



# A Value Chain Assessment of the Coca Sector in Indonesia

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*“Helping Indonesia to Grow”*

## **A VALUE CHAIN ASSESSMENT OF THE COCOA SECTOR IN INDONESIA**

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## ABREVIATIONS AND ACRONYMS

Currency Unit = Indonesian Rupiah (IDR) IDR 9700 = US\$1.00

ACIAR Australian Center for International Agricultural Research

ADB Asian Development Bank

AMARTA Agribusiness Market and Support Activity (USAID)

APIKCI Indonesian Cocoa and Chocolate Industry Association

ASKINDO *Asosiasi Kakao Indonesia* [Association of Indonesian Cocoa Traders]

BPSMB *Badan Pemeriksa Sertifikat Mutu Barang* [Board for inspection of quality certificate of goods]

COPAL Cocoa Producers Alliance

CPB Cocoa Pod Borer

CSP Cocoa Sustainability Partnership

FAQ Fair Average Quality

FEATI Farmer Empowerment through Agricultural Technology and Information

CFFS Cocoa Farmer Field School

FOB Free on Board

GOI Government of Indonesia

ICCO International Cocoa Conference Organization

ICCRI Indonesian Coffee and Cocoa Research Institute [*Pusat Penelitian Kopi dan Kakao Indonesia*]

ICVC Indonesian Cocoa Value Chain

IDR Indonesian Rupiah

IPM Integrated Pest Management

MoA Ministry of Agriculture

MT Metric Tons

PENSA Program for Eastern Indonesia Small-Medium Enterprise Assistance

PPH *Pajak Penghasilan* [revenue tax]

PPN *Pajak Penambahan Nilai* [value-added tax]

PSP *Panen sering, Pemangkasan, Sanitasi, dan Pemupukan* [core cultural practices utilized to promote healthy cocoa and reduce CPB – Frequent harvesting, Pruning, Sanitation and Fertilizers]

SADI Smallholder Agribusiness Development Initiative (AusAID)  
SMAR Support for Market-Driven Adaptive Research (sub-program SADI/AusAID)  
SUCCESS Sustainable Cocoa Extension Services for Smallholders (USAID)  
USAID United States Agency for International Development  
USD United States Dollar

## I. EXECUTIVE SUMMARY

Indonesia is the third largest producer of cocoa in the world after Ghana and the Ivory Coast and the most significant cocoa bean supplier in East Asia. Indonesia's competitive advantages include low cost, high production capacity, efficient infrastructure and an open trading/marketing system.

In recent years this competitive advantage has been threatened by poor and inconsistent quality. The primary cause of this poor and inconsistent quality is the infestation from the cocoa pod borer (CPB). In order to address this problem caused by the CPB, various public and private initiatives have been undertaken to conduct research, train and transfer the improved production practices to the smallholder cocoa farmers in Indonesia. Despite these efforts the CPB infestation has spread to include all of Sulawesi cocoa and the adoption of improved production practices by cocoa farmers has been limited.

As a result the export quality of cocoa from Indonesia has deteriorated and the value reduced to the international marketplace. This reduced value has resulted in lower prices to the farmer in the form of larger discounts. This has also reduced the demand for Indonesian FAQ cocoa as buyers changed to other origins establishing substitutes for Sulawesi cocoa. Previous efforts to train farmers in the improved production practices to control the CPB have been limited primarily by the lack of price incentives to encourage the farmers to adopt the new technology package.

The common practice has been for the first buyer (local collector) to pay the same price per kilogram for both good and poor quality cocoa, 'mixing' the beans and forwarding these mixed beans on to the next buyer (village collector). When the cocoa beans eventually arrive at the warehouse of the international exporter they then need to be cleaned or 'unmixed' to meet the international buyer's specifications. Premiums paid by the international buyers were needed to 'un-mix' or separate the good from the poor quality beans. Typically, little or none of this premium reached the farmers. Therefore, the market signal sent to farmers is that it was 'OK' to sell poor quality beans. Under these buying arrangements the market place has failed to reward the farmer to produce good quality cocoa.

### **AMARTA - Recommendations and Interventions**

There are numerous geographic regions across Indonesia where cocoa is grown however the core cocoa producing is Sulawesi. The consultants decided to focus AMARTA cocoa interventions on the island of Sulawesi primarily in districts across South, Southeast and West Sulawesi Provinces.

