years, and operated in North Sumatra for only one year. To fully exploit market opportunities for North Sumatra coffee, farmers (in concert with donors) need to create a system whereby coffee is pulped, fully washed and fermented at the village level and milled at a central facility. The milled coffee then needs to be sorted and bagged prior to export.

The Role of Coffee Partnerships and Alliances

The Baliem Coffee Cooperative in Wamena is a success story in its early stages. The collaboration between AMARTA and the cooperative has created an organization that has the potential to become a successful stand-alone business providing benefits to cooperative members and the community in which it operates. The time horizon required to make the cooperative a stand-alone business extends beyond the next five years; a good model in the region to look at when developing the Baliem Cooperative is the Timor L'este National Cooperative Business Association (NCBA) coffee project.

The NCBA coffee project began working with farmers in the mid-1990's. It has survived two civil conflicts (including having its facilities burned down twice), but fifteen years after inception, it has evolved into the largest organic coffee supplier in the world to Starbucks. The organization now exports over 2,000 MT of organic coffee, making it the largest exporter in Timor L'este. The profiles of farmers who make up the 20,000 or so members within the Timor L'este cooperative are very similar to the membership that makes up the Wamena Cooperative.

There are lessons to be learned for Wamena's future development by studying what partnerships and alliances worked in the Timor L'este case. Critical to the success of the NCBA coffee cooperative was the willingness (patience) of USAID to fund the development of the cooperative for multiple project life

cycles.^{xxviii} These cooperatives are starting from very basic/humble beginnings and considerable time is needed to establish trust and loyalty with membership and train local management. With these tasks accomplished, the coffee quality from Wamena (like Timor L'este) will be well received in the international market.

Partnerships with the Government of Indonesia Extension Service within the coffee sector have been variable – to the extreme. In the case of Wamena, farmers interviewed said they had not seen an extension agent in the past several years. In fact, one cooperative member in Wamena said that the extension service started rumors that the cooperative did not pay its farmers a fair price for coffee. This indicates that there may be some discord between the cooperative and extension service in Wamena.

On the other extreme, farmers interviewed in Pakpak Bharat, North Sumatra, said that extension agents visited their coffee farms and the AMARTA nursery three to four times per week. Additionally, AMARTA and Pakpak Bharat extension service staff provided joint training workshops for coffee and citrus in approximately 25 villages.

In Pakpak Bharat, the district's elected officials (bopati), along with his staff, have been very supportive of the AMARTA project and encouraged USAID to continue working in the district to facilitate coffee sector development. The evaluation team was extremely impressed with the strong relationship between local government and AMARTA in Pakpak Bharat. This relationship was noted by the team as probably the strongest partnership between local government and a project that the evaluation team staff had witnessed in their combined sixty plus years of work evaluating and managing USAID projects.

Coffee Yield Forecast for Project Beneficiaries

Predicting future yields and revenue streams is difficult, as they are dependent on a number of variables including weather conditions, international markets, global production volumes and quality, as well as many other factors. Nevertheless, Table 6 below provides a snapshot of what coffee parchment yields may look like five years after the AMARTA project ends in 2016.

TABLE 6: PROJECTED COFFEE YIELD AND FARMGATE GROSS INCOME 5 YEARS AFTER AMARTA

Table VI: Projected Coffee Yield and Farmgate Gross Income Five Years After AMARTA					
Scenario	\$ / kg for Parchment at the Farmgate	Parchment Base Yield MT/HA (current mean)	Yield Δ Resulting From New Practices	YR 5 and > Yield Potential kg/HA	YR 5 and > Gross Income Potential \$/HA
Best Case	3.00	1350	30%	1755	5265
Base Case	2.25	1350	20%	1620	3645
Worst Case	1.50	1350	No Change	1350	2025

In the best case scenario, farmers are able to sell parchment at the farmgate for \$3.00/kg. As a result of AMARTA training, the best case scenario assumes that yields will increase by 30% to 1,755 kg/HA. This will generate \$5,265/HA of gross income at the farmgate. The base case scenario (which applies the March 2011 parchment farmgate selling price in North Sumatra) assumes a farmgate selling price of \$2.²⁵/kg for parchment and a 20% yield increase over the existing yield of 1,350 kg/HA to 1,620 kg/HA. Under the base case scenario, the farmer would generate a gross farmgate income of \$3,645/HA. In the worst case scenario, it is assumed that parchment will sell at \$1.⁵⁰/kg at the farmgate and there will be no

change in future yields. Under this scenario, farmers could expect to generate \$2,025 of gross income per hectare in 2016.

Effectiveness in Fostering Coffee Development and Competitiveness

The approach used by AMARTA in Wamena was appropriate. Following the failure of the local government to find a market for coffee production that it promoted, farmers were justifiably upset and did not trust authority. The AMARTA project worked with local leaders to develop the Baliem Coffee Cooperative and rather than taking a purely economic development approach, USAID, along with its partner (the cooperative) approached the project as a combined community development project and economic development project. Cooperative management (in meetings with the AMARTA evaluation team) stressed the importance of building trust and bringing the community together. To do this, the cooperative plans to spend earnings from its coffee sales on community development projects rather than distributing these funds back to their membership as dividends. Given the unique social structure of Papua, this is a reasonable approach.

USAID will need to take a long-term development view when working with the Baliem Cooperative. As mentioned earlier in this report, USAID funded the Timor L'este Coffee Cooperative for nearly fifteen years before it became a stand-alone (sustainable) enterprise. Given the rudimentary economy of central Papua, USAID should expect to invest a similar amount of time in the Wamena-based Baliem Cooperative in order to allow it time to develop the management resources necessary for it to become sustainable.

In North Sumatra, AMARTA has only begun to create a toehold in the coffee production communities where it worked. To date, the project has only provided training and cost-shared on a limited number of items (pruning tools). In order to create a sustainable high-value coffee enterprise in North Sumatra, USAID will need to make a considerable investment in time and money to develop a cooperative-style business similar to the Baliem Cooperative or the Timor L'este NCBA cooperative.

Creating a cooperative structure in North Sumatra for coffee farmers is probably the best approach for delivering the technical assistance required to get coffee quality up to optimum levels and developing a logistical, processing and marketing system that meets international standards. Part of this system may involve investments in coffee washing and fermenting stations where cherry is delivered from a project truck (after collection along established rural routes). The cherry will be pulped, washed, fermented and dried at the washing station (converting it to parchment). After this, the parchment would be hauled to a central milling facility where final drying would take place. Then, the parchment would be milled and turned into green beans, graded, sorted and bagged for export.

Neither Wamena nor the North Sumatra coffee activities to date have created a large number of off-farm jobs. Nevertheless, the coffee activity has (in the case of Wamena) created significant on-farm income. For example, one farmer in Wamena told the evaluation team that he and his wife, son and daughter-in-law farm 2 hectares of coffee (only part of which is bearing). In 2010, they had sales of 2 million Rp. or approximately \$235. This amount represented the entire cash income for the household for the year. The communities that produce coffee are often remote and coffee provides an important mechanism for earning cash.

In terms of competitiveness and job creation, there are opportunities in Wamena and North Sumatra to grow coffee-based enterprises and create jobs. Currently, pulping, washing and drying take place on the farm or in the village. This is likely to remain unchanged however, there are opportunities to create off-farm jobs by moving down the value chain to parchment milling and green bean sorting and packing. Bean sorting is a labor intensive process and most employees in a coffee bean sorting business are women.

Return on Investment for Coffee Sector Activities

Over the course of the AMARTA project, USAID invested 1.31 million dollars in the Wamena-based Baliem Coffee Cooperative (BAC). In 2011, the cooperative expects to generate a net income of \$2.08/kg on 38,000 total kilos sold, or about \$79,040 of retained earnings (see Table 7). Given their investment and the projected earnings in 2011, USAID can expect a 6.0% return on investment on its Baliem coffee activity.

As noted in Table 7, the Baliem Arabica Cooperative plans to sell its green bean coffee FOB port of Makassar for a contracted price of \$5.²⁵/kg to Paragon Coffee of New York. The cooperative buys the parchment from farmers for \$2.⁰⁶/kg. The parchment is milled and then the green beans are sorted and bagged. This cost, along with other business operating expenses, is estimated at \$0.⁵³/kg. Since there are no open roads out of Wamena to Jayapura, the coffee must be shipped air freight at a cost of \$0.⁴⁷/kg. Once in Jayapura, the coffee is held in the cooperative's warehouse and loaded into shipping containers. The handling and shipping costs to Makassar are estimated at \$0.¹¹/kg. In total, the cooperative invests \$3.⁷¹ for every kg of green beans delivered to the port of Makassar.

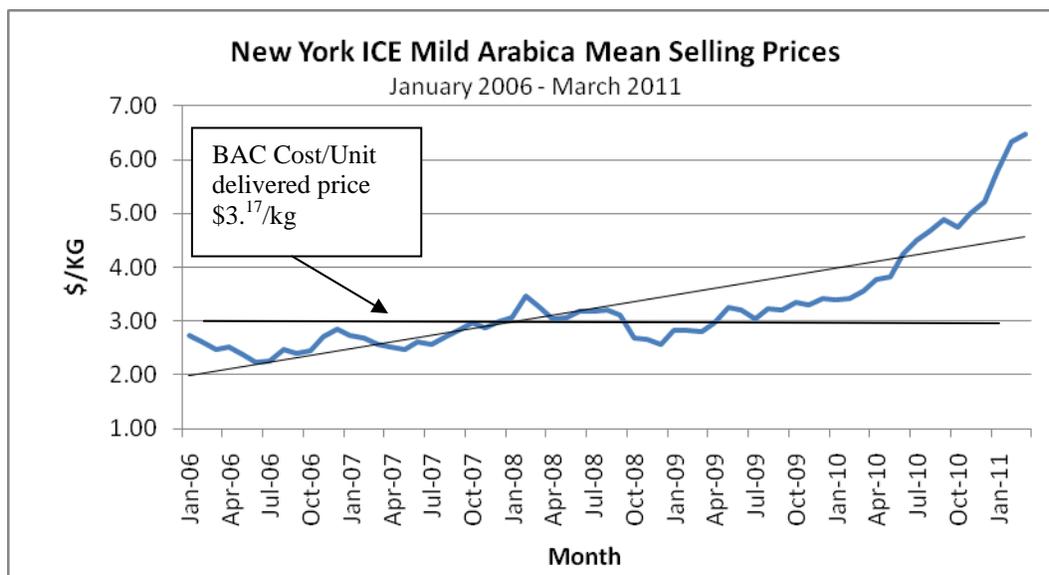
TABLE 7: BALIEM ARABICA COOPERATIVE: UNIT COST AND RETURN

Table VII: Baliem Arabica Cooperative: Unit Cost and Return	
	<u>\$/KG</u>
Contract Selling Price, FOB Makassar	5.25
Farmgate Price (to the grower)	2.06
Air Freight Wamena - Jayapura	0.47
Sea Freight Jayapura - Makassar	0.11
<u>BAC Business Operating Cost</u>	<u>0.53</u>
Delivered Cost, Makassar	3.17
Estimated 2011, Net Income / kg	2.08

Assuming a contract selling price of \$5.25/kg, and a delivered cost of \$3.17/kg, the cooperative generates \$2.08 of net income per kg shipped. This is a reasonable profit margin; however, given the historical prices of Arabica coffee since 2006 (the year AMARTA started), the Baliem Cooperative would not have always made a profit, based on the above cost structure and contract price. Figure 6 shows the 2011 delivered cost for Baliem coffee to the port of Makassar against the historical New York Intercontinental Commodity Exchange price for mild Arabica. As can be noted in the chart, the cooperative would have made a profit after July 2009; however, market conditions before this date would have caused it to lose money in most months.



FIGURE 6: NEW YORK ICE MILD ARABICA MEAN SELLING PRICE



Source: ICE New York, coffee price history

The advantage enjoyed by the Baliem Cooperative is the fact that it produces a premium product that should be capable of obtaining a price equal to or greater than the New York ICE coffee price in any given month. The other point that is important to realize on the cost side of the equation is that in 2011, the cooperative is exporting very small volumes (38 MT, or about 2 containers) and this does not give them an economy of scale. In fact, the small volumes are a major contributing factor to their high unit delivery cost. Once the cooperative increases its volumes, it should be able to pull down its delivered costs, thereby making it more competitive.

The question that needs to be examined is how much coffee the cooperative will need to export to optimize its unit cost (reach economy of scale) and if that much coffee volume is available in the Wamena area. Project staff estimates that there is 100 – 200 MT of coffee available in Wamena. If the cooperative is able to capture all of this volume, plus source an additional 500 hectares (producing about 300 additional MT of green beans) of coffee over the next ten years, they may be able to reach the volumes necessary to become economically sustainable.

Ideally, to reach sustainability and make a significant contribution to employment, the Wamena Cooperative (or a similar cooperative in North Sumatra) should set a goal of processing and exporting about one container (18 MT of green beans) per week⁸. At this level of throughput, a coffee processing facility would require about 936 MT/year of green beans or about 2,000 MT of parchment delivered from farmers annually.

⁸ This is just an estimate. USAID should develop a coffee export business financial model that examines unit cost of production and economies of scale using throughput volumes and sales sensitivity analysis.

HORTICULTURAL SECTOR ACTIVITY

Project Impact on Horticultural Sector^{xxix}

The AMARTA horticulture value chain (VC) programs were demonstrated on approximately 11,200 hectares to increase net marginal incomes for approximately 20,000 farmers in N. Sumatra and 800 farmers in W. Java. AMARTA's horticultural project focused on the high-value horticultural VCs that could be implemented successfully on a larger scale. There are approximately 30 million farm families in Indonesia, most are on small plots less than one hectare, without much mechanization or modern technology, and with limited or difficult access to competitive market outlets. Expansion of HVH farming demonstrated by AMARTA worked to significantly increase household income, participation of women in agriculture, and increase the supply of fresh, high-quality produce to meet a growing demand in Indonesia and abroad. This evaluation looked at six of about 10 of AMARTA's HVH VCs: broccoli, French green beans, strawberry banana, citrus, and cut flowers along the entire value chain.⁹

Technical Assistance in Building Horticultural Sector Capacity

AMARTA's approach in selecting and developing high-value horticultural (HVH) value chains was to: (1) Develop value chains to provide significant income and employment growth;^{xxx} (2) Focus on increasing market competitiveness through improvements in production and post-harvest technologies and management practices 3) Increase the marketing skills of beneficiaries with an emphasis on understanding market prices and cycles and 4) Support farmers and agribusiness to increase market share and profits from HVH enterprises. This evaluation concludes that AMARTA's technology and management practice program increased productivity, prices, and quality. Future efforts should put more emphasis on post-harvest handling, marketing, and infrastructure to take advantage of higher prices for better grade commodities.

The development of HVH VCs for deep markets was achieved successfully by AMARTA's programs through these interventions:

- Superior germplasm
- Cost savings in production
- Post-harvest sorting, grading and handling^{xxxi}
- Labeling and branding
- Direct marketing to exporters and hyper-markets

Productivity improved significantly: AMARTA's approach to HVH VCs demonstrated the efficacy of increasing productivity using modern technology and management practices. Yields (six HVH VCs) increased almost 200%, usually in the first cycle. Planting superior germplasm was chiefly responsible for increased productivity (French 'Kenyan' green bean, Lakatan banana), but changing to better cultural practices was also important (strawberry, broccoli).

Presently, there is great demand for the seeds, planting material, etc., that AMARTA demonstrated over the LOP. Recently, recognizing the importance of superior germplasm, AMARTA introduced seed

⁹ Approximately 45 farmers, four buyers, three hypermarkets, two participating universities, and sub-district agricultural officials were interviewed. Data on yields, prices, production and post-harvest practices, training received were obtained and discussed by the HVH evaluators. The HVH evaluators did not interview non-AMARTA farmers or buyers; however, data for farm gate yields, prices and costs for production were compared with values before AMARTA.

nursery enterprises for carrots, strawberries, and broccoli. These are fledging enterprises and difficult to evaluate at this time, but seed growing will certainly be profitable as long as seed nurseries can buy and import modern varieties; some government regulations did make the import of new varieties difficult and should be dealt with soon. AMARTA also introduced simple, low cost materials or practices which receive considerable interest from AMARTA and non-AMARTA farmers.

Not maintaining the superiority of AMARTA germplasm is a threat to continued high productivity accomplished with AMARTA’s programs. Viability of seeds was reported to be declining, and pathogen pressure was increasing. Farmers are multiplying germplasm without training in germplasm treatment and storage without replenishment of new seed and disease free plant material. This threat is mainly due to the inability of growers, agribusinesses and others to easily import seed and plant materials. It was reported that a few Indonesian companies with considerable influence have blocked the import of potato seed, carrot, and strawberry. These few agribusiness companies were reported to receive permits to import seeds only selling it to growers that make up their supply chain.

Services to test soils and plants to determine fertility and to identify diseases are available throughout Indonesia. Generally, farmers do not carry out tests for fertility and even less seldom for micronutrients. Evaluating soil pH is also important: many soils are very acidic; these tests are not performed regularly by farmers. Soil amendments to correct pH are not normally applied. AMARTA farmers are regularly required by the project to sample and test for soil fertility, soil diseases, plant fertility, and soil and plant diseases. The tests are expensive: \$35 for a simple N-P-K and pH soil fertility test performed by a private laboratory. Few farmers could afford to test their soils. The lack of availability of laboratory reagents was reported to be the main constraint. The import of reagents is tightly controlled by government.

Table 8 below summarizes the estimated yield (post-AMARTA) and percentage increases in selected crops relative to baseline yields.

TABLE 8: PERCENT INCREASE IN YIELDS/HA, AMARTA HVH PRODUCERS IN WEST JAVA AND SUMATRA

Table VIII: Percent Increase in Yields/HA, AMARTA HVH Producers in West Java and North Sumatra						
Item	Broccoli kg/HA	Green Bean kg/HA	Strawberry kg/HA	Banana kg/HA	Citrus kg/HA	Cut Flowers Stems/HA
Baseline Yield	18,200	26,000	4,000	48,200	7,069	460,000
ARMARTA Yield	38,500	45,000	7,750	91,250	15,912	640,000
% Δ	212%	173%	194%	189%	225%	139%

As reported by buyers, deep markets do exist for all of the AMARTA HVH VCs, supporting the choice of the six HVH VCs that we evaluated. Buyers seemed to want to take almost everything that AMARTA farmers grew because they had multiple market outlets, e.g., export, traditional markets and hypermarkets. For example, Alamanda, a wholesale buyer/trader in West Java, indicated that it had ample demand for all broccoli, selling whole heads and small pieces for salad. Carrefour, a hypermarket with 86 stores throughout Indonesia, indicated that it wanted all grades of citrus because some retail customers include customers with different preferences for quality and price.

Table 9 below summarizes the estimated before and after AMARTA price and percentage increases.

TABLE 9: ESTIMATED PRICES INCREASES AND PERCENTAGE CHANGE

Table IX: Estimated Price Increases and Percentage Change						
Item	Broccoli \$/kg	F. Green Bean \$/kg	Strawberry \$/kg	Banana \$/kg	Citrus \$/kg	Cut Flowers \$/stem
Baseline FG price	1. ⁰³	0. ⁹⁴	1. ³⁵	0. ⁴⁴	0. ¹⁹	0. ¹⁸
ARMARTA FG price ¹⁰	1. ¹³	1. ¹⁸	2	0. ⁵⁶	0. ⁵⁹	0. ³⁵
% Δ	110%	125%	148%	127%	313%	200%

Sector wide issues in high-value horticulture include:

- **Grading and sorting** produce to maximize price is not widely practiced throughout the horticultural supply chains even though most farmers appear to have general information on the subject.^{xxxii}
- **Timely payment to farmers** by buyers for produce is a continuing problem. Many farmers and buyers would like to solve this problem. For example, supermarkets and buyers pick up produce and complete a purchase or invoice after taking possession; followed by 2-3 days to register/book the invoice; followed by 30 days until payment is made when either the produce is forwarded on (export) or funds are allocated by a home office for payment to the farmer. The payment cycles is not working well for small farmers, who usually count on receipt of funds to pay outstanding bills or buy inputs for other personal or business matters.
- **Training for production** was largely done by the AMARTA technicians, based on the technical packages that they developed. Farmers appeared to eagerly adopt most of their recommendations, but seemed to run into trouble when new problems arose in production cycles and they needed consultation or additional training.^{xxxiii}
- **Participation of local MOA** (Ministry of Agriculture) officials and field extension agents. Generally, MOA staff and managers did not participate actively in ARMARTA HVH VCs. The evaluation team interviewed a total of four field office managers in sub-districts and five field extension agents. The evaluation team concluded MOA staff was willing to participate in AMARTA training activities, but they didn't have sufficient training to add value to the process. Two MOA staff interviewed had no training since their initial orientation when hired. Two indicated that they had only 1-2 week-long courses on plant diseases in the past five years. It appeared that MOA staff did not have sufficient knowledge of marketing nor were they able identify multiple market outlets and levels of quality required for HVH chains.
- **West Java productivity**, Farmers own and operate small plots (0.3 HA) in W. Java. AMARTA emphasized increasing productivity and provided ways and means to accomplish productivity; i.e., significantly increasing yields. However, training and follow up attention to post-harvest activities was incomplete. The caveat with the preceding statement is to remember that this evaluation was completed for AMARTA HVH programs that had short lives; i.e., they either

¹⁰ "Farmgate" refers to prices received by farmers interviewed before AMARTA's technical assistance.

stopped early or started late. The team was impressed with the selection criteria which were used to select varieties. Delays or prohibition of the import of seed and plant material into Indonesia should be a top policy priority.

- **Post-harvest handling** in N. Sumatra. More investment in cost-efficient cold chains and transport is needed to reduce field and transport loss and to improve shelf life for commodities in N. Sumatra. There is only one main road between Sumatra and Jakarta. It is in disrepair, causing delays and damage to fresh produce. Growers and buyers around Medan reported that it costs Rp. 1000 or more per kg to ship between Medan and Jakarta. Producers and buyers agreed that the road is difficult to keep in good condition. Sea freight would greatly improve the quality of produce shipped. However, buyers reported that it is difficult to find enough container space on merchant ships; there is a shortage of 20 and 40 foot containers.^{xxxiv}
- **Market access** and opportunities were identified and developed, but are not meeting demand for volume and consistency of grade and supply. Most of the HVH VCs enjoy access to very profitable markets, but there isn't significant competition among buyers at the wholesale, export or retail level. More assistance to locate and promote good produce to meet market demand should be provided to exporters, traditional markets and retail supermarkets. Buyers of farm produce seem willing to invest in post-harvest handling operations, but more assessment and planning of cold chains and transport options, for example, would create opportunities to grade for price.
- **Branding/labeling**, more development of branding and source-or-origin was requested by buyers and retail outlets.

Impact of Infrastructure Support to Horticultural Producers and Processors

AMARTA did not make significant investments in cold chain development or other hard assets in the horticultural sector. A financing program of small grants, matching grants, or investment by buyers and banks needs to invest in cold chains to reduce losses and extend shelf life. Cost-efficient cold chains are needed to reduce field and transport loss and to improve shelf life for commodities. The most cost-effective cold chain intervention that was in wide use was the icing of produce in insulated shipping boxes. Shortage of ice could occur as production increases. Field losses were reported by some buyers at 30-40 percent; no buyer interviewed indicated losses less than 20 percent. AMARTA did construct a few cold boxes in the field in W. Java; none were in operation at the time of our inspection. The total volume of cold rooms is probably 10 percent of the total needed in N. Sumatra and 20 percent of W. Java's needs. Larger chill and freezer units in regional market centers will also be required if production increases to meet the large demand in urban areas and for export.

Project Impact Horticultural Producer – Buyer Linkages

Business partnerships: Effective in all six HVH VCs. Created with key private buyers and retailers: Carrefour, Yogya, Bimandiri, PT Momenta Agrikultura, and PT Alamanda. Interest from all agribusinesses listed above to participate in direct marketing was expressed if AMARTA could assist by planning and supervising production to guarantee volume and consistency of quality and timing of delivery.

Market access: Market opportunities were identified and developed by AMARTA, but were not adequately developed or multiplied to meet the full demand for volume and consistency of grade and

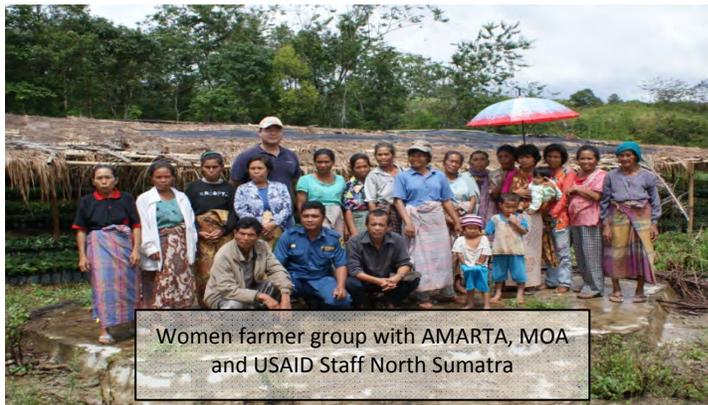
supply. The HVH evaluation team felt that price was not an issue—volume and consistency of grade and supply were most important. Most of the HVH VCs enjoy access to very profitable markets, but there isn't significant competition among buyers at the wholesale, export or retail level. More assistance to locate and promote good produce to meet market demand should be provided to exporters, traditional markets and retail supermarkets. Buyers of farm produce seem willing to invest in post-harvest handling operations, but more assessment and planning of cold chains and transport options, for example, would create opportunities to grade for price.

More assistance to improve horticultural supply chain efficiency should be provided to exporters, traditional markets and retail supermarkets. Future AMARTA activities should consider ways to support private sector investment in cold chains, packing lines and transport system. Future AMARTA activities should place emphasis on increasing the number of partnerships and to secure cost-sharing investment in post-harvest handling.

More emphasis should be placed on post-harvest handling, marketing, and processing, beginning with the VCs already developed. More assistance to improve the horticultural supply chain efficiency should be provided to exporters, traditional markets and retail supermarkets. Future AMARTA activities should consider way to promote and support private sector investment in cold chains, field packing stations and transit (e.g., crates). Future AMARTA activities should place emphasis on increasing the number of partnerships and to secure: cost-sharing investment in post-harvest handling.