The consultants working with AMARTA have identified an international exporter (Olam) and a US based cocoa bean processor (Blommer Chocolate) that are willing, together with AMARTA to enter into an innovative market driven agribusiness partnership. Blommer is the largest cocoa processor in the US and one of the largest in the world. Blommer will pay a quality incentive for cocoa that meets their export specifications. Blommer has indicated a desire and willingness to purchase export quality cocoa in significant quantities supplied by Olam with support from AMARTA. Partnership with these companies will provide the 'market incentives' for farmers to adopt AMARTA interventions and produce export quality cocoa that to date has been lacking for much of Indonesia's cocoa production.

An international exporter with offices in London, Singapore and Makassar, Olam has agreed to purchase beans from farmer groups and pass on that premium to the farmers. Olam views the proposed partnership with AMARTA as complementing both its business and Corporate Social Responsibility (CSR) objectives. Olam has established a number of up-country buying stations as well as providing limited training to farmers.

The consultants have concluded that in order for the demand to be met, smallholder farmers require additional training and support to satisfy this demand. AMARTA will train 20,000 smallholder cocoa farmers in new farming practices that when adopted will serve to reduce pests, increase productivity as well as most importantly provide 'export quality' beans. This purchasing system will reduce the need to 'mix' and 'un-mix' the beans and pass on this marketing efficiency to the farmer.

The partnership will by-pass at least two links in the current buying and collection system, the local collector and village collector. This new partnership will 'send a signal' to the cocoa farmer that the market needs good quality beans and is willing to pay a price premium. In addition to the training in CPB control AMARTA will provide a range of interventions that will improve the smallholding farmer profitability. Training will include: pest and disease controls, side-grafting, requisite quality standards for export grade cocoa, fermentation trials as well as quality workshop field days.

AMARTA will work with Olam in delivering a staggered approach to training activities. The first year (April –Sept 07) will see ±5,000 farmers, with the remaining 15,000 farmers added progressively over the remaining program period until July 2009. Participating farmers will be trained in 'best practice' cocoa farming and CPB mitigation techniques, post-harvest handling and the knowledge of how to provide export quality beans. Over the thirty-month period 20,000 farmers will be trained in these practices. Follow-up training sessions will be provided to participating farmer groups to ensure that they are able to maximize techniques taught in the early training session.

It is also proposed that AMARTA develop and distribute a range of communication and multimedia outputs to smallholder cocoa farmers throughout Sulawesi. This would include VCD's, posters, calendars, and radio messages. The content of these communication packages would include information on 'best practice' cocoa cultivation, aid in the identification of pests and disease, the specification for export quality cocoa as well as the post-harvest skills and understanding necessary to obtain maximum prices.

By the end of the twenty-nine months of program implementation a total of 20,000 farmers will have been trained in improved cocoa production techniques, means of mitigating CPB, improving quality and benefited from the market pull that will accrue from the Blommer, Olam and AMARTA partnership. It is expected that throughout the duration of the program that approximately ±35,000 tons of export quality cocoa will be purchased by Blommer.

It is anticipated that an average gain of 25% (i.e. 20% + 5%) to smallholder cocoa producers will be derived from the training in improved farm management, CPB mitigation and methods to produce export grade quality cocoa. This represents a volume gain of 8,750 tons of quality cocoa directly as a result of the AMARTA training and Blommer/Olam price premium. At today's farm-gate price for export grade quality cocoa this represents a

return on investment of ± USD\$12 million that will be gained from the USAID investment of ± USD\$ 1 million.<sup>1</sup>

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<sup>1</sup> Based on industry data the price paid to smallholder cocoa producers for export grade cocoa was IDR12,000 per kg. This price will of course fluctuate over time.

## **2. METHODOLOGY USED AND ACTIVITIES COMPLETED**

### **A 2.1 Locations visited and stakeholder consultation**

A rapid assessment was conducted combining a desk review of previous material affiliated with the Indonesian cocoa value chain (see Bibliography and References Cited). The culmination of this desk review was a summary of the key issues affecting and inhibiting the competitiveness of the Indonesian Cocoa Value Chain (ICVC).<sup>2</sup> Building on this the consultants conducted a field trip to South Sulawesi where a range of industry stakeholders were consulted regarding the possibilities for collaboration as well as the core areas where AMARTA can have an impact.

A variety of activities were completed during the consultancy. This included a field visit to South Sulawesi with key cocoa production areas providing useful examples of the current constraints and issues facing smallholder cocoa producers and industry in Pinrang, Wajo and Luwu Districts. Numerous cocoa stakeholders were consulted including donor (IFC, AusAID SADI), industry (PT. EFFEM, CARGILL, PT. Armajaro, PT. Olam), the Indonesian cocoa exporters association (ASKINDO), as well as government agencies (ICCRI) provided valuable input into the design of the AMARTA interventions (see *Annex 1* for the matrix of activities and stakeholders that were consulted).

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<sup>2</sup> Much of the following cocoa value chain analysis has been drawn from the Panlibuton and Lusby (2006) Indonesian Cocoa Bean Value Chain Case Study, microReport#65 USAID.

### **3. REVIEW AND ANALYSIS OF INDONESIAN COCOA VALUE CHAIN**

The aim of this section is to summarize the breadth of cocoa related information that has been produced by various international/national organizations. A broad range of material was reviewed prior too and throughout their time in Indonesia. The extensive experience of the consultants with the Indonesian cocoa sector enabled them to rapidly review and consolidate the key issues affecting the cocoa sector in Indonesia.

*Global cocoa production* - Global cocoa production in 2000/01 was 2,858,000 tons; of this, Indonesia accounted for 392,000 tons or 13.7% (the Asian and Oceania region accounting for 17%). Global cocoa bean production in 2004/05 was 3,289,000 tons with Indonesia's production growing to 435,000 tons representing 13.22% of global cocoa bean production with the cocoa bean production in Asia and Oceania dropping to 14.7% (ICCO, 2006).

#### **A 3.1 Summarizing the relationship between the US and Indonesian cocoa**

*Importance of Indonesian cocoa to the US* – In 2005, the US imported 136,000 MT of Indonesian cocoa and is the most important market for Indonesia. The U.S. is the second largest buyer of cocoa beans in the world. Other major buyers of Indonesian cocoa beans include Brazil, China and the Philippines. Markets in Asia (most notably in Malaysia and Singapore) also offer expanded export opportunities for Indonesian cocoa beans.

*Cocoa manufacturing* - US chocolate manufacturers are the largest international buyers of processed cocoa products from Sulawesi, purchasing about 40% of total cocoa butter exports, followed by European and Southeast Asian buyers. The market for Sulawesi cocoa powder is split fairly evenly between buyers in the US, Southeast Asia and Europe.

*Global demand for Sulawesi cocoa* - Sulawesi cocoa is traded on the global market as an unfermented, fat, bulk bean. Processors and manufacturers use Sulawesi bean as filler, due to its sufficient fat content and lower cost, and blend it with other fermented beans that add flavor. Global demand for these unfermented bulk beans has become relatively inelastic and is not significantly affected by changes in price.

*Future US demand for Sulawesi cocoa* - There is and will continue to be a good market for FAQ Sulawesi beans in the US. The demand has increased over time as manufacturers have learned how to process and utilize these beans in their mix of chocolate products. However, this preparedness to purchase Sulawesi beans assumes that the beans will not deteriorate further in fat content or bean size. Indonesia FAQ beans must compete with other sources of cocoa beans. If the value declines the discount increases and processors look for alternative bean origins as substitutes.

#### **B 3.2 Indonesian Smallholder Cocoa Producers**

*Smallholder Sulawesi cocoa production* - There are approximately 400,000 smallholder farmers in Sulawesi producing bulk, unfermented cocoa beans. Average yield on these farms ranges from 400 to 800 kilograms per hectare. Typically smallholder farmer knowledge and particularly adequate implementation of 'best-practice' cocoa farm husbandry techniques is limited. There is a need for additional and consolidation of training in pruning, fertilization, sanitation, frequent harvesting, post-harvest handling and quality standards required for

export. Annex 2 provides an overview to the dynamics of smallholder Indonesian cocoa production.

*Sulawesi trading dynamics* - Farmers sell to local collectors at farm-gate or directly to local traders. There are few examples of cooperative-type horizontal linkages or group marketing among smallholder farmers in Sulawesi. Most smallholder farmers prefer to deal independently with private collectors and traders (see Fig 1).

*Previous interventions* - While through its program the USAID SUCCESS Alliance helped to mitigate the impact of cocoa pod borer the direct assistance in the form of the farmer field school training extended to less than 20% of cocoa smallholder producers in Sulawesi. In addition, much of the training conducted by SUCCESS Alliance was as a one off with minimal follow up training.

*AMARTA next steps* - There is significant scope for AMARTA through the proposed interventions to provide a model that utilizes market pull (quality premium), up-country buying stations (more efficient purchasing and collection systems) and training (targeted interventions) that will improve production, quality and farmer incomes.