The Role of Horticultural Sector Partnerships and Alliances

Farmer associations: AMARTA directly or indirectly organized several hundred farmer associations, encouraged by a USAID performance LOP target of almost 3,000 “producer associations,” “community-based organizations,” and “trade and business associations.” There isn't much information about the success of farmer efficacy of such groups, but farmers interviewed offered that members dropped in and out. Most of these groups visited were highly informal, meeting whenever AMARTA offered training,



which seemed to be their main motivation.^{xxxv} Evidence of AMARTA's effort to organize record keeping was largely as posted white boards with production and shipping schedules; many were out-of-date. Most farmer groups did keep track of farmer harvest to make payments for produce. Farmer groups were generally not able to provide any posters or audio visual material received through AMARTA training. Therefore, tentatively, one could assume that more effort needs to go towards developing a

curriculum that is based on an appropriate pedagogy for different geographies, supported with more audio-visual materials which could be shared, evaluated and revised as needed and, used for promotion. Also, as the team moved around through the towns and in the fields, there was insufficient promotion of AMARTA's training materials. Promotion seemed to work well enough, but it was largely based on word-of-mouth. Assuredly, the dearth of hard-copy training and promotional materials can be amply explained—AMARTA had effectively finished several months earlier.

Regional Agribusiness Competitive Alliance (RACA), the evaluation team visited one RACA, the Baranan Banana RACA. The group of 38 (75% women) enthusiastically endorsed the AMARTA technology assistance. The evaluation team opined that more regular follow-up and trouble-shooting was

necessary throughout the production cycle to ensure that problems (e.g., outbreaks of Fusarium) are understood and solved. The Baranan RACA received a Rp. 40 million grant from the local mayor to expand their production and marketing activities.

Effectiveness in Fostering Horticulture Sector Development and Competitiveness

AMARTA's approach to high-value horticultural value chains was sound and should be continued. Generally, the training and technologies provided by AMARTA were successful. High-Value Horticulture (HVH) VCs were cost-effective and afforded greatly increased access to competitive market opportunities. Farmers seem eager to adopt new technology, quickly assessing that their income will increase significantly; and, they are making investments on their own (e.g., broccoli and banana).

AMARTA farmers' net income for three HVH enterprises (broccoli, beans, strawberry) for W. Java was approximately \$5,761 per farmer and \$21,625 per farmer for two HVH enterprises (banana, citrus) in N. Sumatra. Also, approximately 1,400 additional jobs were generated, adding about \$1,000,000 to rural economies.

AMARTA training for HVH VCs, more effort is needed urgently to develop an outreach strategy to increase production to meet the increased demand for the type of high-quality commodities produced using AMARTA technologies and management practices. This means more farmers, more training, more work with post-harvest handlers and buyers. Farmer associations, perhaps cooperatives, would help to scale-up if training in AMARTA technologies and management practices was ramped up.

Grading, all buyers surveyed did their own grading using their own quality standards. Most producers are aware of what buyers want. All buyers indicated that they do pay for grade when they can get it, but most produce arrives unsorted and they have to discount prices paid for grading they perform and for losses in quality during transit.

Productivity, more emphasis should be given to increasing productivity in West Java because farmers own and operate small plots (0.3 HA). In North Sumatra, lack of post-harvest handling and grading, lack of a cold chain and efficient transit to market outlets affect productivity as buyers downgrade commodities due to the high losses that they incur when bulk produce arrives in damaged condition.

Supply chain efficiency, more assistance to improve the HVH supply chain efficiency should be provided to exporters, traditional markets and retail supermarkets. Further, no business plans for supply chain interventions were evident; therefore, although everyone had ideas about how supply chain efficiency could and should be improved, the actual data or business plans would have helped. Finally, investment plans could have been prepared by AMARTA and presented to the agribusinesses and banks interested in investing in building infrastructure to improve supply chains, e.g., cold and transport improvements.

New buyers, new lines of HVH, promote the entry of new buyers and new lines of HVH. Increase the competition and/or collaboration among buyers as production increases. Also, more emphasis is needed to strengthen and multiply supply chains to buyers and supermarkets. Future AMARTA activities should place emphasis on increasing the number of partnerships and to secure cost-sharing investment in post-harvest handling. Post-harvest handling, marketing, and processing of bottom grades are needed. More emphasis should be placed on continuous economic evaluation/ analysis of selected value chains focusing on marginal increases of income, employment and competitiveness relative to investment provided to expand profitable HVH VCs.



Economic analysis, the evaluation team thought that economic analysis was insufficient. More emphasis should be placed on continuous economic evaluation of VCs, focusing on marginal increases of income, employment and competitiveness relative to USAID’s investment for each VC. Analyses conducted quarterly or at the end of every production cycle if performed by AMARTA would have been helpful to guide ^{xxxvi}AMARTA’s management of the whole HVH program. Highlights of these analyses could have been shared with the farmer groups and with the buyers to assess changes and to motivate further success. ^{xxxvii}

Sustainable Agriculture, supermarkets and other large buyers are becoming ever more important players in the Indonesian market. Supermarkets such as Carrefour have internal food safety requirements that often surpass those typically used in the industry such as HACCP and GlobalGap. To maintain their competitiveness, farmers need to understand and implement best production practices beginning with soil preparation for a crop and continue all the way through post-harvest handling. Understanding and following best practices in pesticide use and post-harvest handling of fruits and vegetables is critical to maintaining the Indonesian horticultural sector’s competitiveness over time.

The AMARTA project partnered with CropLife and the Syngenta Foundation to provide training to farmers in safe and effective use of pesticides. This type of training is essential for Indonesian producers to maintain their competitiveness in the future. Under AMARTA, training focused on safe application methods for pesticides, post-application waiting periods, safe reentry intervals, and selection of materials. Future AMARTA activities need to continue this type of training and include traders and other participants in the supply chain in an effort to educate them on food safety best practices.

Simplified Cost Benefit and Return on Investment for the Horticulture Subsector

Simplified Return on Investment and Cost Benefit¹¹: Tables 10 and 11, below, illustrate the return on investment (ROI) and simplified cost benefit ratio for selected crop value chains within the horticultural activity (including: banana, broccoli, citrus, green bean and strawberry). As can be noted, the horticulture activity in aggregate provided an estimated 852% ROI and a cost benefit ratio of 8.64:1.

TABLE 10: SIMPLIFIED RETURN ON INVESTMENT	Selected Horticulture Crops
Based on estimated change in marginal aggregate farmgate net income and AMARTA’s investment in the selected value chain at EOP	
Aggregate Farmgate Net Income (\$)	36,569,129

¹¹ The AMARTA project did not collect information on production costs and/or change in gross or net income from beneficiaries at the farmgate or beyond the farm (further up the value chain). Given the lack of beneficiary production cost and income data over time, the evaluation team has opted to measure the project’s benefits by estimating the change in marginal aggregate gross income at the farmgate using the estimated mean marginal change in beneficiary yield times March 2011 market prices divided by AMARTA’s total investment for selected value chains. The yield data used in the cost benefit and ROI calculation was obtained from beneficiary interviews.

AMATRA Budget Allocation (\$)	4,289,950
Return on Investment (ROI)	852%

TABLE 11: SIMPLIFIED COST BENEFIT RATIO	Selected Horticulture Crops
Based on estimated change in marginal aggregate farmgate gross income and AMARTA's investment in the selected value chain at EOP	
Aggregate Marginal Increase in Farmgate Gross Income (\$)	37,052,350
AMARTA Budget Allocation (\$)	4,289,950
Cost Benefit Ratio	8.64

Table 12 shows the estimated ROI and simplified cost benefit ratio for selected crops that benefitted from AMARTA interventions. As can be noted, citrus has the highest ROI. This is because there were several thousand hectares involved in the citrus activity, compared to relatively small numbers in the other horticultural activities.

TABLE 12: ROI AND SIMPLIFIED COST BENEFIT BY CROP

Table XII: Return on Investment (ROI) and Simplified Cost Benefit by Crop						
Item	Broccoli	Green Bean	Strawberry	Banana	Citrus	Total Hort.
AMARTA Budget per Crop	490,280	367,710	490,280	1,260,720	1,680,960	4,289,950
Aggregate Marginal Net Farmgate Income per Crop	2,199,113	295,681	345,485	424,384	33,304,466	36,569,129
Aggregate Marginal Gross Farmgate Income per Crop	2,413,610	324,118	157,500	432,416	33,724,706	37,052,350
Simplified Cost Benefit Ratio	4.92	0.88	0.32	0.34	20.06	8.64
ROI	524%	99%	58%	50%	3963%	852%

Papua Agribusiness Development Alliance (PADA)

PADA was a public-private partnership between USAID/Indonesia and PT Freeport Indonesia (PTFI) that began in 2007 to provide resources, expertise, and experience to improve Papuan livelihoods through agriculture programs. Papua's rural population lives in remote areas and farms small plots focused primarily on subsistence crops (rice, melons and barnyard livestock). Generally, Papuans live significantly below the nation's poverty line and have few ways to earn a living.

The objectives of PADA were to: 1) Increase revenues and jobs for Papuan communities through the development of agriculture and agribusiness; 2) Combine shared funding, resources, personnel, and materials; 3) Demonstrations of adaptable technology through implementation of pilot projects; 4) Make improvements in farming and fishing livelihoods to discourage migration from villages to Timika.

For calendar year 2010, the budget for the private/public alliance was \$1 million from LPMK, \$369,000 from USAID, and \$500,000 of in-kind support from PTFI was approved. The total AMARTA project investment for HVH and fish VCs was \$350,000. Three enterprises implemented to increase livelihoods were evaluated.

- **Fish:** Barramundi, or Australian Sea Bass, is a highly valued eating and sport fish. The Papuan fishers are Koromora tribesmen living along the coast. Previously, fish was purchased based on size or length. AMARTA introduced payment by kg. The average price to the fishers increased from \$0.³⁵ to \$1.¹⁸/kg. A cold supply chain was also constructed by PADA's alliance along the southern coast line to cut spoilage and extend shelf life of fish. Now, weekly purchases average seven metric tons, and daily income for the fishers has increased dramatically from \$0.⁶⁰ per day to \$8.²⁴. More than \$25,000 worth of fish was purchased from local fishermen since 2008. 621 fishermen from 20 villages are engaged in the fisheries program, selling fish to the Maria Bintang Laut Cooperative. The fish enterprise supply line has been expensive to build and operate, and it is not as complete and reliable as needed to provide consistent volume and quality. There is steady, unmet demand for fresh and fresh-frozen Barramundi whole fish and fillets; e.g., Barramundi fillets (blast-frozen) sell for \$8.²⁴ in Bali and other tourist areas in Southeast Asia.
- **Pigs:** Swine production was introduced in 2010 to Augimugi, a remote village northeast of Timika. A boar and sow were provided and a piggery was constructed. To date, 30 pigs have been raised successfully, using swine mixed rations transported by river from Timika. This enterprise is not economical; however, pigs are the basic monetary currency required for barter commerce, bride price, and most village celebrations. Swine production seems to be highly regarded by villagers; selling price of a live pig in Timika is (+/-) \$1,176.
- **Intercropping:** Chili with coffee and cocoa - more coffee and cocoa orchards will be planted especially in the highlands because high prices provide ample incentive to expand production. AMARTA and the PADA alliance have introduced chili, to be followed by other annual fruits and vegetables, to be intercropped in new orchards as a source of income. The average farmgate price for chili was \$2.³⁵/kg; add \$1.¹⁵ for airfare to Surabaya. Wholesale prices at Timika for outbound sea shipment average \$4.⁷⁵/kg.
- **Interaction:** Of VC livelihoods and Papuan culture - one quickly realizes that economic development in remote, isolated villages is more about convincing Papuans that gainful employment is a useful and desirable change in their culture; increasing net farm income, however desirable, is not their top priority. Most of the participants in PADA are men; therefore, women probably have different attitudes and needs. Generally, Papuans participated in PADA because they enjoy working and earning money...it's that uncomplicated. PADA appears to be appreciated greatly by the villagers because it fosters positive, desired social relationships and individual responsibility. More remote villages want to participate. A lot of time and money is spent by Papuans on transportation.

INSTITUTIONAL DEVELOPMENT, POLICY AND GRANT ACTIVITY

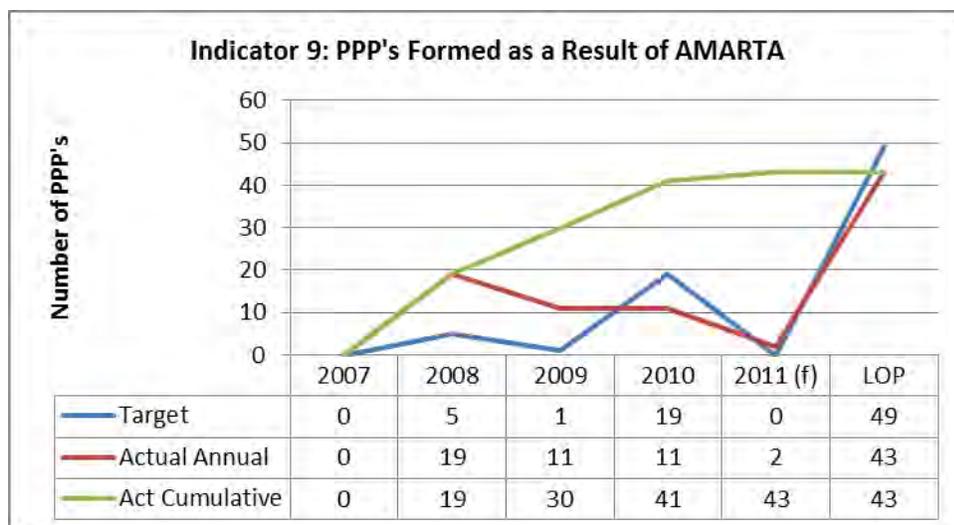
Developing Partnerships with Public and Private-Sector Actors

AMARTA partnerships and networks with the private sector and local or provincial government agencies were generally effective in improving market access and supporting the sustainability of project activities. Results have been positive, particularly in comparison to many efforts in comparable projects in other developing countries. The project's most effective partnerships were with private-sector firms and related

organizations, including, in horticulture, PT Freeport, LPMK, and Syngenta Foundation; in cocoa, PT OLAM, Armajaro and Tunas Jaya; and in coffee, the SCAI industry association and with local and provincial public agencies such as GERNAS and research institutions including ICCRI and IVEGRI.

The main goals of partnerships were to help achieve AMARTA’s own goals of improving production and quality as well as to leverage resources to promote the sustainability of project interventions following the end of the project. Activities in partnerships focused mainly on improving access to markets, particularly through alliances with private enterprises.

FIGURE 7: INDICATOR 9 – PPP’S FORMED AS A RESULT OF AMARTA



Source: DAI/AMARTA

Results have been generally positive in terms of the number of alliances created and their impact, particularly those created with private firms which contracted to purchase from project producers, improving their market access. Partnerships were established between public- and private sector organizations, and with producer organizations, trade and business associations, community-based organizations, and women’s organizations. A total of 43 PPPs were formed, as indicated in Figure 7.¹²

Private sector partnerships that were particularly effective in supporting AMARTA included:

- PT Freeport/ LPMK:** The project’s major partners in Papua were PT Freeport Indonesia (PTFI) and LPMK, the community development association created by PTFI to provide development assistance to the two Papuan tribes most directly affected by the presence of its mines. Contributions included in-kind and financial support to PADA initiatives in livelihood activities including fisheries, cold chain support, horticulture, and swine raising, as well as contracts for coffee purchases from smallholders. Given PADA’s generally positive results, plans appear justified to expand support under PADA III. Strong opportunities exist particularly for expanding coffee production and contracts for purchasing coffee for export;
- Syngenta Foundation:** Syngenta’s non-profit foundation supporting sustainable agriculture provided substantial horticultural development training, focusing on the correct use of fertilizers, pesticides and related crop protection inputs. TA and training were provided for crops including citrus in N. Sumatra and vegetables in West Java;

¹² This indicator and the LOP target of 49 were adopted by AMARTA management as an internal project indicator and not required by USAID as one of the formal project indicators.

- **Carrefour:** Sales contracts with this major hypermarket chain began relatively recently and are small but promising, particularly for purchases from smallholder farmer groups of bananas from N. Sumatra, as well as carrots and other fresh vegetables. Similar partnerships with major wholesale purchasers should be a strong focus in the future;
- **In Cocoa:** PT OLAM, Armajaro, Tunas Jaya, and Big Tree Farm were among the major private sector partnerships created, with the first two in particular improving farmers' market access through providing training in meeting quality standards, setting up cocoa collection stations and warehouses, and purchasing cocoa with quality premiums provided. In the future, there is a need for a standard bonus to be adopted by industry buyers and exporters that rewards farmers for meeting improved quality standards;
- **In Coffee:** The project's major counterpart/partnership was SCAI, the specialty coffee industry association established by government decree in 2007 and supported by AMARTA from early 2008 with funding for quality training, management and office costs, participation in specialty coffee trade shows, coffee auctions and Geographic Indication mapping. SCAI was set up as an alternative association to AEKI, the government association in which membership is mandatory, and intended to attract a wider range of players; however, as most members existed in other associations previously and all farmer groups except the AMARTA-created cooperatives in Baliem and Bomomani, Papua, already existed, it does not appear appropriate for AMARTA to claim full credit for the 220 million dollars in exports by SCAI members. That said, AMARTA provided solid support to SCAI, and credit is due for helping create an alternative to the government's mandatory exporters association.

Partnerships with public sector agencies were most effective at the local and provincial levels, for example with GERNAS and research institutes in Bogor, Medan, and Bandung, such as Padjadjaran University and its Institute for Research and Community Services, as well as with IVEGRI and particularly with ICCRI. Interaction with local Extension Services, Estate Crop units as well as regency authorities including Bupatis were mixed, with the strength of relations varying by region.

AMARTA partnerships were less effective at the central government level. Partnerships and even communication with certain agencies in the central government, including Ministry of Agriculture departments, were difficult to develop. This was due in part to GOI policies since the early 2000s to decentralize responsibilities to provincial and local governments, and to AMARTA's own focus being predominantly at the technical and grassroots level. Stronger efforts to develop central government interaction are particularly needed in future.

AMARTA's Ability to Leverage Resources

AMARTA was generally effective at leveraging resources through partnerships, particularly those with private firms that included contracts to purchase smallholder production, but also partnerships with several public agencies, mainly at the local and provincial levels. Among the most effective were those with GERNAS, the Ministry of Agriculture unit responsible for cocoa technical support, whose trainers AMARTA helped train, and those of research institutes such as ICCRI, which helped develop cloning material used in AMARTA activities. Less effective was cooperation at the central government level.

Replication of AMARTA interventions was a key goal under AMARTA, and was achieved most effectively through training other agencies' trainers to cover more smallholders, and through developing demonstration plots to expose more farmers to best practices. In other areas, replication of AMARTA activities was less successful. For example, the Ministry of Agriculture (MOA) Extension Services appears to have adopted the project's practices on a relatively small scale, and on an uneven geographic

basis. Although AMARTA did train a significant number of extension agents, most have apparently not trained a large number of others. As an example, AMARTA cocoa bean farmers reported that they have rarely if ever been visited by government Extension Service agents. However, the evaluation team got a better impression of local government cooperation in N. Sumatra, indicating that relations varied widely geographically.

Additional positive cooperation was developed with GERNAS. AMARTA support to cocoa farmers was leveraged by training GERNAS staff in production and post-harvest techniques, who then helped replicate project activities by training farmers beyond those in AMARTA sites. AMARTA Indicator 4 on Number of Individuals Trained, includes “second-level training” mainly by GERNAS of about 46,000 farmers, mainly in cocoa production. The evaluation team was not able to verify precise numbers of second-level trainees, but concedes that GERNAS went far in leveraging AMARTA resources.

Examples of AMARTA’s most effective leveraging activities include:

- GERNAS use of AMARTA training materials including posters and VCDs^{xxxviii}
- AMARTA use of ICCRI cloning material^{xxxix}
- Estate Crops use of AMARTA cocoa solar dryers
- British Council grants of \$12,500 for compost fertilizer to Pakpak Bharat Alliance
- Support of SCAI and its 103 members including key coffee exporters
- Cooperation with MOA and Estate Crops on developing Geographical Indications
- AMARTA /SCAI coop with Dept. of Tourism on coffee Eco-Tourism, e.g., in Papua
- Buyer contracts with retailers such as Carrefour and Freeport/LPMAK for coffee

Initiatives that were less effective in leveraging resources were those involving other bilateral and multilateral donor institutions. Cooperation was limited with agencies such as the World Bank, ADB and AusAid, mainly because the latter two have had only limited programs in agriculture, and the former’s main program is winding down. Overall donor coordination, however, is more the responsibility of the USAID Mission, which could have been more active, rather than of each individual separate project such as AMARTA. In the near term, USAID should consider stronger cooperation particularly with AusAid, which now plans to fund an upcoming “Indonesian Rural Livelihoods Project” covering eastern Indonesia including Papua.

In the future, while public agencies can provide ongoing opportunities for leveraging project resource, the most effective are likely to be those involving sales contracts for project production to be bought by key private sector purchasers. Recent successes underline the need to pursue further partnerships especially with major companies for example, with Mars and Nestle, which are planning to start up major new cocoa operations in South Sulawesi.

Interaction between AMARTA and GOI in Agri-Development Interventions including the Role of RACAs in Policy Advocacy

Cooperation with central government agencies is one of the few areas where AMARTA interactions were not as productive as expected. Future efforts are needed to build political capital more effectively to better leverage project impact, as well as to promote more effective policy advocacy. Efforts to expand

policy advocacy need to be aimed beyond local officials and increasingly at higher provincial levels where more decision-making authority is located. Additionally, a priority should be to train more provincial officials to analyze the impact of policy decisions before they are adopted on agricultural production, income and job-creation.

A major impediment to effective communication and cooperation at the level of central government has been the Government's de-centralization approach implemented since the early 2000s. The central state development planning agency, BAPPENAS, has become more of a coordinating agency than a technical agency by delegating many technical responsibilities directly to implementing agencies in other government departments and to the provincial level.^{x1}

The evaluation team had the perception that some Agriculture Ministry officials, in meetings and in comments at AMARTA workshops, felt they had not been actively sought out by the project as stakeholders and partners, nor adequately informed about project activities and results. Cooperation and communication with GOI agencies at the provincial and regency level was stronger, particularly with GERNAS, as mentioned above, which cooperated in TOT activities to train more farmers in Bali and S. Sulawesi.

RACA Activities and Effectiveness of Interactions with GOI: While the project did not interact strongly with key central government agencies, efforts were more effective at the provincial and sub-district local level. Efforts to provide stakeholder input to governments on mainly technical policy issues have been started through the 13 Regional Agribusiness Competitiveness Alliances (RACAs), established with AMARTA support.

RACAs were established by AMARTA with the main purpose of bringing value chain stake-holders together to address issues affecting them. A main concept behind RACAs was to help empower farmers to "speak up" about their main concerns that could be addressed by policy and regulatory reforms. Prior to the RACA initiative, started in 2007, the prevailing culture especially in rural areas was a lack of communication between actors and government.

Main RACA activities and achievements in obtaining government support for agricultural inputs and infrastructure improvements include:

- Deli Serdang Barangan Banana Community: Submitted 4 proposals to provincial government, continued collaboration with Senator Parlindungan Purba on market and credit access advocacy, and planting material received from local government
- Jembrana Cocoa Community Alliance: Started dialogue on cocoa development issues and policies; local government pledged to support cocoa processing facilities
- West Java Agribusiness Action Group: Regularly conducts Public Private Dialogue on policy issues (agro-finance, farm inputs, livestock policies)
- Karo Highlands RACA successfully lobbied Parliament to construct a rural road leading to citrus orchards, worth Rp 150 Mill for three phases;
- Deli Serdang Banana Alliance secured RP 280 million funding for their post-harvest and processing activities in a meeting with local Parliament;
- Simalungun Parliament accepted alliance policy proposals including to increase the budget for rural road improvement

- Amarkata in Tabanan engaged in a dialogue with the Governor of Bali that led to the reversal of the longstanding “Rayonisasi” policy which forced farmers to sell their cocoa to specific traders in specific areas.
- The Pro-Agribusiness Alliance in Pakpak Bharat submitted to the District Parliament policy papers requesting improved farm roads and bridges and access for the Alliance to financial facilities provided by the local government. The Alliance won a \$12,500 grant from the British Council to establish an organic compost fertilizer production site to support farmers in the area. While this is a good effort to leverage AMARTA resources with additional funding sources, the evaluation team identified as a potential problem the high cost of organic compost compared with the considerably lower cost of urea.

As indicated in Table 13 below, AMARTA funding for RACAs has been relatively small at 6% of total expenditures, mainly in N. Sumatra and W. Java. The solid start in establishing 13 Alliances and initial results in obtaining government support for local agricultural inputs and infrastructure, appear to justify stronger support in the future especially in policy advocacy.

TABLE 13: RACA BUDGET EXPENDITURES (\$ X 1000)

Table XIII: RACA Budget Expenditures (\$ x 1000)								
Activity	% of Total Project Expenses	Total Value of Expenses	West Java	North Sumatra	Sulawesi	Bali	Jakarta	TOTAL
RACA	6%	\$1,236	\$309	\$432.6	\$61.8	\$185.4	\$247.2	\$1,236

AMARTA’s Impact on Agribusiness Policy and Regulatory Environment

AMARTA’s impact in terms of broad macro-economic policy improvements has been relatively limited and few if any major policy reforms can yet be attributed to AMARTA through its RACA activities. This is partly because, first, the project’s main focus has been on improving value chain production and quality rather than on policy advocacy. Secondly, the RACA initiative’s main focus has been on bringing grass-roots players together in village forums, often for the first time, simply to help them develop greater access and input to government decision-making at the sub-district and regency levels. And thirdly, impact has been limited because most RACAs have been created only recently. Under AMARTA a total of 13 have been established, but seven of them were formed only since January 2010.

Nonetheless, most RACAs represent a good start in encouraging farmers and other stakeholders to “speak up.” Several have encouraged local officials to better address local technical needs and constraints. Some have obtained stronger local government support for agricultural inputs and road and other infrastructure improvements. And several now have input into local budget policies, and have established formal and regular dialogue with local policy-makers.