### **C 3.3 Cocoa Collectors, Traders and Processors**

*Local Sulawesi cocoa collecting networks* - Local collectors are usually cocoa farmers themselves or rural entrepreneurs who purchase cocoa beans directly from farmers. The scale of these purchases is typically small with rapid turnover and minimal opportunity for speculation. Local traders purchase cocoa beans from local collectors or, to a lesser extent, directly from farmers, and are usually engaged in a variety of other businesses typically in other commodities. Traders sell most of their cocoa beans to local exporters although a smaller amount flows to local processors. Collectors and traders do not need licenses or permits to operate so competition is fierce with few barriers to entry. These smaller traders typically deal in a range of commodities depending on the region (cloves, cashew, and coffee).

*Inefficiencies in the Indonesian cocoa supply chain* - In the Indonesian cocoa supply chain (see Fig. 1) there are two tiers of lower level collectors. It is through these local trading networks where the practice of 'mixing' and 'un-mixing' of cocoa means that those buying further away from the farm gate i.e. Makassar are typically faced with increased costs associated with re-grading cocoa once it arrives. While these lower level trading networks are comparatively cost efficient the downside is that lower and mid level collectors and traders buy discounted beans as well as good and poor quality cocoa and subsequently mix these different grades to increase the base-line quality in any given shipment. Each level along the convoluted cocoa chain will extract a margin to cover their cost of business thus reducing the price paid at the farm gate. The efficiencies gained by promoting reduced links in the cocoa market chain can then be passed on to the cocoa farmer.

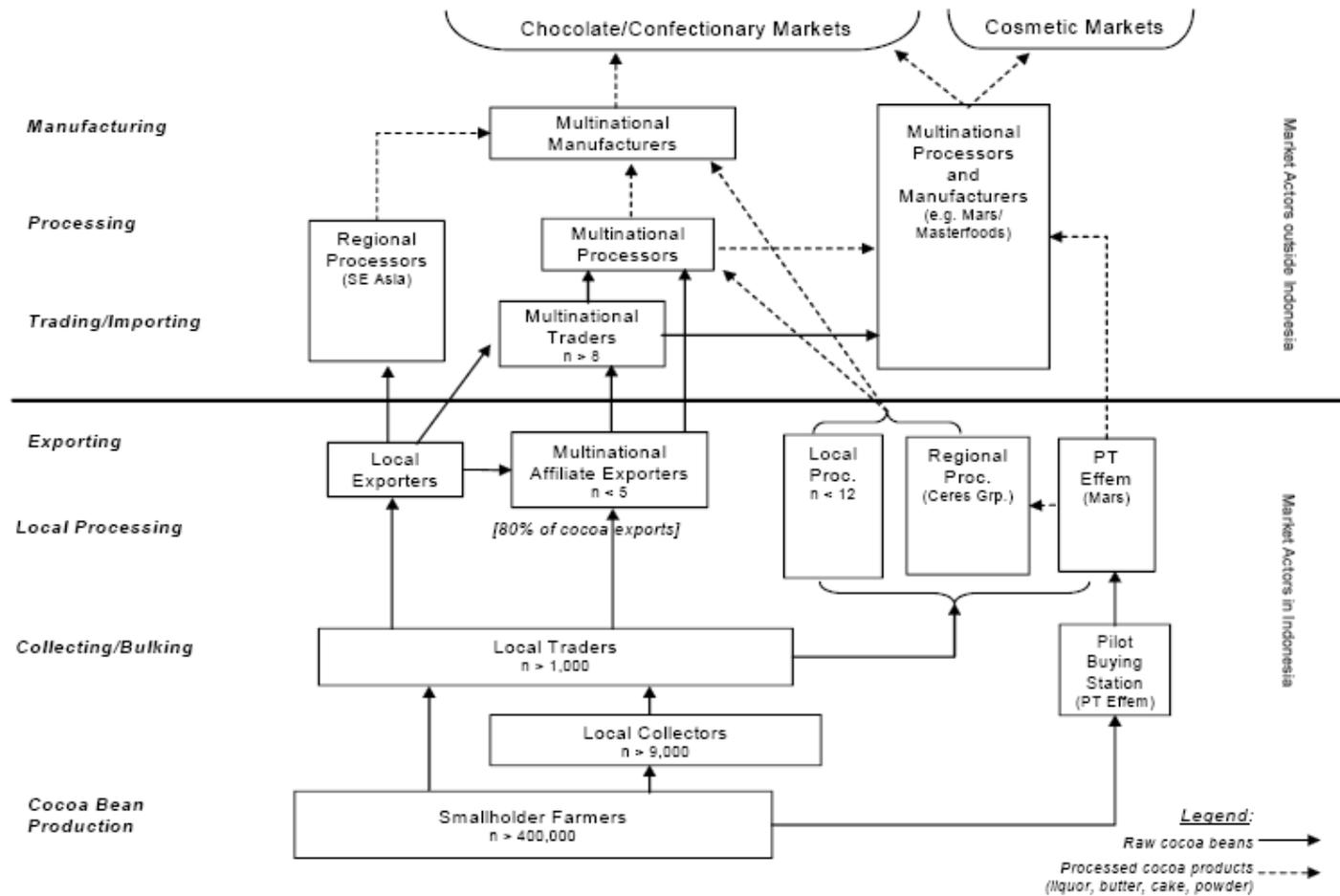
*Cocoa speculation during off-peak season* - During the off peak production period there is a degree of speculation by small scale traders that sees prices rise close to the premium. Large-scale industry buyers interviewed indicated that while competition during the off-season was high these traders were unable to maintain such prices during the peak season where the volumes and capital resources required limited their market power. Typically,