RACA Technical Policy Support and Results: The RACA initiative is starting to show results mainly through technical assistance related to building agribusiness sector capacity. Results are less at the level of broad macro-economic policies and more at the level of addressing and improving local agribusiness constraints. Major constraints will continue to include the need to improve rural economic infrastructure such as roads, transport and cold storage facilities, an improved GOI extension system, reduced barriers to market access, the need for an improved agricultural research system and the dissemination of new technologies and practices.

Main achievements include those listed above by various alliances, with a relatively small number of policy results in a few areas, but nonetheless a solid start. Their impact has been mainly in addressing local technical issues, and has resulted already in increased production and income in several project areas. For example, in South Sulawesi, AMARTA-assisted cocoa farmers reportedly expanded yields by over an average 600 kg/HA and received about Rp. 2,500 to 3,500 more in prices paid per kilogram than non-AMARTA farmers.

Future Policy Focus: RACAs need to increase their input at higher levels where more decision-making authority is located, and cooperate closely with USAID's "Support for Economic Analysis Development (SEADI) program, on policy issues including:

- **Export Tax on Cocoa:** In early 2010, the Ministry of Finance announced a tax on cocoa exports ranging (at three levels) from 5 - 10 - 15% of exports depending on value. Cocoa farmers bear the burden of the full tax through deductions in prices paid them at the farmgate, but few appear to be aware of the impact of the tax as market prices have been rising recently. Beneficiaries of the tax are mainly processors of cocoa powder and butter, as a key goal of the central government is to promote higher value-added processing. In response, the RACA in Bali wrote letters to the central Ministries of Agriculture and Finance protesting the adverse impact of the cocoa export tax on cocoa farmers, and is awaiting a reply. Additionally, AMARTA organized a stakeholder meeting in Jakarta on the export tax with the Min. of Agriculture and Chamber of Commerce. More effective advocacy is needed, at least to be in a position to address it when it is re-considered for extension in 2013, possibly to lobby for investment of tax revenues in affected rural areas, as well as to avoid the potential extension of the tax to coffee exports;
- **Cocoa and Coffee Quality Standards and Premium Scheme for Buyers:** The ASKINDO industry association requires uniform quality standards, but has no standard bonus premium. Major private buyers such as Cargill, Olam and others pay farmers varying bonuses for meeting quality standards. Farmers and purchasers would benefit considerably from a uniform premium paid to farmers for meeting quality standards.
- **Develop Traceability:** To improve quality standards, ability to trace cocoa to origin is important. The problem now is the mixing of various farmers' production when collected, especially by traders. AMARTA II should develop a system to license traders or farmers.
- **Improve Infrastructure:** Road expansion and better maintenance by government is critically needed in many rural areas. Some RACAs, such as the Karo Alliance, have succeeded in lobbying for road improvements, and others have been provided with equipment such as solar dryers for cocoa. However, results to date have been relatively limited given the wide needs and stronger efforts are needed to improve infrastructure.
- **Coordinate and Disseminate Practical Agro Research:** Better coordinate research between government research institutions and universities and improve the dissemination of agricultural research to producers and processors.
- **Focus More on Producing Sustainable Cocoa,** which is in strong demand from large buyers especially in EU markets. Help farmers meet standards of, for example, the Rainforest Alliance, the Netherlands-based UTZ, and Fair Trade.
- **In Horticulture, Encourage New Seed Varieties:** Importing new varieties is often complicated, as Customs often quarantines and burns new seeds that don't meet their standards. However, the new Horticulture Law supports the importation of new varieties; regulations need to be revised to effectively implement the new Law.

- **Monitor the Mandatory US Detention of Imported Cocoa:** Though not a major constraint, as imports are held at US ports only 2-3 days to be fumigated, closely monitor any delays in Indonesian exports.

Effectiveness of Grants

The purpose of the AMARTA small grants initiative was to improve productivity, quality, and public awareness by supporting the development of innovative solutions to agribusiness value chain competitiveness constraints. The program focused on supporting marketing, quality management training, advocacy, business plan implementation, or technology improvements. Eligible recipients included agribusiness enterprises (firms and farms), business services providers, universities, research institutes, trade or producer associations, and other key industry actors, and grants were awarded among all categories. The total grant budget was initially set at 1.4 million dollars. Over the life of project, the total awarded was \$1,225,000 and the average grant amount was about \$50,000. A total of 29 grants were made, of which 12 were awarded under PADA, mainly for coffee and aquaculture, indicating a strong focus on Papua livelihood support (see Table 14).

The majority of grants were made to private sector firms, often expatriate-led companies, as well as NGOs. Major grants were made for coffee in Aceh and in Flores, and aquaculture/shrimp production in Aceh.

Value Chain	Number of Grants	Grant Amount (\$)
Aquaculture	10	510,000
Coffee	10	395,000
Livestock	2	145,000
Cocoa	1	65,000
Food Crops	1	50,000
Horticulture	4	34,000
Bio-Fuels	1	26,000
Total	29	1,225,000

AMARTA's small grants program had mixed results. Grants were initially spread too thinly, to too many value chains and crops in various locations, and most of the grants budget was dispensed relatively early in the project. Grants were reportedly managed and monitored unevenly from the main AMARTA office,^{xli} which had no full-time grants manager in place after late 2009 when no further grants were made for activities other than in Papua.

The most successful areas of AMARTA grant support were in: coffee production in Wamena Papua, resulting in increased production and improved marketing to export buyers; cocoa smallholder training that improved productivity and income, particularly in Bali; and horticulture in N. Sumatra, where farmer membership in cooperatives was significantly expanded, and incomes increased significantly. This was the case particularly in citrus and

banana production, although quality concerns for citrus kept exports lower than expected.

Less successful areas included: Aceh coffee support (see text box in Annex G); and support for bio-fuels, rubber, aquaculture, seaweed and spices, which were dropped from the AMARTA budget in late 2009 due to low impact. Livestock reportedly was more successful, but was also dropped in the interest of avoiding being spread too thinly. Floriculture was dropped for about one year, but was reinstated, having demonstrated a strong positive impact in supporting women producers.

The management of small grants will need to be improved under AMARTA II by ensuring that grant amounts are sufficient to achieve goals, that targeting for results is more focused, and that there is closer monitoring and tighter management.^{xlii}

Grants were generally spread too thinly, especially at the project start, in terms of too many grants being made with often insufficient amounts for secondary crops such as seaweed and livestock. Budget cuts in the secondary crops did go far toward addressing the issue of being spread too thinly, but in some cases grant recipient activities had not yet achieved sustainable levels. Grants in Papua generally appeared more effective in terms of being more tightly targeted and focused on program priorities.

Closer monitoring and overall grant management in particular are needed in future. Grant disbursements were integrated into AMARTA technical assistance activities, and thus were not always broken out for adequate monitoring of performance and results. This led to relatively lax grants management. The initial grants manager reportedly did not interact well with the initial AMARTA Chief of Party (COP), and after his departure in late 2009, was not replaced. This was due partly to expectations that AMARTA was due to end in late 2009. From then on, grants were overseen by AMARTA's Deputy COP. Grant disbursements were finished by September 2009 for AMARTA activities in all areas except Papua where grant activities continued.

LESSONS LEARNED AND RECOMMENDATIONS

Operating Environment: Constraints and Their Impact on Results

The Indonesian operating environment poses a mixture of strengths and weaknesses. On one hand, coffee and cocoa farmers enjoyed strong positive price trends over the course of the AMARTA project. For example, cocoa prices doubled from about \$1,500/MT to over \$3,000/MT over the life cycle of the project.

Likewise, coffee increased from a low of \$2.15/kg for mild Arabica in New York in September 2006 (the month that AMARTA started) to a high of \$6.48/kg in March 2011, the last full month AMARTA operated. This represents a three-fold increase in the New York coffee price over the life of the project. These global market trends translated into higher farmgate prices and encouraged farmers to take part in the training offered by AMARTA.

The high cocoa and coffee prices also encouraged exporters to allocate resources to improve supply chain efficiency and increase volumes. This fact made them willing partners and allowed AMARTA to establish productive relationships with export organizations.

The real challenge will occur when prices start to decline and farmers and exporters become less enthusiastic about prices and expanding volumes. During the interview process, several cocoa farmers attributed the increase in farmgate price to AMARTA. This is not a realistic view, as AMARTA has no influence on global cocoa prices; however, the perception of the farmers was when the AMARTA project started, prices were low and now they are high. Perceptions like this are not helpful in the long-term, and this is one of the reasons why farmers need to have training in commodity price discovery.

Horticulture also enjoyed strong price trends during the course of the project, and strong demand from the supermarket sector, which is taking on an ever-more important role in purchasing and distribution of horticultural products in Indonesia.

The challenges in the operating environment include a project that was distributed across a wide geography. Air travel from Medan, Sumatra to Jayapura, Papua requires eight hours of flight time.

Although fuel prices are subsidized (and below world price), roads are in poor condition and transport times are long, adding to the cost of moving product to market. One extreme example was in Wamena, Papua, where coffee beans must be air freighted to Jayapura, as roads on the island are impassable. The cost to fly one kilo of coffee between these two cities, a 475 km flight is \$0.47/kg. As a comparison, the cost to ship a kilo of commodity (ocean freight) from Oakland, California to Shanghai, China (a distance of over 9,900 kilometers) is about \$0.16/kg.

Institutionally, the decentralization of Indonesia's government has also posed challenges to the project. Generally speaking, authorities in the central government were not well informed of AMARTA's activities, and this provided a missed opportunity for the project. At the local level, some of the district-level authorities were extremely well informed and eager to work in partnership with the project. This was particularly true in places such as Pakpak Bharat in north Sumatra. In central Sulawesi, the senior management of the government's Estate Crops agency appeared in interviews to have very limited exposure to the project.

AMARTA's Approach: What Worked and What Did Not

AMARTA's initial approach of working with all value chain stakeholders was changed, after it became clear early on that smallholder production processes needed significant attention, and then focused heavily on improving smallholder farming practices.^{xliii} This approach worked well overall, as buyers have been provided with higher quality produce, increasing farmgate income. However, secondary activities had less significant results, such as linking growers, input providers and buyers, interacting with government institutions and promoting policy advocacy.

In cocoa, there was a significant positive impact through training in improved management practices and technology transfer, resulting in increased yields from 600 kg/HA to 995 kg/HA, and a marginal increase in farmgate income of \$979/HA¹³. However, despite AMARTA IPM training, cocoa pod borer disease remains a major problem for cocoa farmers.

Coffee support was productive but has had relatively minimal results to date as most activities were not started early in the project. The Wamena Cooperative expects a net profit of \$78,600 on sales of (+/-) \$200,000 in 2011 after three years of support, and N. Sumatra and Bali coffee activities are in very early stages. All have good growth potential but will require ongoing commitment.

Horticulture accounted for the largest proportion of AMARTA's budget, and most results are quite positive. Support was provided to 20,000 farmers in North Sumatra and 800 farmers in West Java, covering 11,200 hectares, and generated six sound models for further horticulture expansion in AMARTA II. However, there remains an urgent need to increase the number of farmers and output to meet increasing demand for quality products.

Among institutional, policy, and grant activities, partnerships were generally strong, particularly with the private sector, and resources were leveraged well. Interaction with central government, and policy reforms, were limited, as both were a secondary focus of AMARTA. And small grants had mixed results, being spread too thinly with uneven management and monitoring.

Lessons that can be Employed in Future Agribusiness Programs

The following list highlights the lessons learned by AMARTA. These lessons should be considered when developing the work plans for future agribusiness activities in Indonesia.^{xliv}

¹³ Cocoa marginal gross income at the farmgate is calculated assuming \$3,100/MT x 80% x .395 MT/HA = \$979.⁶⁰/HA

- To provide incentives for producing higher quality cocoa, there is a need for a standard premium or bonus to be broadly adopted by industry buyers and exporters that rewards farmers for meeting improved quality standards.
- The effectiveness of current technical training has reached a plateau for many farmers who have received considerable intensive training, indicating a need to ramp-up training to higher levels of technical content in selected communities.
- Following nearly a decade of agricultural production training provided by AMARTA and its predecessor programs, many villages and rural areas have been effectively saturated, showing the need to expand training into new geographic areas.
- Many private sector linkages and partnerships have proven to be quite successful under AMARTA, underlining the need to pursue further partnerships especially with major companies starting up new operations, such as Mars and Nestle in S. Sulawesi.
- Cooperation with central government agencies is one of the few areas where AMARTA activities did not work as effectively as hoped. Future efforts are needed to build political capital more effectively to better leverage project impact, as well as to promote more effective policy advocacy.
- AMARTA effectively focused on pushing or increasing farmgate supply to markets. Future activities should also increase the capacity of processors to pull or source product more effectively by shortening the supply chain and reducing transaction costs.
- The new export tax on cocoa farmgate value has effectively reduced farmers' income by from about 8 to 10%, and will be difficult to change, indicating a need for other industries such as coffee to be more pro-active to avoid bearing the brunt of potential new taxes in future.

Recommendations

The evaluation team's recommendations fall into the following four broad categories including recommendations for future activities covering:

Production and On-farm Activities: At the farm level, future activity needs to focus on continued training of farmers, and expanded training into new geographies. For selected farm groups that have already benefitted from training, the project should provide advanced training in topics such as IPM. AMARTA II should also continue its work to improve coffee and cocoa genetic material by developing a certified nursery program and creating parent material nurseries in key coffee and cocoa production regions. More specifically:

- Continue training in coffee and cocoa production best practices (promote shade tree planting)
- Develop cocoa and coffee nursery certification program and parent material nurseries
- Expand coffee and cocoa demonstration plots
- Make training VCD's in local language(s)
- Provide basic book-keeping and business training to farmers and extension agents
- Deliver advanced IPM training to selected FG's

- e.g., Pheromone puffer technology research and application for Cocoa and Coffee pod borer

Post-harvest Activities: Future post-harvest activities should include training in grading and sorting of products (for coffee, cocoa and horticulture), as well as value-addition techniques such as cocoa fermentation, fully-washed coffee/ coffee fermentation, as well as fruit and vegetable grading, packing, cooling and labeling. Specifically:

- Support Sumatra and Papua coffee farmer groups via pulping , washing and drying stations + hulling
- Train in cocoa fermentation and fully washed coffee
- Work with farmers and private sector to expand standardized industry grade and bonus system
- Consider e-scale, bar code / Quick Books / e-banking system for cocoa and coffee coops
- Address market constraints and opportunities
 - e.g., horticulture - grade, brand and cold chain

Market-related Activities: Recommendations for market-related activities include training farmers in price discovery and basic business skills. The project should also consider developing SMS systems with private sector partners to provide farmers with daily updates in market price. Future activities should work with partners to create a traceability system that maintains product identity throughout the supply chain. Developing a quality grade bonus system that is broadly accepted throughout the industry is another important focus area that should be included in any future activity.

- Expand coffee and cocoa links between growers and exporters / importers (organize bulk sales)
- Educate farmers on horticulture, cocoa and coffee price discovery to avoid potential misconceptions about reasons for rising and (in particular) falling commodity prices
- Create traceability systems in all commodities
- Expand cocoa SMS market information system and include coffee sector (Olam–cocoa model)
- Link new private company start-ups to project farmers (e.g., Mars and Nestle)
- Move into new cocoa, coffee and horticultural geographies (project areas)

Institutional, Policy and Project Management: In terms of institutional recommendations, future activities need to form better relationships with national-level government. Additionally, emphasis needs to be put on training RACAs in advocacy to allow them to become effective change agents with the ability to influence policy and regulatory outcomes. AMARTA II should continue supporting the SCAI through selected grants that support market and appellation development activities but should not provide grants to cover SCAI's overhead. In summary:

- Improve relations with regional and particularly national agencies
- Strengthen links and TOT with agricultural extension agents
- Support selected SCAI activities, e.g., appellations

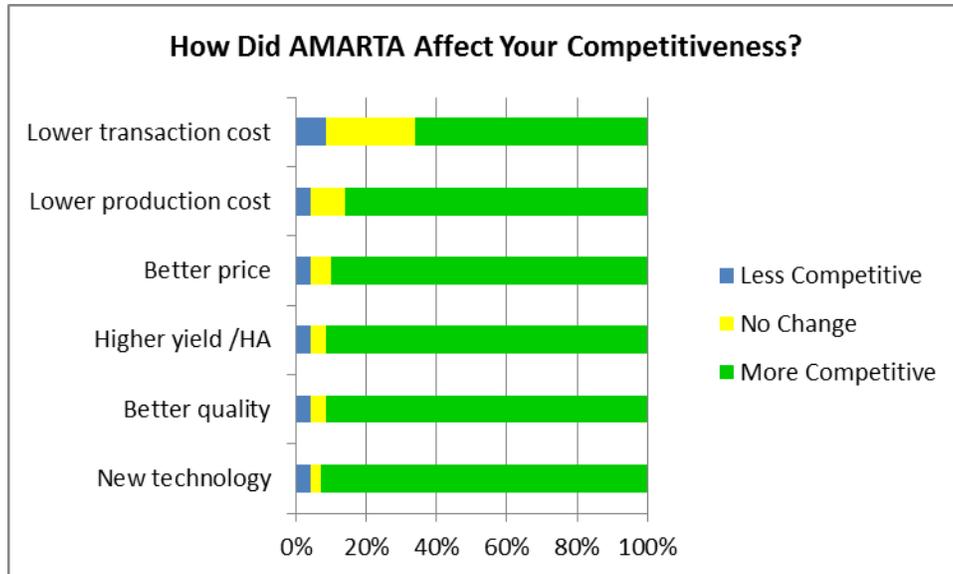
- Strengthen management capacity in provincial offices
- Select performance indicators that correlate directly to the Mission Strategic Objectives, e.g., increased incomes and job creation
- At AMARTA II start-up, ensure that a Project Management Plan is in place that immediately collects baseline data, and continues data-collection throughout the project, sufficient to measure all relevant indicators, including detailed cost-benefit and return-on-investment analyses ^{xlv}

PADA Activities: With generally positive results in Papua under the PADA II initiative, plans appear justified to expand support under PADA III. In particular, strong opportunities exist for expanding coffee production and coffee export sales via contract with US importers. Activities supporting livelihoods and income should focus in particular on fisheries and horticulture. Also critical will be closer partnerships with PT Freeport and LPMAK that more effectively leverage their funding and in-kind contributions to expand the impact of PADA activities. Additionally:

- Include Ministries, Regency, Beppeda, BAPPENAS, LPMAK, local NGOs, in planning and evaluation
- Immediately develop a long-term vision and short-term map to guide PADA III
- Establish performance measures that account for economic and social progress
- Organize coffee study tour to visit Timor L'este NCBA coffee cooperative (for Wamena Cooperative)
- Select and mentor leaders for all PADA villages
- Establish trading post/buying station in Timika
- Increase dispersion of PADA services to satellite villages
- Provide communication to all PADA villages
- Develop cost-effective trade routes
- Improve forward/backward supply chains
- Cooperate with BRI to establish their warehouse receipts program for PADA VCs

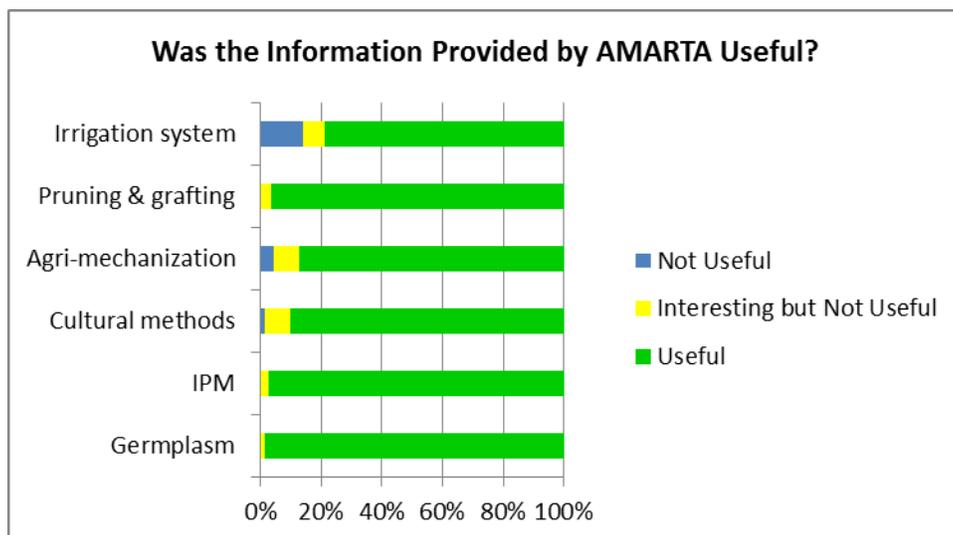
ANNEX A: RAPID FIELD SURVEY RESULTS

FIGURE 8: HOW DID AMARTA AFFECT YOUR COMPETITIVENESS?



The evaluation team created an informal survey to gauge how AMARTA training affected the beneficiaries. The total sample size was 70. The participants in the survey were randomly selected during field visits. The graph in Annex A, Figure 1, shows a high level of satisfaction by beneficiaries in regards to AMARTA's effect on their competitiveness.

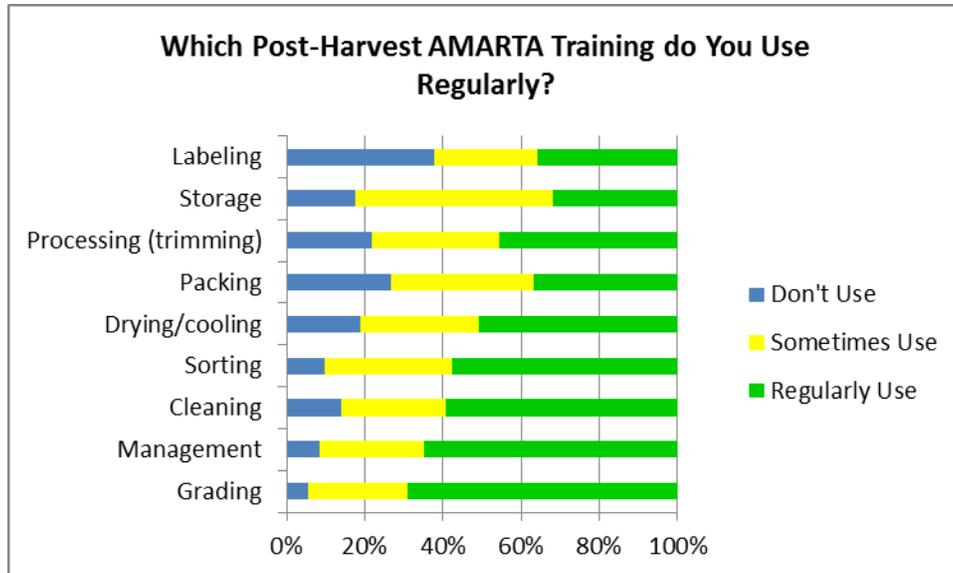
FIGURE 9: WAS THE INFORMATION PROVIDED BY AMARTA USEFUL?



Annex A, Figure 2, shows that beneficiaries found germplasm (new varieties) and IPM training to be some of the most useful technology provided by the project. Irrigation training was generally found useful, but less so. Cocoa and coffee are both rain fed crops and therefore it is

likely that farmers who are involved in these commodities did not find training in this area particularly useful.

FIGURE 10: WHICH POST-HARVEST AMARTA TRAINING DO YOU USE REGULARLY?



Grading and better management practices were generally adopted more than other types of post-harvest practices. Since nearly half of the farmers in the survey were involved in coffee and cocoa, it is not surprising to see the high number of people responding that they do not regularly use labeling. As a commodity, farmers typically do not label coffee or cocoa; however, this is important in horticultural crops.

ANNEX B: SUMMARY OF TARGET INDICATORS

The AMARTA project collected target indicator data on 59 different targets, as agreed to by USAID. The project collected 21 additional indicators for internal monitoring purposes. The following is a graphic representation of selected project indicators.

FIGURE 11: TOTAL HECTARES UNDER IMPROVED TECHNOLOGIES OR MANAGEMENT PRACTICES

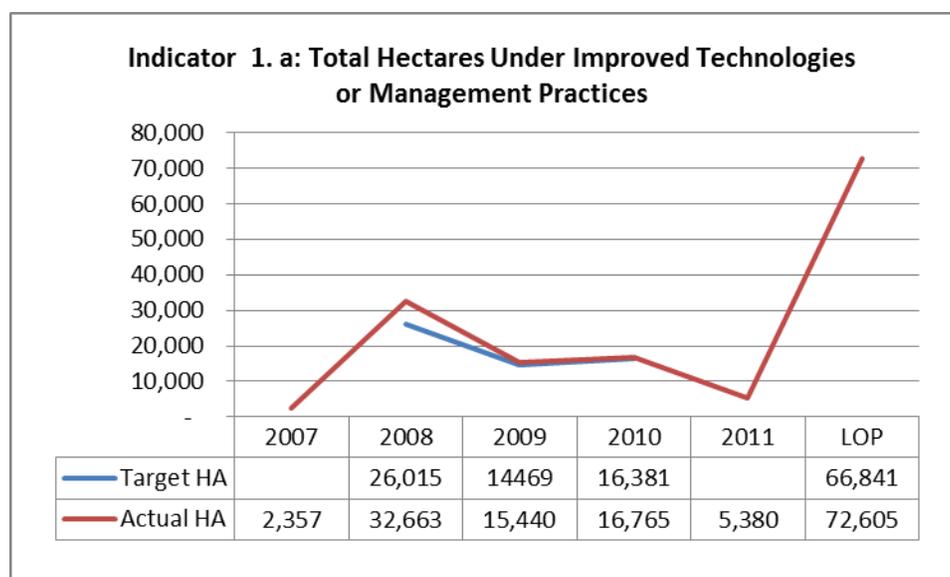


FIGURE 12: UNITS OF ANIMAL PRODUCTS UNDER IMPROVED TECHNOLOGIES OR MANAGEMENT PRACTICES (HEAD)

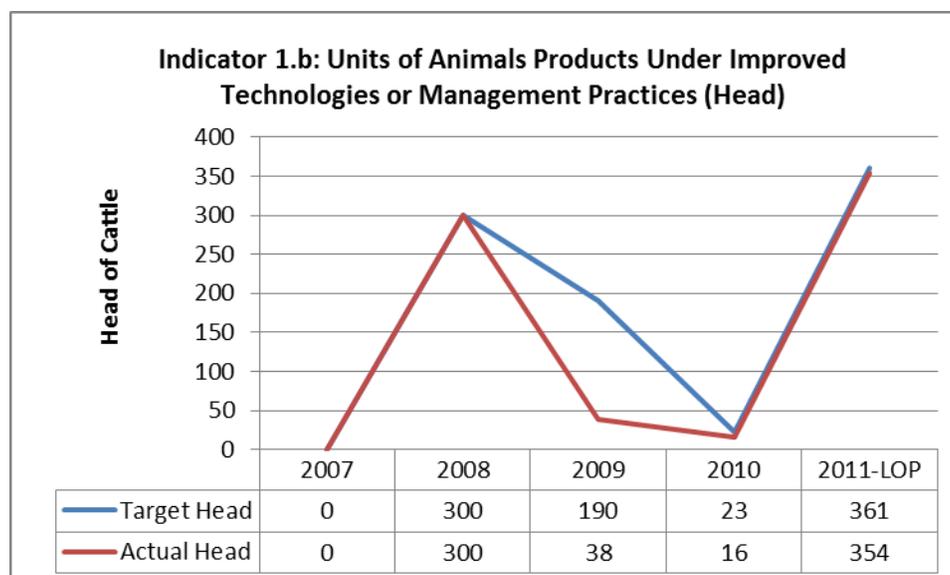


FIGURE 13: UNITS OF FISH UNDER IMPROVED TECHNOLOGIES OR MANAGEMENT PRACTICES (KGS)

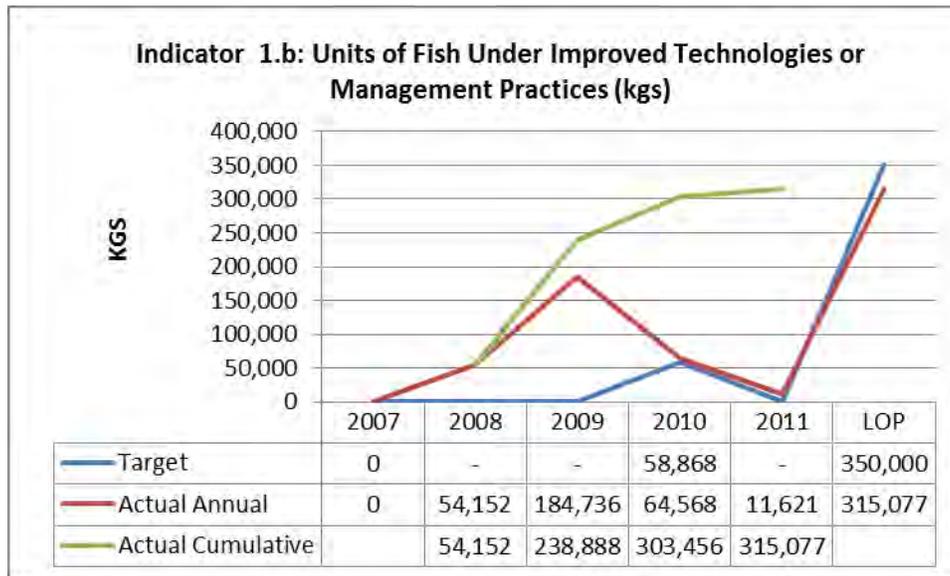


FIGURE 14: UNITS OF AQUACULTURE PRODUCTS UNDER IMPROVED TECHNOLOGIES OR MANAGEMENT PRACTICES (KGS)

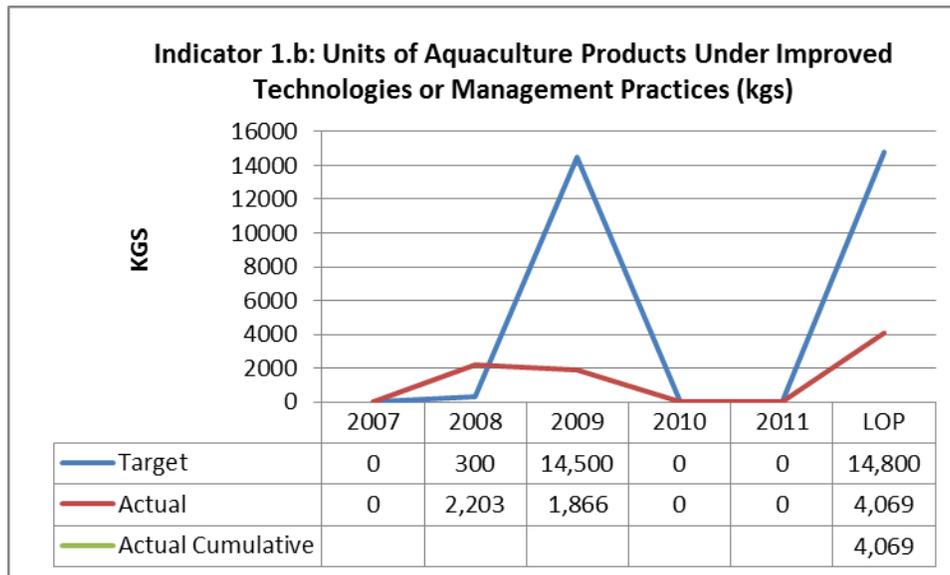


FIGURE 15: NUMBER OF BUSINESS, FARMER & COMMUNITY ORGANIZATIONS RECEIVING ASSISTANCE FROM AMARTA

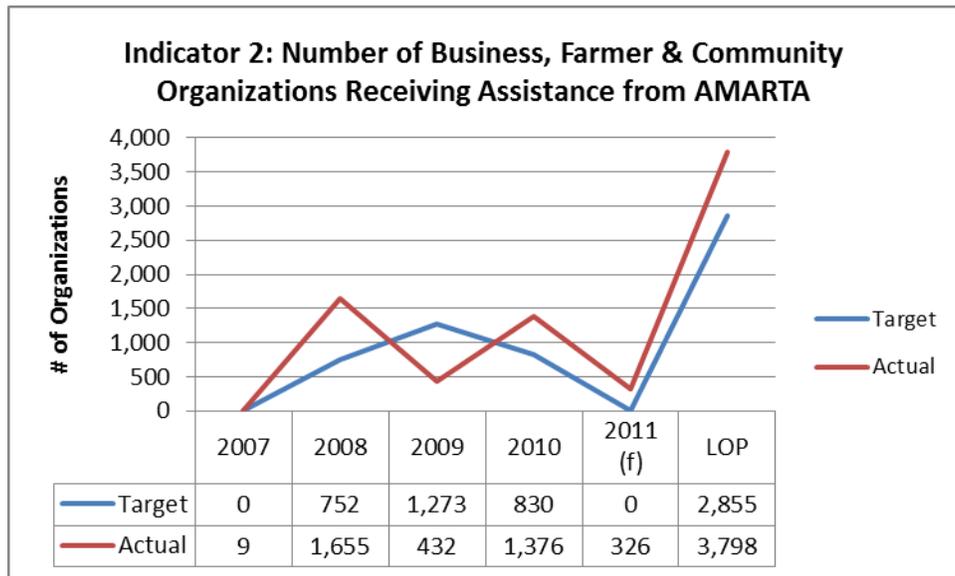


FIGURE 16: NUMBER OF AGRI-RELATED FIRMS BENEFITING FROM AMARTA

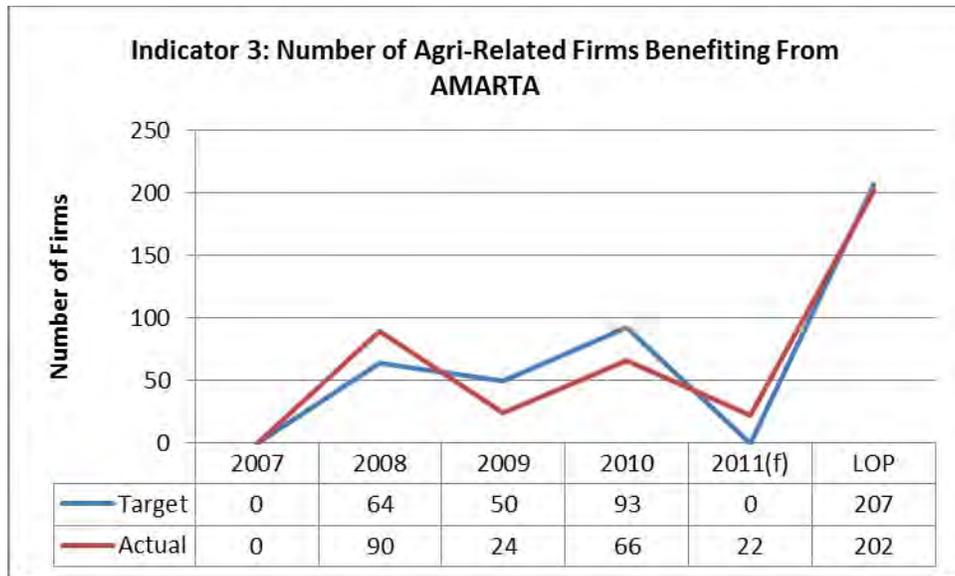


FIGURE 17: PEOPLE TRAINED IN IMPROVED AGRICULTURAL PRODUCTIVITY

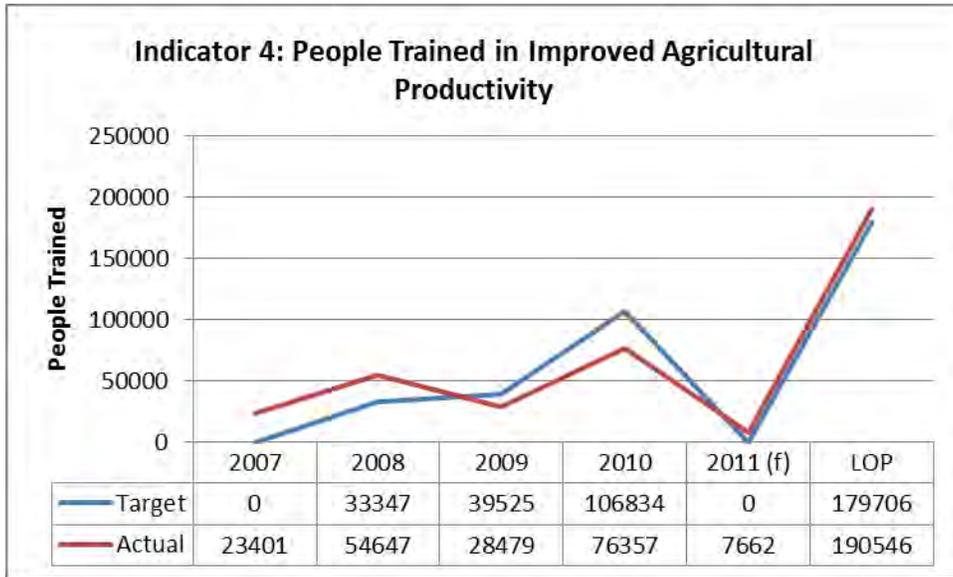


FIGURE 18: % CHANGE IN VALUE OF COFFEE EXPORTS

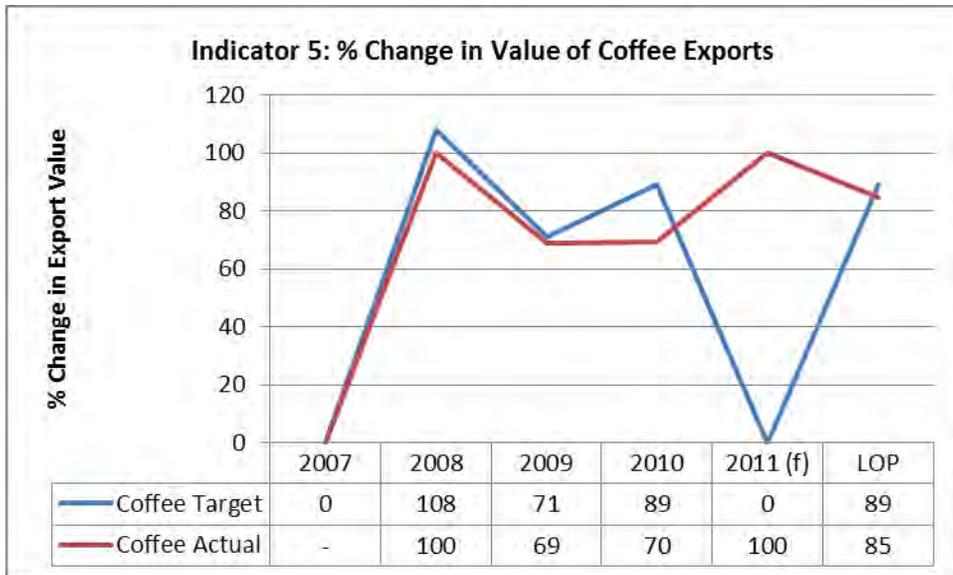


FIGURE 19: % CHANGE IN SALES VALUE FOR SMALLHOLDER COCOA FARMERS

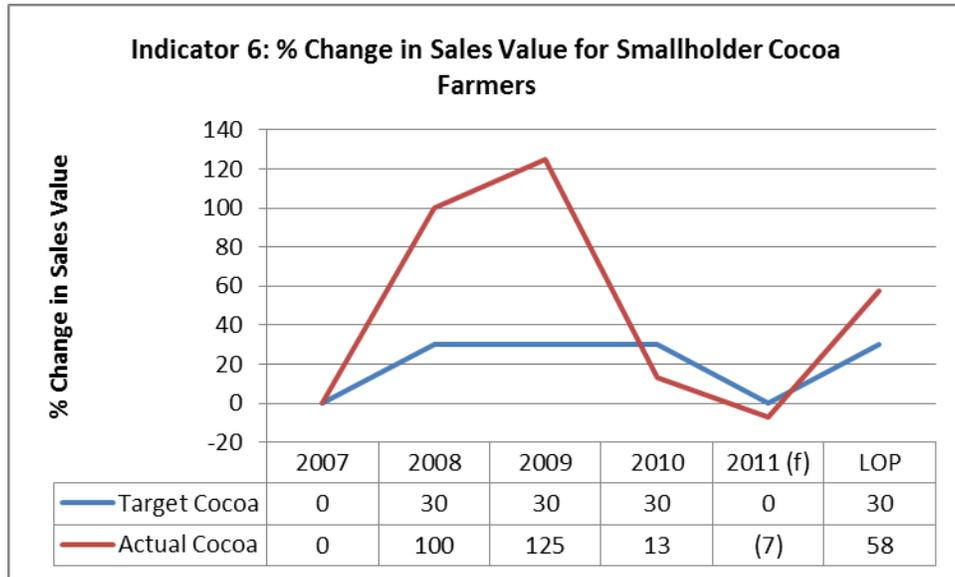


FIGURE 20: % CHANGE IN SALES VALUE FOR SMALLHOLDER COCOA FARMERS

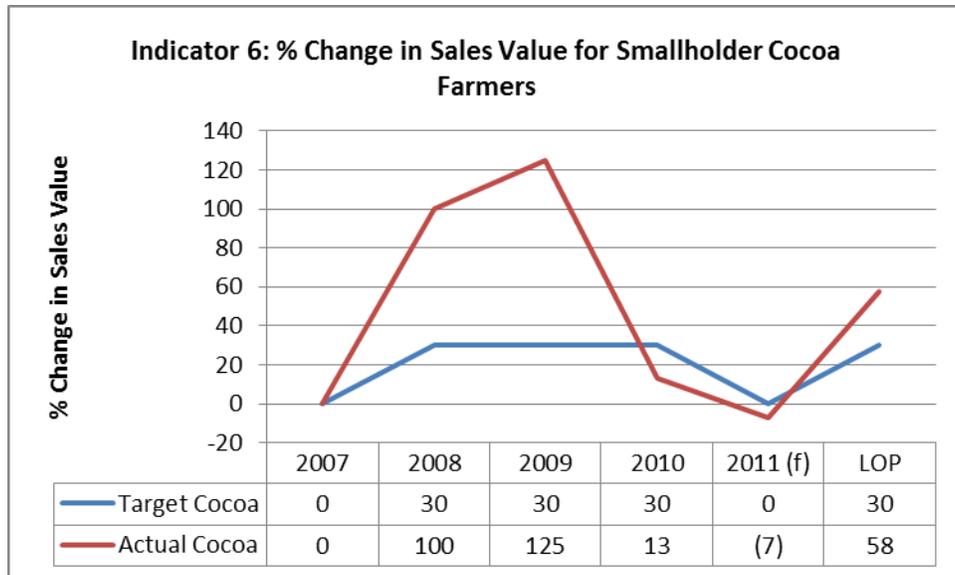


FIGURE 21: CHANGE IN SALES VALUE FOR SMALLHOLDER VEGETABLE FARMERS

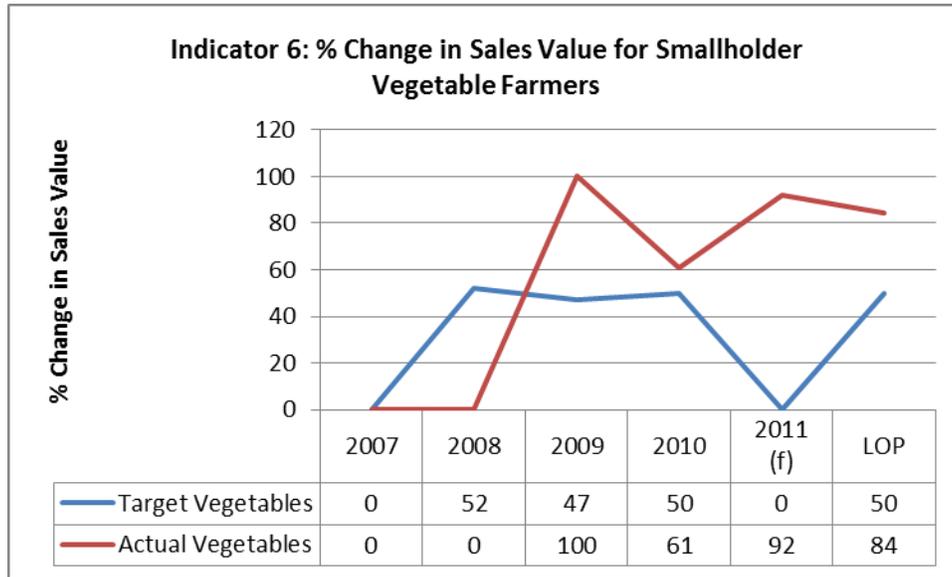


FIGURE 22: AGGREGATE % CHANGE IN SALES VALUE FOR ALL COMMODITIES SOLD

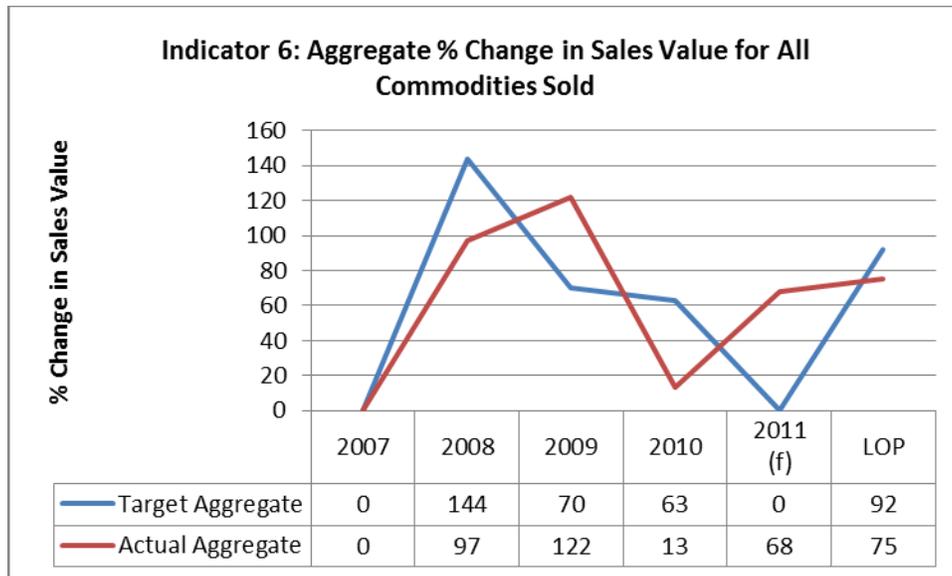


FIGURE 23: NEW TECHNOLOGIES & MANAGEMENT PRACTICES MADE AVAILABLE FOR TRANSFER

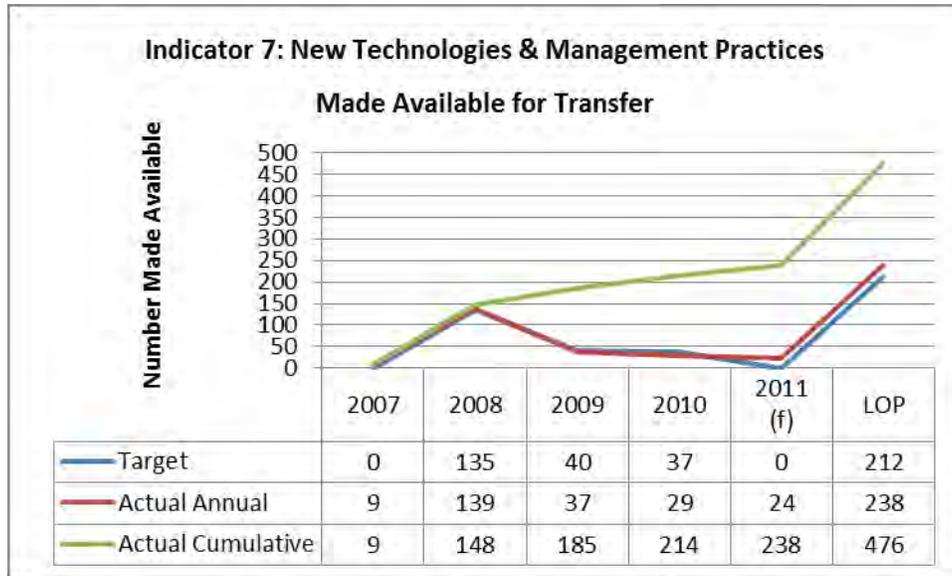


FIGURE 24: DAI INDICATORS 8-10

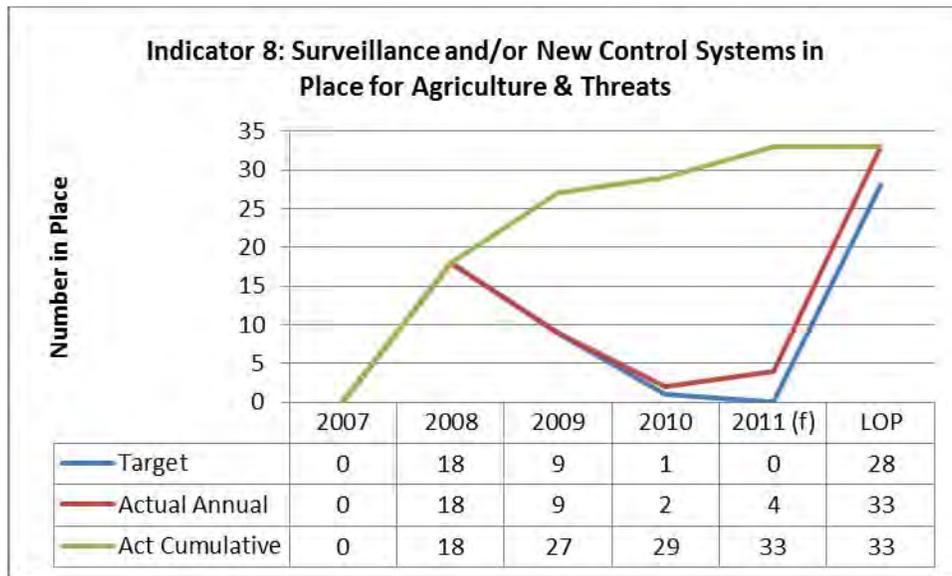


FIGURE 25: PPP'S FORMED AS A RESULT OF AMARTA

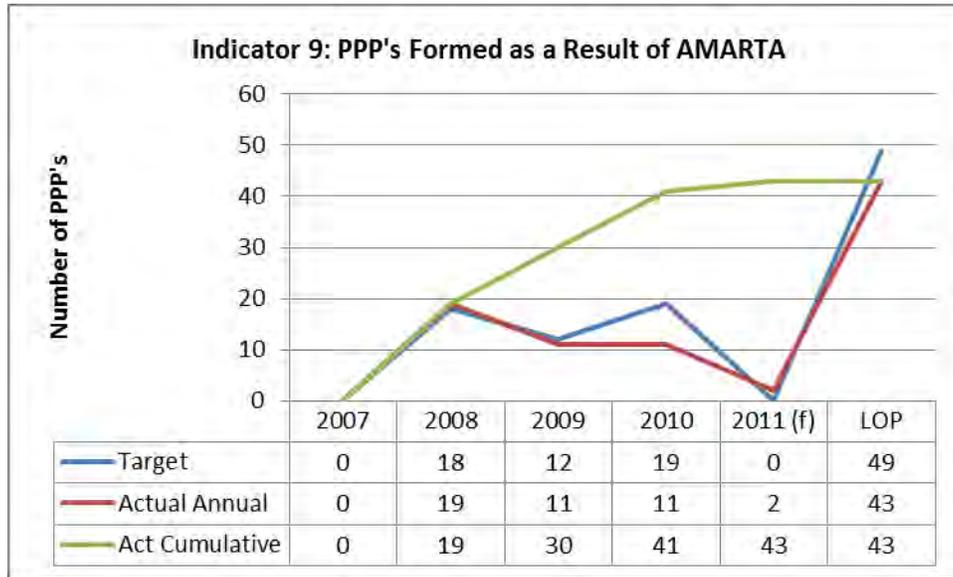


FIGURE 26: ORGANIZATIONS & ASSOCIATIONS ASSISTED BY AMARTA

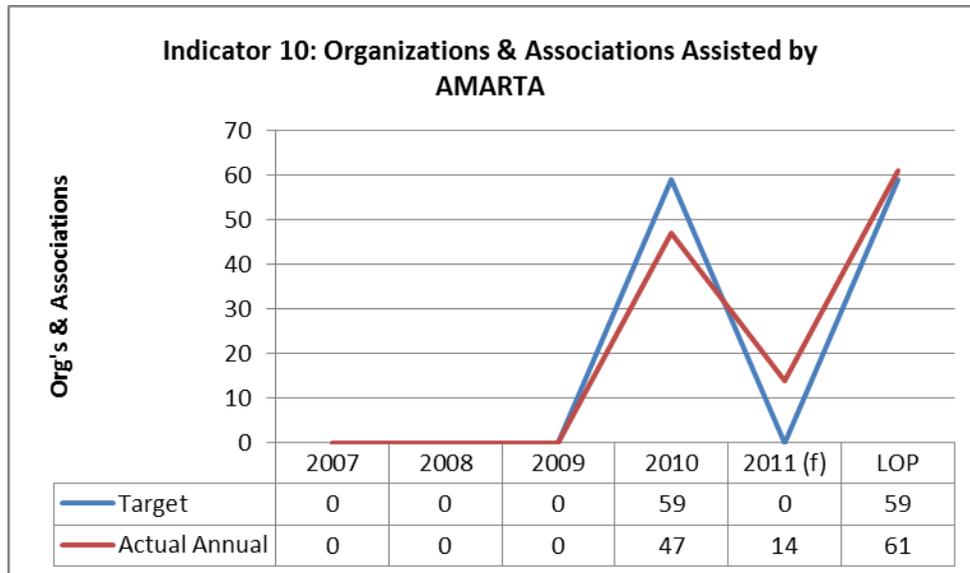


FIGURE 27: AMARTA INDICATORS FOR QUARTER I, 2011 (OCTOBER – DECEMBER 2010)