local traders do not provide a premium for quality or price discrimination. In instances where smallholders have debt with the traders they will not only incur a discount on quality but also a deduction resulting from any pre-financing that might have occurred.<sup>3</sup> Pre-financing arrangements like this result in lower returns on cocoa production as well as limiting the opportunity of smallholder farmers to sell to a broader range of buyers in the market place.

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<sup>3</sup> For example it is a common practice for smallholder farmers who have a pre-financed debt to derive a price of IDR 6,500-7,500 when the market price might be as high as IDR 11,500. This is where smallholders suffer most the result of pre-financing rather than discounting *per se*.

**Fig 1. Indonesian cocoa value chain**



Source: Panlibuton and Lusby (2006) Indonesia cocoa bean value chain case study. USAID

*Sulawesi Cocoa processing* - Cocoa processing, or grinding, entails the transformation of dried cocoa beans into a variety of processed products including cocoa paste or liquor, cake, powder and butter. Processors have strict quality standards and expect their suppliers to meet these standards. Only approximately 10% of Sulawesi cocoa bean production is processed locally, the rest is exported as raw beans. In Sulawesi, one of the largest processors is PT Effem (a subsidiary of Mars/Masterfoods). PT Effem sells processed cocoa products to other Mars manufacturing plants in the U.S., Brazil and other parts of Southeast Asia—as well as to the Ceres Group. The Ceres Group is the only fully integrated cocoa processor and cocoa product exporter in Indonesia. Ceres has a local manufacturing plant and has expanded its processing operations in Malaysia.

#### **D 3.4 Cocoa Exporters**

*Sulawesi Cocoa exporters* - Local exporters buy from collectors and traders who deliver beans to their storage facilities. Many of these local exporters have found it increasingly difficult to compete with the large-scale international exporters and have begun to sell to them rather than continue to export independently. The five main multinational affiliate exporters in Sulawesi including EDF & MAN, Olam, Cargill, ADM and Continaf sell approximately 80% of Indonesian cocoa beans. These large-scale exporters purchase bulk beans from traders who deliver to their warehouses, sort and grade for quality, and sell to buyers (primarily in the U.S., Malaysia, Singapore and Brazil) for processing.

*Limited physical presence of exporter/up-country buying stations* - Currently most exporters do NOT have an up-country presence or buying stations. As a result of the typically poor/immature trading networks there has been an opportunity for the development of what can be referred to as a cycle of ‘mixing’ and ‘un-mixing’ of cocoa beans. Put simply this is where local cocoa buyers purchase high quality cocoa beans at fixed market prices mixing where possible with poor quality beans. The limited ‘up-country’ presence of most exporters means that they are effectively subject to the ‘mixing’ and ‘un-mixing’ of cocoa having minimal capacity to engage with growers.

#### **E 3.5 International Cocoa Traders/Processors and Manufacturers**

*Indonesian cocoa in the global supply chain* - Once cocoa beans are exported from Indonesia they become part of the global trade in cocoa, which includes multinational traders, processors and manufacturers. Multinational traders sell cocoa beans to processors and manufacturers around the world.