**AMARTA Indicators for Quarter 1, 2011
(October - December 2010)**

INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Number of additional hectares under improved technologies or management practices as a result of USG assistance	Actual 2007	-	-	1,220	-	-	-	1,137	-	-	-	2,357
	Actual 2008	-	535	20,804	7,200	-	659	3,425	40	-	-	32,663
	Actual 2009	-	1,782	9,528	1,099	-	132	2,899	-	-	-	15,440
	Actual 2010	-	-	6,846	2,156	-	96	7,667	-	-	-	16,765
	Q1 2011	-	-	-	740	-	109	4,531	-	-	-	5,380
	Actual 2011	-	-	-	740	-	109	4,531	-	-	-	5,380
	Target 2010	-	0	4,958	4,135	-	272	7,016	-	-	-	16,381
	LOP Actual	-	2,317	38,398	11,195	-	996	19,659	40	-	-	72,605
	LOP Target	-	2,317	36,510	12,434	-	1,063	14,477	40	-	-	66,841

INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Number of additional units of animal, fish and other aquaculture products under improved technologies or management practices as a result of USG assistance	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	54,152	-	-	-	300	-	-	-	2,203	-	56,655
	Actual 2009	184,736	-	-	-	38	-	-	-	1,866	-	186,640
	Actual 2010	64,568	-	-	-	16	-	-	-	-	-	64,584
	Q1 2011	11,621	-	-	-	-	-	-	-	-	-	11,621
	Actual 2011	11,621	-	-	-	-	-	-	-	-	-	11,621
	Target 2010	58,868	-	-	-	23	-	-	-	-	-	58,891
	LOP Actual	315,077	-	-	-	354	-	-	-	4,069	-	319,500
	LOP Target	350,000	-	-	-	361	-	-	-	4,069	-	354,430
Number of producer organizations, water user associations, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	Actual 2007	-	-	-	9	-	-	-	-	-	-	9
	Actual 2008	3	19	860	290	17	107	273	2	15	69	1,655
	Actual 2009	-	4	42	5	22	4	233	-	-	122	432
	Actual 2010	-	-	224	571	-	18	558	-	-	5	1,376
	Q1 2011	-	-	-	106	-	13	203	-	-	4	326
	Actual 2011	-	-	-	106	-	13	203	-	-	4	326
	Target 2010	-	-	224	146	-	21	287	-	-	81	759
	LOP Actual	3	23	1,126	981	39	142	1,267	2	15	200	3,798
	LOP Target	3	23	1,126	450	39	132	793	2	15	272	2,855

INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Number of agriculture related firms benefiting directly from USG supported interventions	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	12	11	22	10	1	15	11	4	2	2	90
	Actual 2009	-	-	4	9	-	3	8	-	-	-	24
	Actual 2010	2	-	1	41	-	19	-	-	-	3	66
	Q1 2011	-	-	-	4	-	1	2	-	-	15	22
	Actual 2011	-	-	-	4	-	1	2	-	-	15	22
	Target 2010	2	-	11	55	-	14	3	-	-	8	93
	LOP Actual	14	11	27	64	1	38	21	4	2	20	202
	LOP Target	14	11	37	74	1	32	22	4	2	10	207
Number of individuals (men and women) who have received USG supported short-term agriculture sector productivity training	Actual 2007	-	79	17,428	128	-	60	5,520	-	-	186	23,401
	Actual 2008	453	445	32,155	12,670	446	1,497	3,942	1,436	216	1,387	54,647
	Actual 2009	192	384	20,114	1,257	-	859	4,483	-	218	972	28,479
	Actual 2010	-	-	59,928	4,210	-	1,035	9,145	-	-	2,039	76,357
	Q1 2011	6	-	-	1,113	-	1,134	5,318	-	-	91	7,662
	Actual 2011	6	-	-	1,113	-	1,134	5,318	-	-	91	7,662
	Target 2010	55	-	60,303	5,610	4	837	4,915	-	-	1,455	73,179
	LOP Actual	651	908	129,625	19,378	446	4,585	28,408	1,436	434	4,675	190,546
	LOP Target	700	908	130,000	19,665	450	3,253	18,860	1,436	434	4,000	179,706

INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Percent change in value of international exports of targeted agricultural commodities as a results of USG assistance	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	-	-	100	100	-	-	-	-	100	-	100
	Actual 2009	-	-	104	69	-	-	-	-	100	-	91
	Actual 2010	-	-	17	70	-	-	-	-	-	-	43
	Q1 2011	-	-	(6)	100	-	100	-	-	-	-	65
	Actual 2011	-	-	(6)	100	-	100	-	-	-	-	65
	Target 2010	-	-	45	89	-	18	-	-	100	-	63
	LOP Actual	-	-	50	67	-	100	-	-	100	-	79
	LOP Target	-	-	45	89	-	18	-	-	100	-	63
Percent change in value of purchases from smallholders of targeted commodities as a result of USG assistance	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	100	-	100	100	-	-	87	-	100	-	97
	Actual 2009	184	-	125	25	-	100	100	-	200	-	122
	Actual 2010	(34)	-	13	-	-	61	-	-	-	-	13
	Q1 2011	(44)	-	(7)	100	-	92	100	-	-	100	68
	Actual 2011	(44)	-	(7)	100	-	92	100	-	-	100	68
	Target 2010	100	-	30	59	-	50	26	-	150	-	69
	LOP Actual	52	-	58	75	-	84	96	-	150	100	88
	LOP Target	100	-	30	59	-	50	26	-	150	-	69

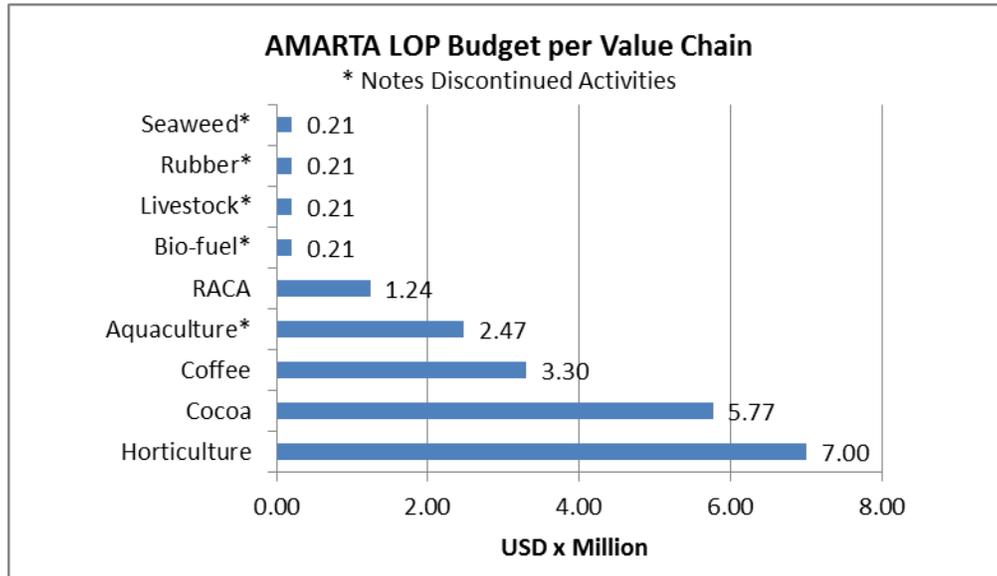
INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Number of new technologies or management practices made available for transfer as a result of USG assistance	Actual 2007	-	-	-	-	-	-	9	-	-	-	9
	Actual 2008	24	14	25	12	2	26	27	5	4	-	139
	Actual 2009	2	1	3	-	1	19	1	-	2	8	37
	Actual 2010	-	-	2	4	4	19	-	-	-	-	29
	Q1 2011	-	-	1	5	-	13	5	-	-	-	24
	Actual 2011	-	-	1	5	-	13	5	-	-	-	24
	Target 2010	-	-	4	14	1	6	4	-	-	-	29
	LOP Actual	26	15	31	21	7	77	42	5	6	8	238
	LOP Target	26	15	32	26	2	51	41	5	6	8	212
Number of additional surveillance and/or control systems in place for agricultural threats	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	6	2	4	3	1	-	1	-	1	-	18
	Actual 2009	4	-	1	-	1	1	-	-	2	-	9
	Actual 2010	-	-	-	1	-	1	-	-	-	-	2
	Q1 2011	-	-	-	3	-	1	-	-	-	-	4
	Actual 2011	-	-	-	3	-	1	-	-	-	-	4
	Target 2010	-	-	-	-	-	1	-	-	-	-	1
	LOP Actual	10	2	5	7	2	3	1	-	3	-	33
	LOP Target	10	2	5	3	2	2	1	-	3	-	28

INDICATORS		Aqua	Natural	Cocoa	Coffee	Beef	Vegetables	Tropical Fruit	Biofuels	Seaweed	RACA	Total
		culture	Rubber			Livestock		and Flowers				
Number of public-private partnerships formed as a result of USG assistance.	Actual 2007	-	-	-	-	-	-	-	-	-	-	-
	Actual 2008	3	3	4	3	1	5	-	-	-	-	19
	Actual 2009	2	-	-	4	-	5	-	-	-	-	11
	Actual 2010	-	-	-	4	-	4	1	-	-	2	11
	Q1 2011	-	-	-	-	-	2	-	-	-	-	2
	Actual 2011	-	-	-	-	-	2	-	-	-	-	2
	Target 2010	-	-	-	8	-	8	3	-	-	-	19
	LOP Actual	5	3	4	11	1	16	1	-	-	2	43
	LOP Target	5	3	4	15	1	18	3	-	-	-	49
Number of women's organizations/associations assisted as a result of USG Supported Interventions	Actual 2010	-	-	10	6	-	6	9	-	-	16	47
	Q1 2011	-	-	-	1	-	8	1	-	-	4	14
	Actual 2011	-	-	-	1	-	8	1	-	-	4	14
	Target 2010	1	-	10	8	-	10	14	-	-	16	59
	LOP Actual	-	-	10	7	-	14	10	-	-	20	61
	LOP Target	1	-	10	8	-	10	14	-	-	16	59

ANNEX C: BUDGET ALLOCATION

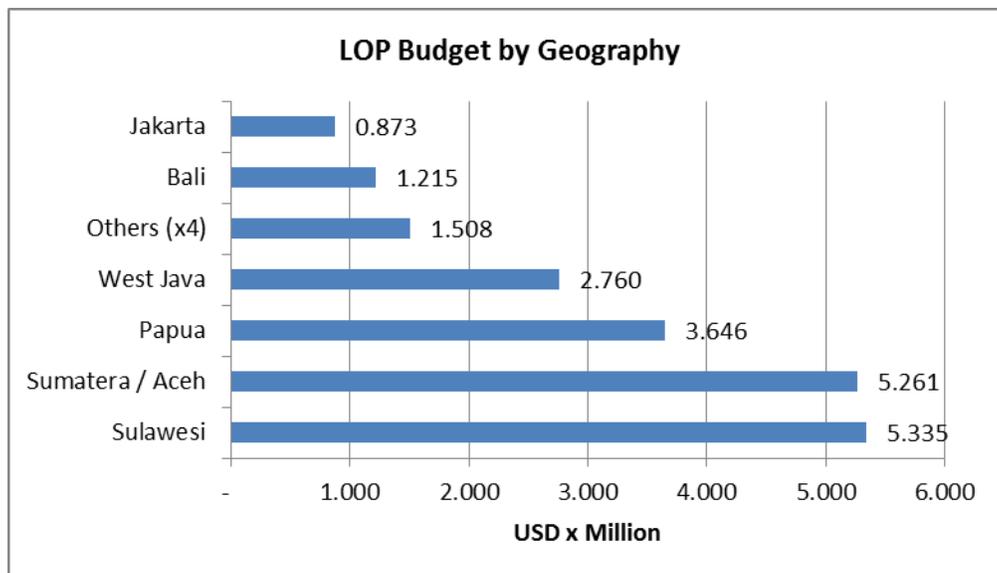
Annex C provides graphic details on budget allocations, as well as a table showing the total expenditures by geography and activity for the AMARTA project.

FIGURE 28: AMARTA LOP BUDGET PER VALUE CHAIN



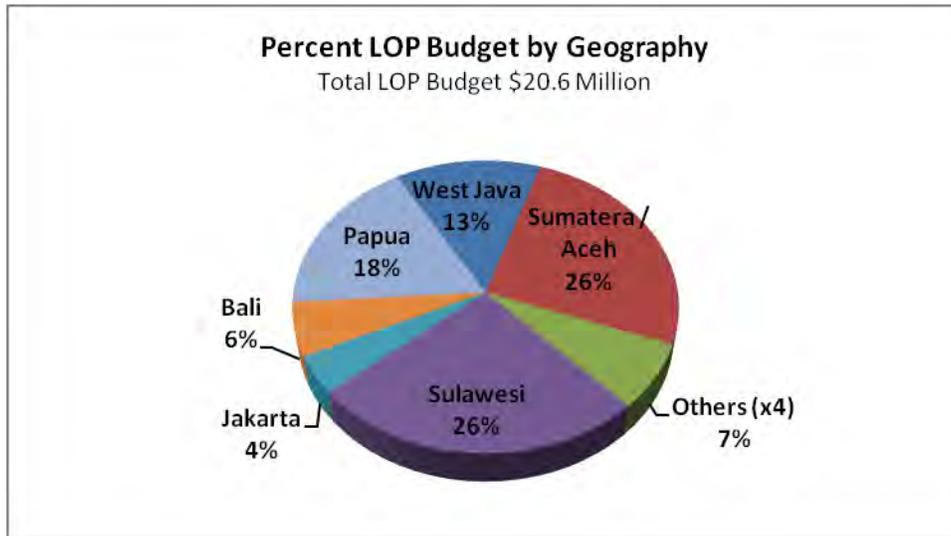
The above chart provides a graphic representation on expenditures by crop, sector and activity. The only non-crop activity in AMARTA was support to Regional Agricultural Competitive Alliances. As can be noted, horticulture received the majority of the budget at 7 million dollars over the life of AMARTA.

FIGURE 29: LOP BUDGETED BY GEOGRAPHY



Geographically, Sulawesi received the largest portion of the budget (see Annex C, Figure 2). Within Sulawesi, approximately 4.9 million dollars was expended on the cocoa sector, seaweed production in Sulawesi received about \$206,000, coffee received nearly \$165,000 and RACAs were funded at nearly \$62,000. Sumatra and Aceh, which received nearly as much as Sulawesi, had a mixture of activities, including horticulture at 4.2 million dollars and other activities including RACAs, seaweed and coffee.

FIGURE 30: % LOP BUDGET BY GEOGRAPHY



Papua received 18% of the AMARTA budget. This was funded through the PADA program, which focused on livelihood activities, including horticulture, fisheries (cold chain), pig production and coffee.

AMARTA Budget Allocation: (Source AMARTA Project Management)

Expenditure by Value Chain through April 1, 2011

Value Chain Expenditures			13%	24%	26%	6%	6%	2%	11%	4%	3%	1%	1%	1%
Activity	% of Total Project Expenses	Total Value of Expenses	West Java	North Sumatera	Sulawesi	Bali	Wamena	Moanemani	Other Villages / Timika	Jakarta	Flores	Aceh	Kalimantan	West Timor
Horticulture	34%	\$7,004,000	2,451,400	4,202,400					350,200					
Cocoa	28%	\$5,768,000			4,902,800	865,200								
Coffee	16%	\$3,296,000		329,600	164,800	164,800	1,318,400	494,400		626,240	98,880	98,880		
Aquaculture	12%	\$2,472,000							1,977,600		296,640	197,760		
RACA	6%	\$1,236,000	309,000	432,600	61,800	185,400				247,200				
Bio-fuel	1%	\$206,000									206,000			
Livestock	1%	\$206,000												206,000
Rubber	1%	\$206,000											206,000	
Seaweed	1%	\$206,000			206,000									
TOTAL	100%	20,600,000	2,760,400	4,964,600	5,335,400	1,215,400	1,318,400	494,400	2,327,800	873,440	601,520	296,640	206,000	206,000

Estimated total include training, materials, equipment, grants, procurement, and STTA. Salaries, office costs, and all other costs are included proportionately and not broken down by PADA and AMARTA budgets

Total AMARTA and PADA Budget is 20,600,000 dollars.

ANNEX D: FRUIT AND VEGETABLE VALUE CHAIN DATA

Horticulture: Simplified Cost Benefit Analysis¹⁴

All Figures in Dollars, HA and MT

Calculation based on Farmgate Gross Marginal Income Change, Before Production Cost Saving per Ha

Item	West Java			North Sumatra	
	Broccoli	Green Bean	Strawberry	Banana	Citrus
Yield MT/ha After	38.5	45.0	7.8	15.9	27.0
Yield MT/ha Before	18.2	26.0	4.0	7.1	16.0
Marginal Change MT/Ha	20.3	19.0	3.8	8.8	11.0
Gross Crop Selling Price \$/MT (return to farmer)	1,132	1,176	2,000	559	588
Farmgate Income Marginal Increase, \$/Ha	22,987	22,353	7,500	4,942	6,471
Crop Area Under AMARTA, Ha	210	29	42	175	10,424
Adoption Coefficient, %	50%	50%	50%	50%	50%
Area Under Improved Technology and Mgt, HA	105	15	21	88	5,212
Aggregate Increase in Gross FG Income, \$	2,413,610	324,118	157,500	432,416	33,724,706
AMARTA Horticulture Activity Budget, \$	490,280	367,710	490,280	1,260,720	1,680,960
Cost Benefit Ratio	4.92	0.88	0.32	0.34	20.06

¹⁴ As part of its M&E plan the AMARTA project did not collect information on production costs or change in gross or net income from beneficiaries at the farmgate or beyond the farm (further up the value chain). Given the lack of beneficiary cost and income data over time the evaluation team has opted to measure (estimate) the projects benefit by estimating the change in marginal aggregate gross income at the farmgate using the estimated mean marginal change in beneficiary yield times March 2011 market prices divided by AMARTA's total investment for selected value chains. The yield data used in the cost benefit and ROI calculation was obtained from beneficiary interviews.

Horticulture: Simplified ROI Analysis

All Figures in Dollars, HA and MT

Calculation based on Marginal Change in Net Farmgate, Before Production Cost

Saving per Ha

Item	West Java			North Sumatra	
	Broccoli	Green Bean	Strawberry	Banana	Citrus
Marginal Increase in Yield, MT/HA	20.3	19.0	3.8	8.8	11.0
Farmgate Selling Price \$/MT	1,132	1,176	7,500	559	588
Gross Marginal Farmgate Income, \$	22,987	22,353	28,125	4,942	6,471
Cost of New Technology and Management Systems Introduced by AMARTA, \$/HA	2,043	1,961	11,673	92	81
Net Marginal Income (after all production and post-harvest cost), \$	20,944	20,392	16,452	4,850	6,390
Area Under Improved Practices, HA	105	15	21	88	5,212
Marginal Net increase in Aggregate Farmgate Income, \$	2,199,113	295,681	345,485	424,384	33,304,466
AMARTA HVH Budget	490,280	367,710	490,280	1,260,720	1,680,960
ROI % (based on Marginal Increase in Net Income)	449%	80%	70%	34%	1981%

ANNEX E: ECONOMIC, SOCIAL AND AGRICULTURAL STATISTICS

Indonesia: Per Capita GDP

Year	GDP/Capita/Year (Rp'000)		Exchange Rate (Rp /\$)	GDP/Capita/Year (\$)	
	Nominal Price	Real Price *		Nominal Price	Real Price *
2001	8,080.5	6,922.9	10,450	773.3	662.5
2002	8,828.0	7,135.9	8,929	988.7	799.2
2003	9,429.5	7,385.5	8,528	1,105.7	866.0
2004	10,610.1	7,655.5	9,361	1,133.4	817.8
2005	12,618.9	7,963.6	9,850	1,281.1	808.5
2006	14,991.1	8,292.5	9,197	1,630.0	901.7
2007	17,509.6	8,705.5	9,376	1,867.5	928.5
2008	21,666.7	9,112.1	11,092	1,953.4	821.5
2009	24,261.8	9,409.1	9,492	2,556.0	991.3
2010	Not Available				

Source: Statistics of Indonesia 2002, 2004, 2006, 2008, 2010 (BPS)

*) Constant price 2000

Conclusions:

1. Both nominal and real per capita GDP in local currency increases.
2. Nominal and real per capita GDP in US\$ increases, but rather unstable in real price, that means the community's average welfare is unstable

Indonesia Poverty Incidence

Year	Poverty Line (Rp/cap/month)		Exchange Rate (Rp/\$)	Poverty Line (\$/cap/month)	
	Urban	Rural		Urban	Rural
2000	91,632	73,648	9,385	9.8	7.8
2001	100,011	80,382	10,450	9.6	7.7
2002	130,499	96,512	8,929	14.6	10.8
2003	138,803	105,888	8,528	16.3	12.4
2004	143,455	108,725	9,361	15.3	11.6
2005	150,799	117,259	9,850	15.3	11.9
2006	174,290	130,584	9,197	19.0	14.2
2007	187,942	146,837	9,376	20.0	15.7
2008	204,896	161,831	11,092	18.5	14.6
2009	222,123	179,835	9,492	23.4	18.9
2010	232,989	192,354	8,968	26.0	21.4

Year	Number of Poor (million) 1)			Percentage 2)		
	Urban	Rural	Total	Urban	Rural	Total
2000	12.30	26.40	38.70	14.60	22.38	19.14
2001	8.60	29.30	37.90	9.76	24.84	18.41
2002	13.30	25.10	38.40	14.46	21.10	18.20
2003	12.20	25.10	37.30	13.57	20.23	17.42
2004	11.40	24.80	36.20	12.13	20.11	16.66
2005	12.40	22.70	35.10	11.68	19.98	15.97
2006	14.49	24.81	39.30	13.47	21.81	17.75
2007	13.56	23.61	37.17	12.52	20.37	16.58
2008	12.77	22.19	34.96	11.65	18.93	15.42
2009	11.91	20.62	32.53	10.72	17.35	14.15
2010	11.10	19.93	31.03	9.87	16.56	13.33

Source: Statistics of Indonesia 2004, 2008, 2010 (BPS)

1) Number of people below the poverty line

2) Percentage of poor people with respect to total population

Indonesia: Poverty Gap Index (PGI) and Poverty Severity Index (PSI)

Year	PGI			PSI		
	Urban	Rural	All	Urban	Rural	All
2000	1.89	4.68	3.51	0.51	1.39	1.02
2001	1.74	4.68	3.42	0.45	1.36	0.97
2002	2.59	3.34	3.01	0.71	0.85	0.79
2003	2.55	3.53	3.13	0.74	0.93	0.85
2004	2.18	3.43	2.89	0.58	0.90	0.78
2005	2.05	3.34	2.78	0.60	0.89	0.76
2006	2.61	4.22	3.43	0.77	1.22	1.00
2007	2.15	3.78	2.99	0.57	1.09	0.84
2008	2.07	3.42	2.77	0.56	0.95	0.76
2009	1.91	3.05	2.50	0.52	0.82	0.68
2010	1.57	2.80	2.21	0.40	0.75	0.58

Source: Statistics of Indonesia 2004, 2008, 2010 (BPS)

Conclusions:

1. The poverty line increases both in urban and rural areas both in Rp and \$
2. Number and % of the poor remains high, particularly in rural areas where agriculture dominates, though decreases since 2007
3. The gap between poverty line and average expenditure of the poor (GPI) narrows since 2007
4. The inequality among the poor (SPI) decreases since 2007
5. If we use \$2/cap/day as the poverty line, the number and % of the people below the line may be more than doubled.

Indonesia: Number of Employed and Unemployed Work Force (age of 15 years and above)

Year	Employed	Unemployed	Work Force	Population	% Unemployed*	% Work Force **
2000	89,837,730	5,813,231	95,650,961	205,800,000	6.08	46.48
2001	90,807,417	8,005,031	98,812,448	208,400,000	8.10	47.41
2002	91,647,166	9,132,104	100,779,270	211,100,000	9.06	47.74
2003	90,784,917	9,531,090	100,316,007	213,600,000	9.50	46.96
2004	93,722,036	10,251,351	103,973,387	216,400,000	9.86	48.05
2005	94,948,118	10,854,254	105,802,372	218,900,000	10.26	48.33
2006	95,456,935	10,932,000	106,388,935	222,700,000	10.28	47.77
2007	99,930,217	10,011,142	109,941,359	225,600,000	9.11	48.73
2008	102,552,750	9,394,515	111,947,265	228,500,000	8.39	48.99
2009	104,870,663	8,962,617	113,833,280	231,400,000	7.87	49.19
2010	Not Available			233,500,000		

Source: Statistics of Indonesia 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 (BPS)

Notes: *) % of unemployed with respect to work force

***) % of work force with respect to population

Conclusions:

1. Number of employed work force increasing
2. Number and % of unemployed work force declines since 2007
3. Number and % of work force increasing.
4. Increasing % of work force indicates an aging process and lower dependency ratio.

Indonesia: Production Quantity of Selected Crops (MT x 1000)

Commodity	2004	2005	2006	2007	2008	2009
Rice, paddy	54,088	54,151	54,455	57,157	60,251	64,399
Maize	11,225	12,524	11,609	13,288	16,324	17,630
Cassava	19,425	19,321	19,987	19,988	21,593	22,039
Oil palm*	13,098	14,336	19,825	21,198	21,048	23,189
Rubber	2,066	2,271	2,637	2,755	2,751	2,440
Cocoa beans	642	643	769	740	804	810
Coffee, green	647	640	682	676	698	705
Cane sugar	2,052	2,242	2,307	2,624	2,668	2,850
Chicken meat	1,191	1,126	1,260	1,296	1,350	1,409
Cattle meat	448	359	396	339	393	408

Data source: Statistics of Indonesia (BPS), DG Food Crop, DG Horticulture Crop, DG Estate Crop, DG Livestock, FAO

*) Composed of crude palm oil (CPO) and palm kernel oil (PKO)

Notes:

1. Production tends to increase during the last ten years (2000-2009).
2. Rapid increase in rice, maize and cane sugar production since 2007 stems from more attention of government to increase production to achieve/maintain self-sufficiency through providing input subsidies like fertilizers and improved seeds.
3. There are competitions between oil palm and rubber for scarce lands, but oil palm seems to win the competition as its price increases faster than rubber did.
4. Chicken (white) meat is increasingly predominant source of meat. Production of cattle (red) meat faces problems of feed shortage, over slaughtered and and compete with cheaper imported cattle and beef meat.

**Indonesia: Gross Production Value (Rp
x million)**

Food Crops:	2005	2006	2007	2008	2009
Total Food Crops	154,294,623	155,989,776	193,906,438	252,969,886	317,633,410
Rice, paddy	110,395,675	115,577,010	144,927,823	163,619,137	187,300,091
Maize	16,762,017	17,437,216	22,694,711	40,801,904	64,487,755
Cassava	15,587,243	10,764,704	13,174,869	31,980,217	39,946,207
Soybeans	3,147,512	2,789,307	2,548,339	4,823,506	8,749,573
Sweet potatoes	1,986,782	2,258,357	2,617,418	4,482,148	8,414,790
Groundnuts, with shell	5,750,463	6,559,512	7,166,056	5,889,774	6,868,361
Maize, green	380,888	413,549	544,667	837,338	1,279,554
Roots and tubers	282,358	188,507	230,696	533,175	584,000
Pulses	1,684	1,614	1,860	2,687	3,080
Fruits:	2005	2006	2007	2008	2009
Total Fruit	32,437,357	39,882,168	45,569,785	63,870,015	75,157,315
Bananas	8,873,207	9,433,225	11,236,856	24,063,241	28,925,657
Mangoes, mangosteens, guavas	6,193,111	6,629,939	8,731,750	12,302,199	16,722,598
Oranges	8,056,882	11,688,496	12,420,605	11,484,675	10,868,693
Fruit, tropical fresh	3,962,591	5,012,077	4,419,630	6,693,352	6,812,500
Fruit fresh	2,156,535	2,526,230	2,492,262	3,688,174	3,815,000
Pineapples	1,360,481	2,425,937	4,271,319	2,737,318	3,775,796
Papayas	1,071,324	1,185,449	1,320,556	1,777,571	2,669,871
Avocados	763,226	980,814	676,807	1,123,485	1,567,200
Vegetables:	2005	2006	2007	2008	2009
Total Vegetables	27,903,929	29,216,141	30,573,251	56,552,809	78,914,022
Chilies and peppers, green	10,037,845	9,428,312	8,838,384	19,285,243	28,435,088
Onions/shallots, dry	4,767,020	5,122,202	5,013,784	9,865,857	14,226,914
Beans, green	1,714,032	2,182,952	2,212,378	5,884,660	8,108,708
Potatoes	3,257,261	3,429,477	4,006,185	5,075,551	6,612,302
Tomatoes	1,712,051	1,529,302	1,881,162	3,136,157	5,377,821
Cabbages and other brassicas	2,120,797	2,321,689	2,503,335	4,149,268	4,439,076
Cucumbers and gherkins	672,887	918,183	961,517	1,359,011	2,204,214
Carrots and turnips	736,383	1,061,682	1,171,042	1,640,829	1,939,292
Eggplants (aubergines)	551,551	598,110	652,813	1,118,281	1,846,441
Vegetables fresh	851,616	937,626	1,060,233	1,426,249	1,537,500
Pumpkins, squash and gourds	375,873	460,603	655,681	1,362,476	1,400,000
Mushrooms and truffles	291,778	231,081	563,995	959,966	1,008,000
Spinach	174,003	236,998	272,804	482,262	860,324
Beans, dry	472,642	548,746	615,462	702,276	801,145

Garlic	127,190	179,410	144,204	77,586	88,495
Spices	41,001	29,768	20,272	27,136	28,700
Estate Crop:	2005	2006	2007	2008	2009
Total Estate Crop	87,674,231	104,281,275	116,293,413	164,532,001	218,743,893
Oil palm fruit	34,199,707	42,219,894	45,513,881	72,932,525	108,506,017
Coconuts	18,846,739	19,632,237	23,352,396	31,452,213	42,725,121
Natural rubber	10,661,683	17,330,893	17,403,041	21,384,888	23,340,901
Cocoa beans	5,792,998	6,837,476	7,799,811	11,352,278	13,564,538
Coffee, green	4,089,393	5,359,904	7,448,362	9,577,928	11,902,715
Sugar cane	4,670,583	5,271,405	5,084,275	7,617,558	7,950,000
Pepper (Piper spp.)	1,913,904	1,791,357	2,171,032	2,536,743	2,765,519
Cashew nuts, with shell	1,176,478	1,393,825	1,679,922	1,840,746	2,103,829
Tobacco, unmanufactured	1,871,633	2,077,165	3,530,177	2,688,000	2,115,964
Cinnamon (canella)	748,230	875,586	642,823	1,026,924	1,410,187
Tea	906,914	695,128	710,444	770,000	798,227
Arecanuts	296,226	346,877	387,015	564,237	630,000
Cloves	2,268,866	198,625	270,590	329,357	403,556
Nutmeg, mace and cardamoms	63,927	76,581	100,649	160,789	213,193
Kapokseed in shell	50,753	59,384	66,106	96,377	102,000
Kapok fibre	37,200	43,523	48,449	70,635	72,000
Sugar crops	32,678	37,008	41,196	60,061	61,500
Seed cotton	21,111	22,414	26,614	38,801	40,625
Vanilla	17,899	3,662	7,409	18,500	23,127
Other bastfibres	5,300	6,002	6,681	9,741	10,625
Castor oil seed	893	1,064	1,131	1,649	1,925
Manila fibre (Abaca)	705	799	889	1,296	1,463
Sisal	411	466	518	756	860
Livestock	2005	2006	2007	2008	2009
Total Livestock:	67,875,901	84,984,931	93,406,376	111,218,592	121,390,540
Chicken meat	23,604,996	28,342,843	30,875,317	40,989,677	45,080,768
Cattle meat	14,319,035	17,813,275	16,909,431	18,150,845	20,402,600
Hen eggs, in shell	11,393,317	15,304,648	19,549,803	20,992,158	20,126,130
Pig meat	6,958,005	9,084,802	9,602,648	12,849,812	14,646,170
Other bird eggs, in shell	2,593,151	2,931,813	3,605,330	3,922,669	4,941,240
Goat meat	1,557,068	2,277,432	3,555,695	4,176,045	4,742,784
Cow milk, whole, fresh	1,639,883	2,023,649	2,161,844	2,800,636	3,968,294
Sheep meat	2,657,533	3,239,071	2,727,461	2,553,037	3,035,144
Buffalo meat	1,837,286	2,360,930	2,542,084	2,402,646	2,155,554
Goat milk, whole, fresh	736,232	868,409	865,002	985,789	999,600
Duck meat	221,325	289,487	559,993	882,840	774,600
Sheep milk, whole, fresh	342,896	425,123	429,591	489,578	496,440
Horse meat	15,174	23,449	22,175	22,859	21,216

TOTAL VALUE Rp x Million	370,186,041	414,354,291	479,749,262	649,143,302	811,839,179
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INDONESIA SUMMARY: PRODUCTION VALUE

Gross Production Value (Rp' million)

Commodity	2005	2006	2007	2008	2009
Rice	110,395,675	115,577,010	144,927,823	163,619,137	187,300,091
Cassava	15,587,243	10,764,704	13,174,869	31,980,217	39,946,207
Palm Oil	34,199,707	42,219,894	45,513,881	72,932,525	108,506,017
Rubber	10,661,683	17,330,893	17,403,041	21,384,888	23,340,901
Coffee	4,089,393	5,359,904	7,448,362	9,577,928	11,902,715
Cocoa	5,792,998	6,837,476	7,799,811	11,352,278	13,564,538
Fruits	32,437,357	39,882,168	45,569,785	63,870,015	75,157,315
Vegetables	27,903,929	29,216,141	30,573,251	56,552,809	78,914,022
Livestock	67,875,901	84,984,931	93,406,376	111,218,592	121,390,540
Others	61,242,155	62,181,168	73,932,063	106,654,914	151,816,833
Total Value of Agricultural Output	370,186,041	414,354,291	479,749,262	649,143,302	811,839,179

Exchange Rates (Rp/\$)	9,850	9,197	9,376	11,092	9,492
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Gross Production Value (\$' million)

Commodity	2005	2006	2007	2008	2009
Rice	11,208	12,567	15,457	14,751	19,732
Cassava	1,582	1,170	1,405	2,883	4,208
Palm Oil	3,472	4,591	4,854	6,575	11,431
Rubber	1,082	1,884	1,856	1,928	2,459
Coffee	415	583	794	863	1,254
Cocoa	588	743	832	1,023	1,429
Fruits	3,293	4,336	4,860	5,758	7,918
Vegetables	2,833	3,177	3,261	5,099	8,314
Livestock	6,891	9,241	9,962	10,027	12,789
Others	6,217	6,761	7,885	9,615	15,994
Total Value of Agricultural Output	37,582	45,053	51,168	58,524	85,529

Data Source: Production : Statistics of Indonesia (BPS), DG Food Crop, DG Horticulture Crop, DG Estate Crop, DG Livestock, FAO

Price: FAO and various other sources

Exchange rate: Monthly Economic Indicators (BPS).

Notes: 1) Production value (Rp) = Production Quantity multiplied by Price (nominal, Rp)

2) Production value (US\$) = Production Value (Rp) divided by Exchange Rate

Conclusions: 1). Gross production value of agricultural output (excluding fisheries) increasing in both

Rp and US\$ with respective average growth of 15.45% and 14.65% per annum (calculated using regression from a semilog equation)

2.) The five largest commodities are rice, livestock, palm oil, vegetables and fruits

Poverty Definition

To measure reliable poverty data, BPS uses the concept of “ability to meet basic needs”. By this approach, a poor man is defined as a man who has average expenditure per capita per month of below the poverty line.

A poverty line becomes a boundary that defines whether or not a man is poor. According to BPS, a poverty line is constructed by two components, namely Food Poverty Line and Non-Food Poverty Line. Food Poverty Line is the value of minimum expenditure requirement for food which is equivalent to 2,100 KCAL per capita per day. Meanwhile, Non-Food Poverty Line is the value of minimum requirement for housing, clothing, education and health per capita per month.

This concept is not only adopted by BPS, but also other countries like Armenia, Senegal, Pakistan, Bangladesh, Vietnam, Sierra Leone, and Gambia. With this approach, poverty is viewed as economic inability to satisfy basic needs of food and non-food measured in expenditure side.

Poverty Measures

1. *Head Count Index* is the percentage of the population that is counted as poor.
2. *Poverty Gap Index* (PGI) is the extent to which individuals fall below the poverty line (the poverty gaps) as the proportion of the poverty line. Higher value of PGI shows that the gap between average expenditure of the poor and the poverty line is wider.
3. *Poverty Severity Index* (PSI) describes inequality among the poor. This is simply a weighted sum of poverty gaps (as a proportion of the poverty line), where the weights are the proportionate poverty gaps themselves. Hence, by squaring the poverty gap index, the measure implicitly puts more weight on observations that fall well below the poverty line. Higher value of the index shows that inequality among the poor is higher.

Foster-Greer-Thorbecke (1984) developed poverty measures that may be written as;

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^{\alpha}$$

where:

α = 0, 1, 2,

z = poverty line

y_i = average expenditure per capita per month of the poor ($i=1,2,\dots,q$), $y_i < z$

q = number of poor

n = total population

$\alpha = 0$ is Head Count Index (P_0), $\alpha = 1$ is Poverty Gap Index (P_1), and $\alpha = 2$ is Poverty Severity Index (P_2)

ANNEX F: WASHED COFFEE COOPERATIVE CONCEPT PAPER

Fully washed and fermented Arabica coffee represents the highest value product in the market. At the current time, AMARTA coffee farmers are producing a semi-washed non-fermented product. Significant value can be added by improving the coffee quality in North Sumatra and Wamena by working with local farmer organizations to produce a fully washed and fermented product.

In north Sumatra USAID needs to consider working with farmer groups to assist them in developing full-washing and fermenting facilities plus green bean sorting and bagging operations. Wamena has already started milling its parchment and sorting its beans for export but needs to improve their post-harvest processing by adding full washing and fermenting facilities.

The following paper describes the operational and organizational elements of a fully washed and fermented coffee processing operation. The narrative describes a cooperative structure and uses the NCBA coffee business in Timor L'este as the business model for the Wamena and North Sumatra operations.

Operation, Logistics and Market Infrastructure: Business and logistical operations would be organized so that the coffee cherry is purchased at the road side by the Primary Coop (PC) buyer after inspecting the cherries for color and quality (rejecting the bad ones). The PC buyer then weighs the cherries (using a digital scale and ID card reader) and pays the farmer on the spot. After the collecting truck has finished its collection run and arrives at one of the 4 wet processing facilities, the PC buyer then weighs the cherry again in the presence of the a Farmer Group representative and a Primary Coop staff member.

The cherries are then dumped into the washing tank and cleaned. From the wash tank they are run through a pulper to get rid of the cherry skin and most of the pulp, and put into large, open air, fermenting tanks where the “parchment” ferments for 24 hours, is washed and then fermented another 24 hours. After fermentation has taken place, the remaining parchment is washed again vigorously and put out to dry in the sun.

The wet facilities only use electricity at the pulping stage. In North Sumatra, the coffee growing areas have electricity infrastructure running throughout the district so accessing electricity should not be a major problem. In the cases where a wet mill is set up outside of the grid (for example in rural areas around Wamena) the cooperative would have to use a generator.

The wet milling facilities use about 20 liters of water for each kilo of cherry. In mountainous areas, the wet mill can tap into natural springs. If these are not available, a bore hole can be developed. Wet mills also require settling ponds for waste water before allowing processed water to enter natural streams. This requires a limited amount of earth work and enough land area sufficient for the settling ponds – in the range of 0.2 HA/wet mill facility.

Strengths and Weakness of the Production System: The strength of this system is that is simple and maximizes coffee quality. Buying cherry by the side of the road is based on color and is simple to understand: red is good; green, brown or black is bad and will be rejected. The wet processing facilities only use electrical power at the pulping stage and if there is a problem with the grid, a backup generator can be brought in. The operators of the wet processing facility do not need extensive training because of the simplicity of the process. The extensive use of hand labor at all steps of the processing also provides employment.

At present there are four issues in this system. The first issue is getting the cherries to the fermentation tank within 24 hours of picking because this is necessary to keep the cherry quality and coffee price high. This should not be a major problem as roads in North Sumatra are generally paved/all weather. In the Wamena area, roads can be a concern, but they are usually passable during the harvest season.

The cherry is about seven times the weight of the dry processed coffee bean. Since most of the off road transportation is by foot, the area that can be covered by each wet processing facility is limited to what can be picked and taken to the main roads which are able to carry the weight of a (+/-) 4 ton truck.

The second issue is making sure that the roads are passable. The coffee harvest begins at the end of the rainy season when the roads are in their worst condition. In Wamena, the cooperative may need to spend some of its own money to maintain roads to make sure the transportation chain does not break down. Again, in North Sumatra, the road network is relatively good and should not be considered a major constraint.

The third issue is making sure that runoff water from the washing does not get into streams and that the waste pulp is converted into usable mulch. This requires the construction of settling ponds along with wet processing facilities.

The fourth issue that needs to be addressed is organizational. Wamena has a functioning cooperative structure. In North Sumatra, any new project would need to develop a cooperative structure starting at the grassroots. In both cases, a considerable amount of work will be required to train coop management in operations and business skills.

Future Infrastructure and Training Needs: There will be a need for USAID funding to build the wet processing facilities. These are not complex construction projects; they mainly involve building concrete holding tanks and bean drying areas. Cost should not exceed \$35,000 per wet processing facility.

As the coop staff develops more management capacity and capital becomes available, it will become easier to set up new wet processing facilities closer to centers of coffee production. This will reduce transport of the wet cherry over longer distances.

By installing fully washed wet processing facilities farmers will expand in the coffee growing area and output because of its higher prices and lower labor demands¹⁵ on farmers.

Project Organization, Operations and Management: The narrative below considers how an expanded Wamena coop (or North Sumatra) would be organized to include centralized coffee washing, fermentation, parchment milling, and green bean sorting and exporting¹⁶. The coffee cooperative has three levels of organization and management, highlighted below.

Member-Groups: The first level of organization is the farmer-member group. There are currently 35 groups in the Wamena Cooperative, with an average in each group of about 20 members. The member group is the point at which the Coop's management communicates with the majority of the membership through democratically elected group leaders. Other activities that take place at this level include project administration, raw product/quality control, and coordination of harvest and transportation of cherry to the wet mills.

¹⁵ By using the wet processing system described above, farmers can dedicate more of their time to growing and harvesting coffee as they are freed from the task of post-harvest processing.

¹⁶ The Wamena coop already operates a parchment mill, sorts green beans and exports them, so in this case the coop would only need to add the full washing & fermentation facilities. In north Sumatra farmers would need to build the entire organization from the wet mill to the green bean bagging facility.

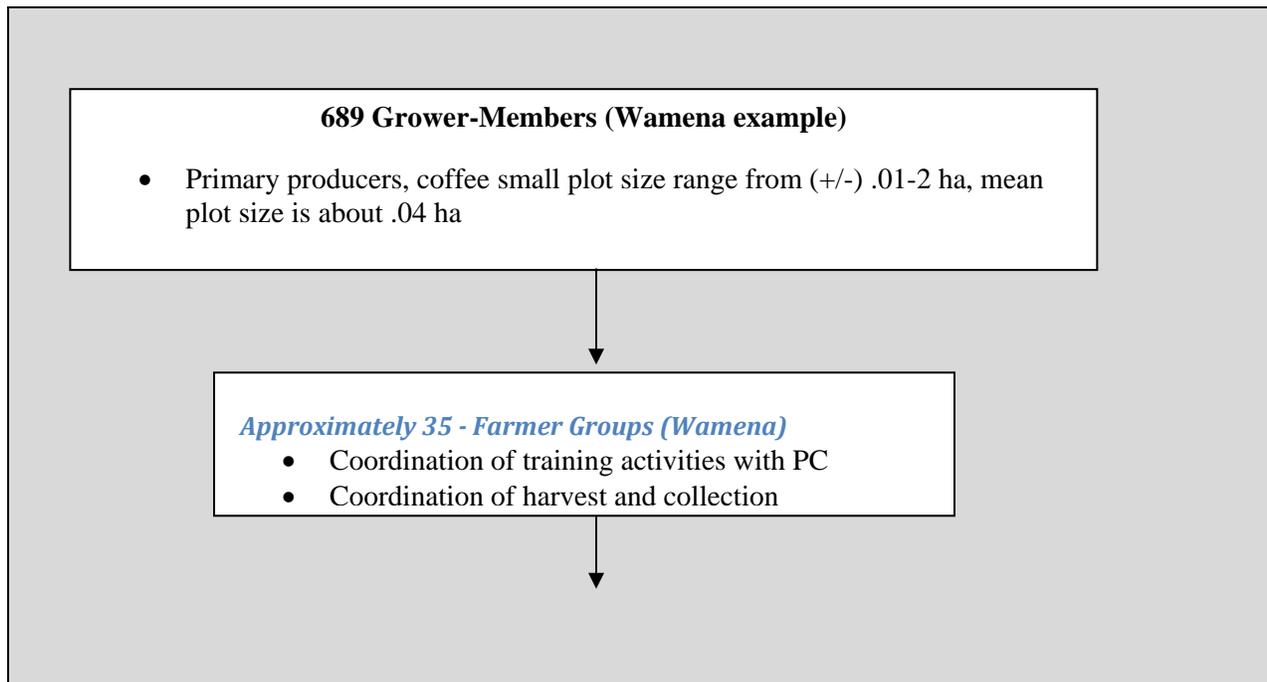
Primary Cooperative: The next level in the Project’s organizational structure is the primary cooperative. In Wamena, the cooperative is already divided into seven “advisory groups”, one from each cooperative - district. Each of these advisory groups has under it five farmer groups. The advisory groups are currently functioning (organizationally) as primary cooperatives.

In North Sumatra, the primary cooperative would have to be developed from existing farmer groups. A logical way to do this would be to organize the primary coops around wet milling facilities.

Apex Cooperative: The umbrella organization is the Apex Cooperative. The Apex Cooperative is owned by the primary cooperatives and like the other levels of the organization the Apex Cooperative has a democratically elected board of directors. The Apex Cooperative also owns most of the fixed capital and liquid assets associated with the coffee activity including the revolving fund equity, wet mills, parchment processing facilities, green bean sorting and warehouse facilities as well as other assets. The main function of the Apex Cooperative is to purchase parchment from the primary cooperatives. The Apex Cooperative, then as the legal owner of the parchment, processes and exports the finished product (green coffee beans) and returns dividend payments to the primary cooperatives for distribution to member-groups and individual members.

The strategy behind developing coffee cooperatives in North Sumatra and Wamena includes organizing small-scale farmers to produce high-quality high-value products. The business (coop) then adds additional value to these high-value crops by processing them to the highest international standards. The focus is on producing products that have well-established international markets and a strong comparative advantage relative to other producers worldwide. The foregoing elements then need to be coupled with a contractor or NGO that has solid management and training capabilities as well as a hands-on knowledge of international markets and distribution channels.

The following chart gives a graphic description of how the Wamena cooperative (or a cooperative in North Sumatra) can be organized to develop the structure necessary to deliver high-quality green beans to the export market. **The Coffee Cooperatives Organizations and their Main Function**



4 - Primary Cooperatives

- Weighing & payment to growers
- Transport cherry to wet mill
- Wet mill, wash & fermentation
- Extension & training
- Sell parchment to Apex Cooperative



1 - Apex Cooperative

- Buys parchment from primary coop
- Final drying
- Processing, sorting, packing
- Warehousing and export
- Marketing and sales
- Risk management
- Training

ANNEX G: RACA GRANTS

RACAs Established by AMARTA:

- 1) The National Horticulture Board, established in 2007 with the Directorate General of Horticulture**
- 2) Karo Horticulture Community Alliance, created in 2007, in Karo, North Sumatera**
- 3) The Deli Serdang Barangan Banana Community Alliance, formed in, 2008, North Sumatera**
- 4) Cocoa Community Alliance in Tabanan (AMARKATA), formed in 2008, Bali**
- 5) The Cocoa Community Alliance in Jembrana (ALKANA), formed in 2009, Bali**
- 6) The West Java Agribusiness Action Group (WJAAG), established in 2009 in collaboration with the Social Service Institute of Padjadjaran University (LPPM-UNPAD), West Java**
- 7) The Simalungun Agribusiness Community Alliance, formed in 2010, North Sumatera**
- 8) Value Chain Center (VCC), formed in 2010 in collaboration with the Social Services Institute of Padjadjaran University (LPPM-UNPAD)**
- 9) The Pak Pak Bharat Pro-Agribusiness Community Alliance, formed in 2010, in Salak, North Sumatera**
- 10) The Cocoa Community Alliance Polewali Mandar (SIKAP MANDAR), formed in 2010, West Sulawesi**
- 11) The Cocoa Community Alliance in North Kolaka (ALMAKOTA), formed in 2010, Southeast Sulawesi**
- 12) The Cocoa Community Alliance North Luwu (ASTAKWA), established in 2010, South Sulawesi**
- 13) The North Sumatera Coffee Forum, formed in 2010, North Sumatera**

FIGURE 31: GRANTS PROVIDED UNDER PADA

	Grant Number	Grantee	Grant Purpose
1	G-1000237-09	Baliem Arabica Coops	Coffee; set up production unit, training, equipment
2	G-1000237-10	Baliem Arabica Coops	Coffee; Buying coffee and processing
3	G-1000237-13	St Isidorus Coops	Coffee; set up production unit, training, equipment
4	G-1000237-14	St Isidorus Coops	Coffee; Buying coffee and processing
5	G-1000237-011	Maria Bintang Laut Coops	Aquaculture; Build ice factory, fiberglass boat training, new wooden boat, crab fattening training
6	G-1000237-16	Maria Bintang Laut Coops	Aquaculture; Generator set
7	G-1000237-21	Maria Bintang Laut Coops	Aquaculture; Labor cost to build ice factory, material, and transport cost
8	G-1000237-17	Catholic Church	Livestock; swine farm
9	G-1000237-18	Catholic Church	Food Crops; rice farm
10	G-1000237-29	Maria Bintang Laut Coops	Aquaculture; Building ice bunkers at key supply chain locations
11	G-1000237-30	Baliem Arabica Coops	Coffee; Buying coffee and processing
12	G-1000237-31	Maria Bintang Laut Coops	Aquaculture; Constructing a fish processing facility and purchasing equipment in Timika

FIGURE 32: GRANTS PROVIDED UNDER AMARTA

	Grant Number	Grantee	Grant Purpose
1	G-1000236-01	PUSKUD NTT	Livestock
2	G-1000237-02	GMC	Coffee
3	G-1000237-07	KARAMBA, PT	Aquaculture; construct hatchery nursery including: fiberglass tanks, concrete tanks, plumbing, jetty, and boat
4	G-1000237-004	KARAMBA, PT	Aquaculture; floating cages completed with equipment, fish feed and maintenance cost for 1 cycle; and training
5	G-1000237-012	KARAMBA, PT	Aquaculture; generator and concrete flooring
6	G-1000237-005	Big Tree Farm	Cocoa; construct CCPU and solar dryer
7	G-1000237-03	Lion Lestari, CV	Coffee
8	G-1000237-08	Lion Lestari, CV	Biofuels
9	G-1000237-20	Aceh Windu Lestari, PT	Aquaculture; lab equipment (laminar, reagent, etc.), generator, A/C
10	G-1000237-15	Aceh Windu Lestari, PT	Aquaculture; set up shrimp laboratory; office equipment; staff salary
11	G-1000237-19	SCAI	Coffee; Int'l exhibition
12	G-1000237-26	SCAI	Coffee; Advance cupping training
13	G-1000237-22	Bimandiri, CV	Horticulture
14	G-1000237-23	IndoCafco, PT	Coffee; Coffee maps
15	G-1000237-24	IVEGRI	Horticulture
16	G-1000237-25	LPPM UNPAD	Horticulture

UNSUCCESSFUL GRANT SUPPORT FOR COFFEE IN ACEH

AMARTA provided an \$89,000 grant in Aceh to PT Gajah Mountain Coffee (GMC) from July 2007 to July 2009, to improve coffee production quality through training and provision of infrastructure. Results looked promising in quantitative terms, as GMC purchased over \$2.6 m. from smallholders during the period, considerably more than achieved by other AMARTA coffee cooperatives including Baliem Arabika, Lion Lestari and Bomomani.

However, the Aceh grant was ultimately not successful as it did not leave a sustainable coffee cooperative in place after the grant period. This was partly due to difficult relations between local government and the grant recipient, and to inadequate collaboration among cooperative members. Activities reportedly were complicated by local political issues. Permits and extensions were difficult to obtain from local authorities, and a land lease renewal was eventually denied to the grant recipient GMC resulting in the closing of their operations. Training for coffee farmers was also complicated by a lack of cooperation among farmer groups, as well as by infighting over resources. Overall there was a lack of trust among producers and between farmer groups and the grant recipient, which is critical for success, as demonstrated elsewhere such as the Baliem Cooperative in Papua.

A further complication was uneven project management. There were relatively few field visits made by AMARTA staff or USAID managers to the project site to collect first-hand information on grant issues and make adjustments. Given the ongoing political conditions locally, and lack of farmer group cooperation, the evaluation team believes it would not be advisable to start similar assistance in the same area in AMARTA II.

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Wiwin, S.	Staff	Entomology, (IVEGRI)	Bandung	222786416 8122322758
Nur Hastuti	Staff	Post-Harvest, (IVEGRI)	Bandung	222786416 81322355392
Ali Asgar	Staff	Post-Harvest, (IVEGRI)	Bandung	222786416 817715912
Warsa Nono Andriana	Head	Horticulture of Agriculture	Bandung	81322680212
Nanang Supriatna, SP	Head	Vegetable Development Section, Bandung	Bandung	8122122611
Toto Heryanto, SP	Staff	Bandung Regional	Bandung	85320419208

		Office of Agriculture		
Undang Herianto	Staff	Bandung Regional Office of Agriculture	Bandung	81322044866
Yuliana	Head	Farmer Group: Dirgantara	Cisurupan, Garut	

Government and Other				
Name	Position/title	Institution/Firm	Location	Cell / Email
Agus Salim	Assistant to farmer group development	North Luwu	Masamba	81355460566
Prayogo Hadi	Agricultural Economist	Min. of Agriculture	Bogor	81319747707
Kedi Suradisastra	Community Development	Min. of Agriculture	Bogor	8121101837
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Jacky Hendrawan	Project Assistant	USAID Indonesia	Jakarta	2134359230 81384071603 jhendrawan.usaid.gov
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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

ANNEX I: SCOPE OF WORK

FAR-31.205-46(B)

(B) AIRFARE COSTS IN EXCESS OF THE LOWEST PRICED AIRFARE AVAILABLE TO THE CONTRACTOR DURING NORMAL BUSINESS HOURS ARE UNALLOWABLE EXCEPT WHEN SUCH ACCOMMODATIONS REQUIRE CIRCUITOUS ROUTING, REQUIRE TRAVEL DURING UNREASONABLE HOURS, EXCESSIVELY PROLONG TRAVEL, RESULT IN INCREASED COST THAT WOULD OFFSET TRANSPORTATION SAVINGS, ARE NOT REASONABLY ADEQUATE FOR THE PHYSICAL OR MEDICAL NEEDS OF THE TRAVELER, OR ARE NOT REASONABLY AVAILABLE TO MEET MISSION REQUIREMENTS. HOWEVER, IN ORDER FOR AIRFARE COSTS IN EXCESS OF THE ABOVE AIRFARE TO BE ALLOWABLE, THE APPLICABLE CONDITION(S) SET FORTH ABOVE MUST BE DOCUMENTED AND JUSTIFIED.

REV JAN 17, 2010--DRAFT

SCOPE OF WORK FOR EVALUATION OF USAID/INDONESIA'S AGRIBUSINESS AND MARKET SUPPORT ACTIVITY (AMARA)

The Agribusiness and Market Support Activity (AMARTA) is a five-year \$20,606,307 project implemented by Development Alternatives, Inc. (DAI) under the contract number EDH-I-00-05-00004-00 and order number EDH-I-04-05-00004-00. AMARTA was designed to assist the Government of Indonesia (GOI) to promote a robust Indonesian agribusiness system that will significantly contribute to gainful employment growth and prosperity in the rural areas in which it operates. The project started on September 29, 2006 and is currently in its final year. The completion date is June 30, 2011. This evaluation will examine the results and accomplishments of the project as well as distill lessons learned that will be useful for the follow-on agribusiness project.

Background

According to the USAID/Indonesia's Economic Growth Program Strategy 2004-2009, the Economic Growth Office (EG) will invest in projects that improve Indonesia's business climate resulting in increased trade, investment, enterprise development, and jobs. It will also work to enhance the safety and soundness of the financial system and to strengthen public institutions in order for them to function more efficiently and transparently. These objectives and goals of the Economic Growth program directly support U.S. foreign and economic policies/interests, and the economic and development agenda of the GOI.

The primary objective of AMARTA Project is to improve the performance of value chains of selected high-value crops (coffee, cocoa and horticultural crops) and contribute to the USAID's overarching strategic objective of poverty reduction through increased incomes of small holders and increased rural employment.

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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

To accomplish the objective, AMARTA has focused the following key activities:

- 1) Technology transfer through farmers training and capacity building of farmers associations;
- 2) Post-harvest crop management to improve product quality and processing;
- 3) Establishing market linkages (domestic and export);
- 4) Support value chain strengthening activities through grants to NGOs, firms and research and training institutions;
- 5) Promoting agri-business policy environment through advocacy by stakeholders to ameliorate policies and regulations that constrain development and growth of high-value commodity value chains;
- 6) Strengthening and/or facilitating the establishment of local institutions to sustain value chain improvements;
- 7) Improve coordination with other donor projects and Indonesian institutions and leverage resources to support project interventions.

In Papua AMARTA focused on improving the livelihoods of food insecure communities and improving the coffee value chain through technology transfer, establishing market linkages and capacity building. To accomplish this USAID provided long and short term technical assistance, limited commodity and infrastructural support to producer groups; in-country training for high-value commodity producers and grants NGOs, associations and research institutions to support high-value crop value chain development.

In the first three years, AMARTA focused on providing technical assistance and grants for nine value chains: coffee, cocoa, horticulture, fisheries, livestock, agriculture, rubber, seaweed, and bio-fuel. However, under the extensions AMARTA focused its efforts on improving productivity and marketing of high-value crops (e.g., coffee, cocoa and horticultural crops-- limited number of vegetables, fruits and flowers) enhancing the livelihoods of Papuan farmers, and advocating policy and regulatory reforms affecting the sector. During the extension period AMARTA is concentrating its efforts only in five provinces (N.Sumatera, W. Java, Bali, S.Sulawesi and Papua).

Project Progress Documentation (Reports etc.) and existing performance information

The project has the following indicators to measure the performance:

1. a. Total hectares under improved technologies or management practices.
b. Total units of animals, fish, and other aquaculture products under improved technologies or management practices.

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2. Number of producers organizations, water users associations, trade and business associations and community-based organizations (CBOs) receiving assistance from this program.
3. Number of agriculture-related firms benefiting directly from the program.
4. Number of individuals who have received project supported short-term agricultural sector productivity training.
5. Percent change in value of international export of targeted commodities.
6. Percent change in value of purchases from smallholder farmers of targeted commodities.
7. Number of new technologies or management practices made available for transfer.
8. Number of surveillance and/or new control systems in place for agricultural and threats.
9. Number of public private partnership formed as a result of project interventions.

To date, AMARTA has reported achieving the following:

In the cocoa sector:

- 13,928 cocoa farmers (88% men and 12% women) were trained in disease mitigation, pruning, organic fertilizing, and other topics.
- Increase in sales of up to 100%. AMARTA's two partners exported \$52,759,719 worth of cocoa and purchased \$48,331,524 million from smallholders in Sulawesi in FY 2010.
- During 2009-2010, cocoa production on Indonesia's farms decreased from 550 kilos (kg) per hectare (ha) to 400 kg per hectare, however on USAID-assisted farms, production actually increased from 550 kg per ha to 700 kg ha.
- In similar fashion, the national price for cocoa declined from Indonesian Rupiah (Rp) 18,000 per kg to between Rp 12,000 and Rp 15,000 per kg. On USAID-assisted farms, the prices increased ranging from Rp 18,000 per kg-Rp 21,000 per kg.
- Increase total production per cocoa tree by an average 92.5%. The initial production was 0.83 kilos (kg), and now is 1.6 kg per tree.

In the coffee sector:

- The exporter members of the Specialty Coffee Association of Indonesia have increased both the volume and value of their exports by an average of 20%.

In the horticulture sector:

- Increased production levels up to 60%, reducing input supplies by up to 50%, and increasing selling prices up to 70%.
- In chrysanthemum, AMARTA introduced technology using local materials to create greenhouses, increasing flower varieties and ornamental cut leaves; resulting in increasing product quality up to 80%, while production and price increased by 50%.

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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

- AMARTA built a floriculture demonstration plot in Raya Village; Berastagi for the female farmer groups, where the total value of flowers sold was approximately Rp 60 million per week or around Rp 240 million per month (\$27,000).

A number of progress, impact reports and success stories are available at the AMARTA/DAI office in Jakarta and with USAID. In addition AMARTA has a website. Contractor and the Team should review all relevant reports and documents.

Purpose of the Evaluation

The overall objectives of this evaluation are to review and document project impacts and make recommendations that could be used for future programming and assess the effectiveness and impact and sustainability of this activity in the context of the USAID/Indonesia's Economic Growth Strategic Objective. This evaluation, especially its documentation of lessons learned and its recommendations, will also be valuable to USAID Indonesia in the design and implementation of new initiatives related to agriculture development program..

The specific objectives of the evaluation are:

1. To conduct technical and economic analysis of AMARTA interventions and assess their impact in terms of whether its activities have achieved the project's overall objectives.
2. To provide concrete recommendations and suggestions to implement USAID's agriculture development strategy under the USAID/Indonesia's Strategy 2009-2014, and identify lessons learned for the follow-on project (s) related to the agricultural sector.
3. Based on an assessment of project implementation and constraints faced during implementation of AMARTA project in the three value chains and in Papua, make recommendations to make the project implementation more effective.

Special emphasis: The Team should analyze, evaluate and report on the following, providing specific examples of impact and/or results for each of the activity/intervention undertaken by the project. To the extent time and resources permit examples should also be provided from commodities that were the targets of opportunity (fisheries, livestock, seaweed, rubber and bio-fuels) in the first two plus years of AMARTA.

1. Evaluate the impact of AMARTA project interventions on: a) production, post-harvest processing, product quality and incomes of coffee, cocoa and horticultural producers; b) marketing; and c) employment in the target areas;
2. Impact of infrastructure support to producers and processors;
3. Assess the development of producer-buyer linkages and its impact on increased sales, higher prices to producers and increased agribusiness competitiveness;
4. Identify policy and regulatory changes that resulted from advocacy for improved business environment;
5. Assess the impact of Grants on strengthening value chain participants;
6. Assess the role of partnerships/alliances and their effectiveness in increasing coffee, cocoa and horticultural trade;

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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

7. Assess the role of technical assistance in capacity building of farmers associations, and agribusinesses, and development of managerial/entrepreneurial skills among value chain participants;
8. Assess the impact of AMARTA interventions on the livelihoods of Papuan families and agribusiness development in the province.
9. Expected Benefit-Cost (B/C) ratio and economic rate of return for the project as the whole, based on specific assumptions for the cost benefit analysis described in the Work Plan.
10. Projected yield increases of coffee and cocoa and farmer's income in three to five years after the project.
11. Provide data on crop production, employment, income and poverty reduction at the project sites both at Kabupaten and Provincial levels. The information will be useful as baseline data for next USAID project.
12. Examine the approaches followed by the project (policy-oriented research, farmer training and advice, producer-market linkages, development of alliances etc.) and determine whether AMARTA was able to effectively contribute to fostering agriculture development and competitiveness in the target areas.
13. Assess the extent to which the Ministry of Agriculture and other relevant departments of GOI were involved in planning and implementing interventions.
14. Assess AMARTA's collaboration and coordination with other donor funded programs and leveraging complementary resources for implementing various interventions.
15. Assess the performance of DAI as the main contractor, including staffing, local capacity building, financial management, performance monitoring, etc.

Evaluation Questions

The overarching questions for this evaluation are:

1. **Achieving objective(s):** Is the project achieving its objectives effectively and impacting positively on increasing employment, incomes and business environment in the target areas and within the anticipated timeframe?
2. **Lessons Learned:** a) What are the lessons learned in implementing AMARTA that USAID should consider in designing future agribusiness programs?; b) Which approaches followed by AMARTA have worked well and which did not work well and which did not work well? and c) What are constraints faced by AMARTA in implementing its activities and their impact if any on overall results?

General Performance Questions

1. Is AMARTA using its resources most effectively and efficiently to maximize impact in assisting the GOI and/or target provinces to promote a robust Indonesian agribusiness system that significantly contributes to increased production and marketing of targeted commodities, increased employment and incomes, and sectoral growth?
2. AMARTA provided grants to local partners. Were these grants successfully implemented in achieving key program objectives e.g., increasing production and productivity,

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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

improving product quality, increased marketing and employment, and development of innovative solutions to ameliorate constraints faced by high- value commodity value chains constraints and private sector actors?

3. To ensure sustainability AMARTA developed networks and partnerships with national and local government institutions and private sector. Were the networks and partnerships effective in supporting AMARTA program? Do these institutions identify themselves as partners with AMARTA and see it as contributing significantly to their own programs?
4. How effective has been the management structure of the AMARTA program in achieving its goals and objectives?
5. What improvements in project structure and management USAID might consider in the design of the follow on program?

Evaluation Methodology

The evaluation team should identify appropriate quantitative and qualitative aspects of the project in order to address the evaluation questions raised above. The evaluation team is expected to base their conclusion on empirical evidence gathered from a variety of sources which should include both primary and secondary data sources. The evaluation team should use a sound methodological approach that includes but not limited to field visits to project areas, focus group interviews with relevant stakeholders such as central and local government officials, farmers associations, input suppliers and private sector marketing agents. The evaluation team is expected to meet with USAID and AMARTA staff including subcontractors and grantees, program clients and beneficiaries, key donors working on agriculture, and relevant stakeholders at project sites in order to gain first person perspective of the program environment and the experience and perceptions of the various stakeholders. However, USAID expects a detailed evaluation design and plan to be presented to the USAID/ Indonesia Economic Growth Office before the start of evaluation for review and approval.

USAID may participate in site visits as required as time allows. Such costs associated with USAID travel shall be borne by USAID. All other costs shall be the contractor's responsibility under the term of this contract.

Team Composition and Participation

USAID expects the evaluation team to be constituted by a mix of both Indonesians and International experts. The team will consist of five technical experts. A minimum of two experts should be International candidates and the rest should be Indonesian nationals.

- Key personnel:
1. Team Leader (expatriate)
 2. Agriculture Economist (expatriate)
 3. Agronomist/Technology Transfer Specialist (expat)
 4. Agribusiness Specialist (Indonesian)
 5. Rural Development Specialist (Indonesian).

The team leader should have proven experience in leading the design and evaluation of agriculture projects focusing on agribusiness-related activities, local and community

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development, trade and private sectors development. He/She should be fluent in English and possess excellent oral and written communication skills, appropriate academic credentials and the ability to manage a multi-cultural/multi-disciplinary team. He/She should have at least 10 years of international development experience; familiarity with Indonesian development conditions is highly preferable. The team leader should be able to conduct institutional analyses and assess participation of local institutions and communities, role of alliances, effectiveness of grants and linkages with private sector.

In addition to the team leader, the contractor should propose four specialists to serve on the Team as noted in the required team composition above. Additional support staff to organize logistics, schedule interviews and provide secretarial assistance should be proposed to carry out the evaluation. AMARTA/DAI team will assist in making appointments and scheduling internal travels. All technical staff should have design and/or evaluation and project implementation experience and should be able to work as an interdisciplinary team.

A brief statement of desired qualifications and experience of the proposed team members is provided in Attachment-1. The Team on the whole should bring to the table skills and experience in the following areas:

1. Impact evaluation and evaluation methodologies (including in-depth interviewing, survey, case study, analyzing progress reports, etc.).
2. Economic analyses (cost benefit analyses and rates of return on investment) of development projects.
3. Value chain interventions: crop production, technology transfer, farmer training and extension, post-harvest issues and processing and developing marketing linkages, capacity building, developing public-private partnerships and government and private sectors' roles in agribusiness activities.
4. Implementation of agribusiness-related activities.
5. Knowledge of Indonesian policies and regulations related to agribusiness development and more specifically those affecting development of high-value commodities.
6. All team members should have the ability to interact with people from many different social and economic backgrounds. The locally recruited specialists should possess acceptable level of speaking, writing and presentation skills (English) and fluency in Bahasa.
7. The team should have skills and experience in rapid appraisal methodologies (interviews, focus groups, mini surveys, etc.), gender and institutional analysis, participatory process involving local communities in planning, implementation, and monitoring, and strong knowledge of Indonesia public and private sector functioning and Indonesian political process.
8. The team should also have experience in AMARTA related sectors: technology transfer, agriculture/agribusiness, natural resource management, and small and medium scale enterprise development.

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9. All team members must be willing and able to travel to remote areas where the AMARTA projects are located.

Schedule, Transportation, and Logistics

Time Frame:

The Evaluation is expected to start o/a March 15, 2011 and end o/a April 15, 2011 with about five weeks in Indonesia devoted to review of documents, field work, data analyses and drafting final report, and briefings. The Contactor is requested to ensure that the team participates in the end of the project workshop on March 24 at which they can get a broad overview AMARTA and meet and establish contacts with several benefices and stakeholders of AMARTA.

Schedule

The evaluation team shall submit a draft work plan and travel schedule for USAID review and approval, no more than 7 (seven) days of the signing of the task order or at least two days before the international team departs the US. The final plan should be discussed with USAID, revised as necessary and submitted within 3 days of team's arrival in Jakarta. Work should commence no more than two days after receiving approval of the work plan and schedule. The estimated time necessary to complete the evaluations is about 45 days from the approval of the travel schedule and work plan. The team is expected to be in Indonesia for about 5 weeks-about 36 days and six-day work week will be authorized (in country). Country travel clearance must be obtained from the Mission prior to departure to Indonesia. Country clearance will be subject to the submission of the draft work plan and evaluation schedule.

A draft report will be submitted to USAID in 5 days from the day the Team Leader returns to U.S. The final evaluation report will be due in five days after receiving USAID comments.

Travel, Transportation and logistics

In-country logistics and travel will be the responsibility of the contractor, including transportations in the field (local airport to regional project offices, regional office to communities/project site, etc.).

The Contractor will be responsible for providing the workspace, office supplies, computers, communications (cell phone), clerical services, accommodations and translators for the team. The team will also be responsible for scheduling (with assistance from AMARTA/DAI team (and managing meetings and consultation. USAID will supply the necessary contact information and appropriate introductions as needed.

Project Sites to Be Visited:

USAID recommends that the team visit the following sites based on consultations with USAID and AMARTA/TA team. However the Team may decide the actual places to be visited based on

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a reading of background material and consultations with the AMARTA/DAI team. The time allowed for evaluation and submission of deliverables and somewhat time consuming logistics should be kept in mind in making judicial selection of sites to be visited. It is also recommended that the team visit with the following institutions to assess AMARTA impacts etc. GOI institutions (IVEGRI, Ministry of Agriculture, Planning Agency (BAPPENAS) and estates crops division of the Ministry of Agriculture) and NGOs and private sector institutions partnering with AMARTA (e.g., Fields, Indonesian coffee and cocoa associations, private sector exporters and wholesalers of coffee, cocoa and vegetables. USAID will help with GOI appointments.

Deliverables:

The following reports and deliverables are required:

1. Evaluation draft work plan and schedule for USAID approval that describe methodology and proposed field visits.
2. Final work plan and evaluation schedule incorporating USAID comments should be submitted in three days from the date of arrival of the team leader in Jakarta.
3. A debriefing session of the evaluations findings to be presented orally to EG Office upon return from all the field visits.
4. Prior to the departure of the international team members, an exit debriefing meetings shall be held with EG team, Program Office, Mission Director, A written summary of interim findings and recommendations shall be presented.
5. The contractor will submit a draft evaluations report to USAID within 5 working days of the team leader's return to the U.S. The report should include the following sections:
 1. An Executive Summary (4-5 pages max) containing a clear and concise summary of the most critical aspects of the evaluation (positive and negative) including recommendations.
 2. A Table of Contents
 3. An Evaluation (no more than 45 pages) report shall include:
 - Purpose and objective of evaluation
 - Methodology
 - Findings
 - Finding specific to different regions with particular attention to Papua
 - Brief conclusions drawn from the findings (including lessons learned and best practices)
 - Recommendations based on the evaluation findings and conclusions categorized as impacts and lessons learned, program adjustment for possible future USAID investment especially in Papua, presented with sufficient detail for involved parties to take action.
 - USAID will provide comments on the draft evaluation report within 5 working days following submission of the draft.

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5. A final report that incorporates and adequately addresses all Missions comments is due in one week after receiving USAID comments. The final report shall also include the following Appendices (illustrative):

- A copy of the evaluations Scope of Work.
- Team compositions and methodology.
- A list of documents consulted, individuals and agencies contacted and
- Discussion of technical and management issues as appropriate.

6. The final evaluation report will be due in five working days after receiving USAID comments. The final report should be accompanied by an electronic Power- Point presentation that covers all the major points of the evaluations report. This will be used by Mission staff for numerous audiences for further dissemination of the findings. The Contractor shall be responsible for providing the final deliverable to USAID/Indonesia in electronic format (Microsoft word, Excel, PowerPoint, maps in PDF, and an unbound reproducible hard copy.

The final report must include an Executive Summary (four to five pages); table of contents; main text including findings, lessons learned and recommendations (no more than 60 pages maximum, single-spaced, 12 Point Times New Roman. Annexes, including evaluation scope of work, methodology adopted, lists of individuals and organizations consulted, and bibliography of documents reviewed should be included and do not count against the 45 page main report page limit.

Role of USAID-- Oversight and Management

The contractor will work under the overall direction of USAID/Indonesia and Economic Growth Office (EG) Team Leader or his as designee who will manage the overall evaluation working with the Contactor and Evaluation Team Leader. USAID will assist and guide the Team in selecting site visits, and persons and institutions to be interviewed. USAID AMARTA/COTR and alternate COTR will be the primary contacts for the evaluation team and will serve as resource persons. USAID EG staff may accompany the evaluation team as observers and resource persons without prejudice to the evaluation processes in the field.

Special Provision

Special Task Order Conditions: The following requirements will be incorporated into any task order issued under this request for proposals:

Language Requirements

Key personnel and all team members are expected to have English language speaking and reading abilities. Fluency in Bahasa Indonesia is required for all CCN (Indonesian) team members.

Deliverables

Deliverables	Description	Delivery Date
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Scope of Work: Evaluation of USAID/Indonesia's Agribusiness and Market Support Activity (AMARTA)

1. Evaluation design schedule and Work Plan	The evaluation design schedule and Work Plan discussed with and approved by USAID/ EG	To be presented within 3 days of Team's arrival in Jakarta
2. Debriefing sessions	Two debriefing sessions shall be held: 1) oral presentation of evaluation findings to USAID and 2) an exit debriefing meeting with the EG Team and the Mission Director's Office	Upon completion of all field visits and prior to the departure of the international team members.
3. Draft Summary of Findings	An interim written summary of key evaluation findings not to exceed 6 pages	Prior to the departure of international team members-present at the exit debriefing
4. Draft Report	Team shall submit a full draft report	Due within 5 working days of the team's arrival in the US
5. Final report	A final report that incorporates and adequately addresses all mission comments. The final report is subject to approval by USAID and should clearly address each of the evaluation questions and other critical elements of the project and support findings and conclusions	Due in 5 days weeks after receiving USAID comments

The evaluation team will be expected to:

1. Upon arrival, meet with the AMARTA Project COTR, USAID Economic Growth Office Director and Team, Program Office and other relevant Mission staff. The team will present the proposed evaluation plan, methodology and schedule.
2. Prior to departure, present the team's major findings, conclusions and recommendations to the AMARTA project COTR, Economic Growth Office, Program Office and other relevant Mission staff. Provide a draft Executive Summary, including key findings and recommendations.
3. Submit the draft of report to USAID in ten days from the date of return of the team leader to the U.S.
4. Provide a final report in three days after receiving USAID's comments and inputs. The contractor will submit the final report to the AMARTA Project COTR via email ajuliastuti@usaid.gov in Microsoft Word format and ten hard copies for distribution to the Program and other USAID Offices. The report will include all specified requirements of the SOW, including success stories, lessons learned and recommendations for future activities.

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Period of Performance

- (a) The period of performance will be 45 days from the date contract awarded, with no more than 36 working days in the field.
- (b) Subject to the Ceiling Price of this Task Order, the Task Order COTR may extend the estimated completion date, provided that the extension does not increase the total time allotted for completion of the work, including the furnishing of all deliverables, to extend beyond 10 work days from the original estimated completion date. Prior to the original estimated completion date, the contractor shall provide a copy of the Task Order COTR's written approval for any extension of the term of this task order to the Task Order Contracting Officer (USAID/Indonesia); in addition, the contractor shall attach a copy of the Task Order COTR's approval to the final voucher submitted for payment.
- (c) It is the contractor's responsibility to ensure that the Task Order COTR-approved adjustments to the original estimated completion date do not result in costs incurred that exceed the ceiling price of this task order. Under no circumstances shall such adjustments authorize the contractor to be paid any sum in excess of the task order amount.
- (d) Adjustments that will cause increase the time for completion of the work to exceed the original estimated completion date by more than 10 working days must be approved in advance by the Task Order Contracting Officer (USAID/Indonesia).

ANNEX J: END NOTES – MISSION COMMENTS

ⁱ **Comment:** My understanding that one of the main outcomes of AMARTA was increased employment? We discussed this with the team and they did indicate how though this was one of the main objective’s it was not easily discerned how much employment was created by the project.

In general, I think people are often too concerned with getting a positive evaluation as opposed to a true evaluation measuring the effectiveness of what occurred.

Response: The AMARTA evaluation SOW describes the objective of the project as follows:

“The primary objective of the AMARTA Project is to improve the performance of value chains of selected high-value crops (coffee, cocoa and horticultural crops) and contribute to USAID’s overarching strategic objective of poverty reduction through increased incomes of small holders and increased rural employment. ...”

Clearly, employment was an important objective in the expected outcomes; however, there was a disconnect between the objectives of the project and the monitoring plan. None of the ten indicators in the monitoring plan measured changes in employment.

In regards to the comment on “people are often too concerned with getting a positive evaluation...” this is a perennial problem for evaluation team. Contractor reputations are on the line, often extensions and monies, are at stake (though this was not the case in the AMARTA evaluation), and USAID staff commonly view evaluations as something similar to a HR performance review. If the project is viewed as a low-performing investment, USAID staff often assumes this will reflect negatively on their careers. Given these facts, evaluators are often pressured to biased results.

ⁱⁱ **Comment:** Touches on the issue here from above – but seems hypothetical.

Response: As mentioned above (in Comment SM1), USAID and the contractor did not collect employment information as part of the project’s indicators; nevertheless, the project did track changes in yield for selected crops (including cocoa, coffee, and horticultural products). The project was able to consistently increase yields for target crops. These increased yields resulted in increased household income. With greater household income, purchasing power at the household level is increased, as well as at the community level. The logic is that as purchasing power increases within a community, the overall local economy will grow. This will stimulate job growth.

ⁱⁱⁱ **Comment:** Do we know what the source of this 90% is derived from?

Response: Part of the AMARTA final evaluation involved developing and administering a survey. This survey looked at three key results of the project, including 1.) AMARTA’s effect on beneficiary competitiveness, 2.) The usefulness of appropriateness of technologies introduced by AMARTA, 3.) What skills that were included in the AMARTA training program were applied by farmers in their day-to-day business operations? The results of the survey are included in Annex A of this document. As can be noted in the Annex, beneficiaries found the types of training and technology transfer provided by AMARTA to be very useful (with levels exceeding 90% of individuals reporting).

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^{iv} **Comment:** Are these actual numbers or multipliers?

Response: The data referred to in Comment SM4 are actual numbers. This data was provided to the evaluation team by DAI/AMARTA staff. It is worth noting that of the 129,625 farmers trained in improved cocoa farming techniques, 46,000 individuals were not directly trained by AMARTA staff. AMARTA calculated the larger number by assuming that the 83,625 cocoa farmers trained by AMARTA would train an additional 46,000 farmers themselves. AMARTA used the sum of these two numbers (86,625 + 46,000) to arrive at the total number of cocoa farmers trained under the AMARTA activity (129,625).

^v **Comment:** What about a business as usual scenario which may be more realistic than best case scenario?

Response: Comment SM5 is included in a paragraph that discusses three possible future income scenarios for cocoa farmers. The realistic case, as mentioned above, is detailed in the text as the base case (most likely scenario).

^{vi} **Comment:** In many cases on the trip what we were seeing were broken value chains – which I did remark to Dr. Morten about.

Response: The way AMARTA's target indicators were structured tended to encourage the contractor to provide training in a given area to meet targets, and then move on to the next target area. This structure did not encourage the contractor to focus on a particular value chain over time. Rather, the structure of the target indicators encouraged the contractor to train farmers within a particular value chain, make their training numbers and then move on to the next value chain. To achieve greater impact within any one value chain, the project could have focused more resources within the value chains for longer periods of time and address multiple levels within a specific value chain.

^{vii} **Comment:** I agree and getting products out of these areas, many of which are remote with poor infrastructure access or cold chain support.

Response: By focusing on post-harvest and logistics, future AMARTA activities will begin to capitalize on some of the missed opportunities in AMARTA I as described in Comment SM6.

^{viii} **Comment:** It seems that decentralization has really negatively affected extension and the ability of extension agents to access resources, training, etc.

Perhaps a focus in AMARTA 2 should be to facilitate/improve the way extension agents can operate get resources, provide support in the decentralized environment.

Response: Decentralization has had an impact on the bureaucracy. As a response, future USAID work such as AMARTA II needs to keep national government managers informed (and invested) in project activities, while engaging local-level extension agents and organizations in training. Additionally, projects need to work in concert with District-level elected officials to ensure that they have buy-in on project activities and direct their extension agencies to work with USAID and their contractors.

^{ix} **Comment:** Seems that the small grants were forgotten and the Evaluation team had a hard time assessing the effectiveness of the grants as most had been completed years earlier.

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Should we be building in a mid-term evaluation in to AMARTA 2 to capture critical elements to redirect and refocus programming through a mid-term progress evaluation? Especially given the new Evaluation Policy this would be good to include.

Response: As noted, most of the small grants were distributed early in AMARTA's life cycle. Also, personnel changes in AMARTA contributed to a loss in institutional memory on details of some of the grants.

Yes, USAID should build in a mid-term evaluation for AMARTA II to act as a guide in making mid-course corrections - updating resource allocation and targets.

*** Comment:** In terms of institutional recommendations, future activities need to form better relationships with national-level government. Additionally, emphasis needs to be put on training RACAs in advocacy to allow them to become effective change agents with the ability to influence policy and regulatory outcomes. AMARTA II should continue supporting the SCAI through selected grants that support market and appellation development activities but should not provide grants to cover SCAI's overhead. The evaluation team felt that the inclusion of policy and finance components for AMARTA II's design was a welcome addition.

Response: The evaluation team agrees with the comments in MN1. Developing and maintaining good relationships with the host government is extremely important for future work, particularly in light of the lost opportunity that AMARTA I had in this area. Senior project management (such as COP and DCOP) should make a concerted effort to develop close relationships with key national-level government decision makers. USAID needs to understand the time limitations on project management and afford them the time to do this.

At the current time, RACAs are in their infancy. These organizations should be groomed to be grassroots advocacy organizations, focusing first on developing relationships at the local level (sub-district and district). As their confidence and skill levels grow, these organizations need to begin establishing contacts/relationships with their representatives in the legislative branch of government, including the Majelis Permusyawaratan Rakyat (People's Consultative Assembly) and the Dewan Perwakilan Rakyat. Additionally, RACA management needs to develop the skills and confidence level to establish a working relationship with higher level ministry officials overseeing agriculture, commerce and infrastructure sectors.

AMARTA I provided generous support to the Specialty Coffee Association of Indonesia (SCAI). Some of this support included covering overhead costs. To ensure sustainability, it is important for organizations such as SCAI to be able to generate their own funds to support overhead costs. USAID should support SCAI under future programs, but be very selective about the types of activities they support. The evaluation team feels that programs that support specifically-targeted market development, HR skills development and other well-defined activities are appropriate for AMARTA II grants. The mission should avoid providing broad brush funding for overhead and general expenses.

^{xi} Comment: A midterm evaluation and realignment based on the EG 2009-2014 Strategic goal could have possibly realigned the program to capture this type of information as it pertains to our higher level strategic objectives.

Response: Agreed – the mission had a number of opportunities to identify the weakness in the monitoring/target indicators and correct it. It seems as though the monitoring plan was focused more on the trees than the forest. Rather than focusing on the minute details of monitoring a project's impact, the

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mission needs to step back and measure changes in the bigger picture that align with USAID's greater goals.

^{xii} **Comment:** What information was this decision based upon?

Response: Comment SM11 is an opinion formed by the evaluation team (rather than a decision). The opinion is based on the combined 90 plus years of experience the evaluation team brought to the analysis of AMARTA's performance. Given the finite time and money available under AMARTA, it was self-evident that the project needed to focus resources on areas that delivered maximum impact in a time-effective and cost-effective manner to achieve goals by EOP.

^{xiii} **Comments:** Internal Procurement bottlenecks and lagging approval processes do directly affect our development goals

Response: The evaluation team strongly agrees with comment SM12. USAID projects operate within very definitive timelines. Any delay by the mission or the contractor in timely executing their responsibilities can be expected to result in negative outcomes on project goals.

^{xiv} **Comment:** This is unacceptable and PRO and Front Office should be made aware of how this affected the program.

Response: Agreed – the mission and contractor would benefit by being more proactive in ensuring that the HR resources are available for the timely implementation of grants and other project activities.

^{xv} **Comment:** Why is this? We should be using F Framework standardized indicators as well as customized indicators that capture the information required to illustrate and feed back into the project goals and higher in to eh Strategic plan.

We need to ensure that AMARTA 2 is capturing the correct data and that we have a baseline to work from.

Response: It is always tempting for contractors and missions to use process indicators such as number of individuals trained, associations developed, number of training DVDs distributed, and number of companies or farmers worked with. These are simple indicators to track; however, they really don't capture impact – they only capture process. The structure of the AMARTA I monitoring system relied heavily on many of these process indicators and therefore missed the opportunity to capture the more important actual results of the project such as job creation, incomes, etc.

Developing a good baseline is fundamental to creating a simple and effective monitoring system that in the end provides good data on project performance.

^{xvi} **Comment:** Who was the AOTR for grants and who was the COTR?

Response: Grant management within the project changed over time. It was reported that communications between the original grant manager and COP were sub-optimum. In hindsight, perhaps if the contractor had been more proactive in changing the grant manager, things could have run more smoothly. Grant management was eventually handed off to the DCOP who already had a full plate of responsibilities and did not have extensive experience in grant management.

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^{xvii} **Comment:** Footnote #5: The evaluation team did not explore why fewer companies participated in the AMARTA project than in the previous SUCCESS project. Major companies like Mars, Nestlé, and UNICOM did not partner with AMARTA.

Response: Under AMARTA II, the contractor needs to establish a working relationship with Mars, Nestle, UNICOM and other cocoa processors/exporters that were not part of AMARTA I. The senior management (COP) of AMARTA changed over the course of the project. It was not clear to the evaluation team if overtures to cooperate with Mars, Nestle and other exporters/processors were made at the beginning of the project and not followed up on, or if the project simply did not make the effort to contact these organizations.

^{xviii} **Comment:** Shouldn't the Evaluators have tried to determine why?

Response: The communities that the evaluation team visited that had solar dryers had only had them for one season so it was a relatively new technology – at least for the farmers who participated in interviews. One concern that the evaluation team had was that although farmers seemed to appreciate the benefits of solar cocoa dryers, they preferred to wait until donors provided funding rather than spending their own money to build them. USAID is not the only donor promoting solar dryers. On Bali, the evaluation team visited sites where other donors provided funding for large, walk-in, solar dryers. With multiple donors involved in this activity, beneficiaries quickly figure out that it may be a better strategy to simply wait for donor funding than invest their own limited resources into these technologies.

^{xix} **Comment:** In the footer below, number 7, how is it that AMARTA did not collect baseline production cost information – this seems like a huge mistake.

AMARTA 2 will need baseline information for proposed activities and indicators prior to start up and this should be written as a first step to be completed by the Awardee in the project work plan.

Response: Agreed – not collecting baseline information was a fundamental error in the implementation of AMARTA I. As all of the staff involved in AMARTA I have moved on, the evaluation team was not able to interview people directly associated with the early phase planning process. The evaluation team assumes that in the rush to begin the project quickly, project management simply overlooked the baseline data collection process in an effort to rapidly move forward with activities on the ground.

^{xx} **Comment:** What was the bang for this buck and what is the result of having expended this amount? What does it translate into in terms of impact/result?

Response: In coffee, measurable results were achieved in Wamena, Papua. The ROI on the investment in Wamena was about 6%. This may seem like a relatively low return; however, one must keep in perspective the difficult operating environment in Papua, as well as the fact that the history of coffee development in the Wamena area actually acted as a deterrent to farmers engaged in this activity. AMARTA/PADA had to overcome considerable community prejudice against coffee production to establish a foothold in the sector. A key component of this was trust building, which they have made good inroads on.

In Sumatra, much of the coffee work undertaken by the project had only begun (+/-) 12 months before the evaluation team arrived. It appeared that the project had made a good start, but it was too early to identify real results (job creation, income changes, etc.). Additionally, the project's monitoring system was not set up to capture many of these important outputs. Probably the biggest "bang for the buck" that AMARTA established in North Sumatra was an extremely close working relationship with the local government. As

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was detailed in the final evaluation report, the evaluation team felt that the relationship between the district government and the project was probably the best working relationship any of the evaluators had witnessed over their 60+ years of field experience (for Wellons and Neubert).

^{xxi} **Comment:** What about packaging and marketing?

Response: Packaging and marketing should be very important parts of the long-term coffee sector strategy. That said, AMARTA was rational in choosing to begin its work at the farm level to improve quality and yields. The farm level improvements will take time and needed to be addressed early on. As volumes of quality product grow, and farmer organizations are developed, AMARTA II should by all means increase activities that focus on packaging and marketing coffee.

^{xxii} **Comment:** Through activities did we get a good grasp of what the potential in this area is for development?

Response: This is a critical question. The evaluation team attempted (through interviews of local staff and consultants) to determine the volumes of coffee available in the Wamena area. One of the local coffee consultants felt that there may be 80 – 100 tons of green beans currently produced in the Wamena Valley. At this relatively small level of output, creating a viable coffee exporting business would be tenuous. It would be worthwhile to develop a financial model for the Wamena cooperative that identifies an economy of scale for the operation. Specifically, this means identifying the number of tons of coffee the cooperative will need to source and sell in order to consistently produce a profit (without donor support).

Based on Indonesian coffee exporter business models, the evaluation team estimates that the Wamena Cooperative may need to get to a production level of 500 – 1000 tons of beans exported per year before they become completely sustainable. This is just a rough estimate, but obviously getting to this level will take a long-term commitment by USAID.

^{xxiii} **Comments:** Why? Why not take these resources and put them into a value chain further developed as opposed to a new activity so late in length of project?

Response: Clearly, North Sumatra AMARTA coffee activities have the potential to provide benefits to the community in the near and medium term. Unlike Wamena, North Sumatra has significant coffee volumes already available for export. Currently, this coffee is moving through the value chain via three or four layers of middlemen. If USAID's goal is to increase rural incomes in remote sub-districts of Sumatra, one strategy that they can pursue would be to shorten the supply chain by assisting farmers to process and export green beans via a cooperative or other business model centered in a rural community (rather than regional centers such as Medan).

One of the hardest parts of establishing an export business is to secure the raw product supply. In North Sumatra, the supply already exists, and thereby reduces the investment risk to USAID and shortens the time in which the newly established enterprises can become self-sufficient.

^{xxiv} **Comments:** So no results for this \$ and activity and will it be tracked and monitored 3 years from now?

How much was spent here?

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Response: In North Sumatra, AMARTA spent \$329,600 on coffee activities. The evaluation team recommends that AMARTA II continue working in the same communities in North Sumatra that AMARTA I worked in, and that baselines be established and results monitored.

As was noted in the text of the report, AMARTA worked in Sumatra for about one year. Baseline information on employment and income was not collected when the project started working in this geography. Therefore, the first data available would be in 2011. With only one year of data, it is not possible to identify trends or other statistics.

^{xxv} **Comment:** I think under the NCBA – CLUSA program in Gayo, Aceh they were doing this. What is the difference between those two projects that AMARTA farmers were not selling directly to exporters?

Response: Correct – NCBA is consolidating green beans from farmers and selling them directly to large international buyers including Starbucks. The evaluation team looks at this as a model that should be examined closely before designing AMARTA II. Unfortunately, the AMARTA evaluation SOW did not permit (in time and money) a comparison in coffee business development and operating models between AMARTA and NCBA approaches.

The evaluation team strongly recommended that USAID staff and key local officials (including farmers, MOA staff and elected officials) make a field trip to the NCBA East Timor coffee exporting operation to see first-hand how to create a business that enables farmers to sell directly to exporters via their local cooperative.

The NCBA Gayo project was not examined under the AMARTA evaluation SOW; however, NCBA has the benefit of operating in the Indonesian coffee sector for approximately 16 years. They have excellent staff retention and a good institutional history of how to execute successful coffee business development projects in the region. Gayo benefitted from this experience and hopefully these lessons can be applied to AMARTA II coffee activities.

^{xxvi} **Comment:** These are key and critical skills for Value Chain programs (underlying basic tenants and components of VC programs) that without them farmers groups suffer, even if they produce better yields, quality etc, they do not have the skills to manage, sell and reinvest into their farms.

Response: Agreed – basic business skills training for farmers such as record-keeping, fertilizer formulations and cost analysis, etc., are all basic skills that successful farmers need. These skills should be included in AMARTA II.

^{xxvii} **Comment:** I hope that AMARTA 2 will focus on and add –value to some of the key results of AMARTA 1.

Response: Agreed – AMARTA II should build on the work that AMARTA I began in Wamena. This future work should include increasing coffee volumes produced, quality and developing a broader market.

^{xxviii} **Comments:** Should we be replicating the NCBA model?

Response: At this point, it is difficult to say if AMARTA II should identically replicate the NCBA model. Certainly, the NCBA model offers USAID and AMARTA II staff the opportunity to learn how to develop a successful coffee supply chain that directly links farmers with international markets. It is assumed that the NCBA model will need to be tweaked to fit local conditions on the ground in Wamena

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and North Sumatra, but in general, it will supply USAID with an excellent model to follow in developing future coffee value chain activities.

^{xxxix} **Comment:** I think it needs to be documented that Jeff Gucker, nice guy that he is, provided directly to the consultants the bulk of the information provided in this section as well as developing the table and multiplier numbers for the Evaluation – which could lend itself to biases.

Response: Agreed – there is a real conflict of interest in having consultants who worked on a project take the lead in supplying information to the evaluators. The paradox is that these consultants (such as Mr. Gucker) are most familiar with the activities and therefore need to be included in the evaluation process.

From an evaluator's standpoint, it is always a concern when the contractor selects which local consultants the evaluators will be working with and in particular, which farmers, producer groups and villages evaluators will visit. The evaluation team fully recognized that the contractor was bringing the team to their best farmer groups and most successful project sites. A more honest way to evaluate a project might be to randomly select a number of villages in which the contractor operated and then randomly select farmers within these villages for interviews and surveys.

^{xxx} **Comment:** This is not documented and the program did not capture this type of information.

Response: Correct – actual change in employment due to project activities was not documented by AMARTA. In this case, the evaluator was providing what he believed was the impact of the project, but Comment SM28 remains true. There was no documented evidence for change in employment growth, but rather only the evaluator's perception that this occurred.

^{xxxix} **Comment:** Was not happening for citrus or carrots.

Response: Not all horticultural products that AMARTA worked with received the same package of inputs. Citrus and carrot producers (for example) did not receive the same training as broccoli or strawberry producers.

^{xxxix} **Comment:** Correct.

Response: The challenge in AMARTA II will be to identify why farmers are not more broadly applying their knowledge on grading and sorting their produce when they appear to understand that by doing this, they can receive greater sales revenues. USAID may want to develop a survey for horticultural producers to better understand why they do and do not apply certain post-harvest value-addition techniques. With this information, the mission can better design future activities.

^{xxxix} **Comments:** Closer coordination/inclusion of extension agents as the medium to disperse technical assistance

Response: Agree – one approach to address this problem may be to train extension agents to anticipate and resolve certain production problems. That said, there is a high degree of variability between the skill levels and resources available for extension agents to work with local farmers. Selecting the right extension agents in districts that afford them the resources to do their job will be a critical component to their success in addressing technical questions posed by farmers.

^{xxxix} **Comment:** Also very difficult to get containers to where it is produced.

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Response: Getting containers to growers/production regions is a constraint. The mission and contractors need to have a better understanding of the bottlenecks within the logistical network. Once the mission understands the nature of the constraints of the sector, they can make the decision as to their willingness to try to effect change.

^{xxxv} **Comment:** This is a program management issue

Response: In part, this may be a program management issue, but it is also a program design issue. Beneficiaries have to feel like they're getting some benefit from joining associations. If they don't see the benefit, they are going to drop out of the group. In the end, the best way to develop strong groups is to make them effective in delivering change. From the farmer's perspective, this change may simply be grant resources (seeds, tools, seedlings, training, etc.) supplied by the project, or it may be actual changes in regulations that help the farmers become more profitable.

^{xxxvi} **Comment:** Exactly - not enough monitoring or data collection throughout the program resulting in a general lack of key baseline information and progressive monitoring to illustrate impact over LOP.

Response: To clarify, it is not the volume of information that is the issue. AMARTA collected volumes of (more than enough) monitoring information; however, much of this information proved to be of limited benefit in terms of helping the organization fine-tune its approach, improve its strategic operating plan or assess final impact of the activity. The evaluation team is not recommending that future contractors build on the AMARTA monitoring system, rather, the team recommends that in the future, baseline information be collected and information relating directly to the mission's strategic objectives be included in the list of project indicators.

^{xxxvii} **Comment:** Yes, perhaps a midterm evaluation may have caught some of these issues.

Response: The mid-term evaluation was effective in getting the project to improve its focus by reducing the number of commodities and geographies it worked in. That said, the mid-term evaluation appears not to have identified some of the larger problems with the Monitoring and Evaluation System, including the lack of data collection on job creation.

^{xxxviii} **Comment:** The evaluation team had the perception that some Agriculture Ministry officials, in meetings and in comments at AMARTA workshops, felt they had not been actively sought out by the project as stakeholders and partners, nor adequately informed about project activities and results. Cooperation and communication with GOI agencies at the provincial and regency level was stronger, particularly with GERNAS, as mentioned above, which cooperated in TOT activities to train more farmers in Bali and Sulawesi. The collapse of Indonesia's agricultural extension system is a legacy from decentralization. Overcoming the gaps or non-existence of extension will continue to be a major challenge for AMARTA II and requires better coordination between USAID and the GOI for addressing this challenge.

Response: Agreed – working with the extension system will continue to be a challenge. AMARTA II will need to have a close operational relationship with regional extension agents while working diligently to establish a cordial and close relationship with national level extension service senior staff in Jakarta.

^{xxxix} **Comment:** ICCRI's strength is in providing seeds and plant material. AMARTA was careful not to partner with it on processing and marketing where ICCRI is particularly weak and potentially susceptible to corruption.

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Response: Correct – and AMARTA II should continue to work with ICCRI to develop parent material nurseries for cocoa and coffee.

^{xi} **Comment:** Why not directly involve key GOI players – they have a stake in this as well and if engaged in the right manner can facilitate many aspects? Perhaps an official liaison with the extension agents serving as TOTs?

Response: As mentioned, in End Notes xxxviii (Comment MN4), future projects need to develop a clear operating plan that allows implementers to work at a close technical level with district and sub-district extension staff while at the same time establish and maintain strong relationships with national level extension service managers and executives.

^{xii} **Comment:** This is an AOTR issue? Will it be an issue on AMARTA 2?

Response: Assuming that AMARTA II is designed with both a strong technical and geographic focus, the project's grant activity will not suffer from the same weaknesses that were exhibited in AMARTA I. The issues with grants in AMARTA I (as pointed out in the report) were that grants were spread thinly between a wide number of value chains and geographies. Compounding the problem was the fact that communication between the original grant manager (employed by the contractor) and the COP was challenging. Finally, personnel changes led to responsibility for the grant component to be shifted to the DCOP, who already had a lot on his plate. Certainly, there are lessons here that need to be learned so they are not repeated in AMARTA II.

^{xiii} **Comment:** By USAID as well as by the Awardee. Need to strengthen this grant management aspect?

Response: All parties agree that the grant management component in AMARTA II needs to be stronger than it was in AMARTA I. When the contract for AMARTA II is awarded, the mission needs to look very closely at the personnel structure (organizational chart) to ensure that the contractor has an experienced strong leader in the grant management position. Additionally, the project design needs to provide that grants be large enough to have significant impact even if this means that the total number of grants is reduced. The idea here is to improve the quality of the grant outcomes, rather than the quantity of grants provided.

^{xiii} **Comment:** Would a baseline analysis of the proposed VCs and beneficiaries have enlightened this issue – seems like we jumped in without the correct information which resulted in us jumping back once we realized we did not have sufficient information to proceed?

Response: A baseline analysis in itself would not necessarily have caused the project designers to adopt their initial approach of working with producers. Probably, a more fundamental level of strategic analysis and understanding of the issues would have been necessary during the project design phase. Hindsight is 20-20, five years after AMARTA I was designed, it is difficult to understand why the project did not begin with building the supply chain. This is fundamental to any business. If you don't have a solid supply chain, it is difficult to enter the value chain at some point and try to strengthen it. The first thing you need to do is ensure that you have sufficient product to work with.

^{xiv} **Comment:** Should we make sure we take the results of this evaluation and carry them over into AMARTA 2 – I think we need to have a document developed on Lessons learned and what aspects of the Evaluation will change/effect the AMARTA 2 program.

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Response: The evaluation team included Section 7.3, Lessons That can be employed in future agribusiness programs, so that the mission would have a clear idea of what worked and what did not work in AMARTA I before beginning the implementation planning of AMARTA II.

^{xlv} **Comments:** YES –THIS IS KEY!!!!

Response: Assuming that USAID wants to know what the AMARTA II cost benefit and return on investment numbers look like at the end of the project, they will need to develop and retain baseline and ongoing data for project costs and returns.