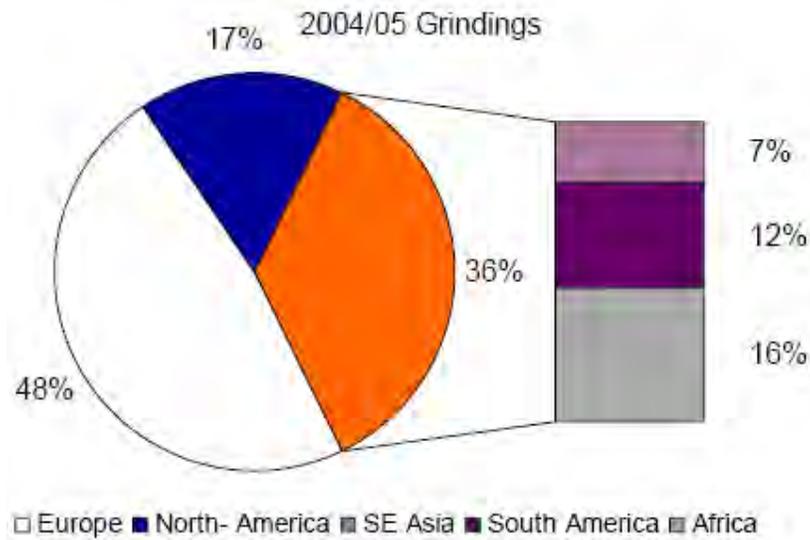
*Cocoa bean processing by region* – Generally cocoa processing/grinding is centered in consuming countries with the largest volumes in Europe and North America. *Figure 2* illustrates a trend in processing activities increasingly concentrated in cocoa producing (origin) countries; however, this trend is slow.

*Multinational cocoa grinders* – The large proportion of cocoa grinding is controlled by nine producers for which 60% of the world grinding capacity occurs with key players and include Cargill, ADM Cocoa, Barry Callebaut, Petra Foods and Blommer Chocolate (see *Fig 3*).

*Multinational cocoa confectionary processors* - Multinational processors, including Cargill, are major producers of processed cocoa products (cocoa liquor, butter and cake). Key cocoa confectionary producers with grinding capacity also include: Nestle, Cadbury-Schweppes, Cémol, Ferrero, Hershey, Kraft, Schwartauer, Mars and Lotte (see *Fig 4*). Of note is that

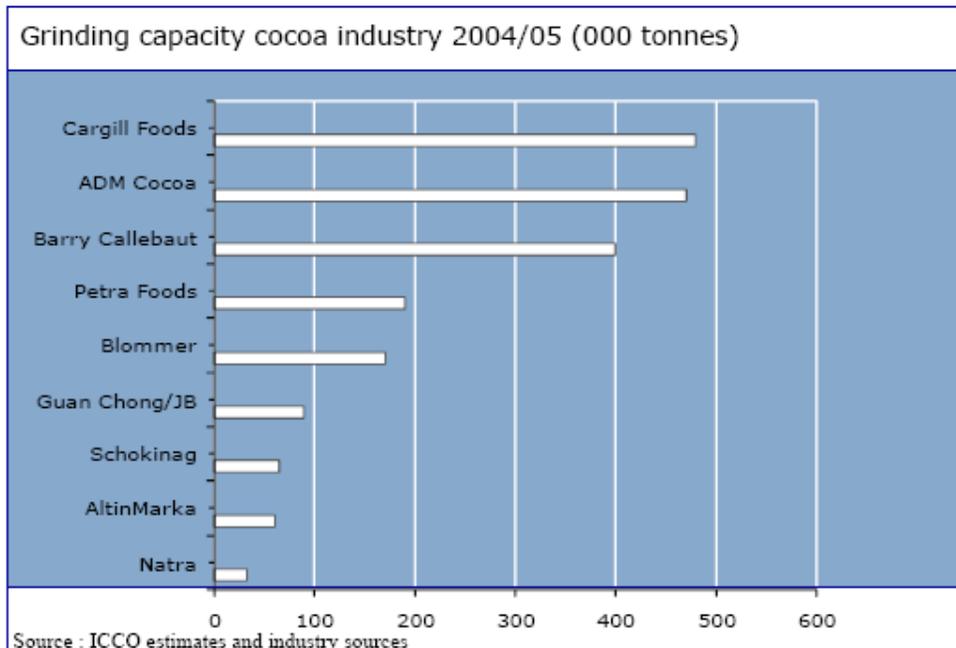
most of the grinding capacity of these confectioners is considerably smaller than the larger specialized grinders featured in Fig2.

**Figure 2 Extent of cocoa bean processing by region**



Source: Rabbobank (2005) The Cocoa Industry: From value to volume based growth. (pp. 11)

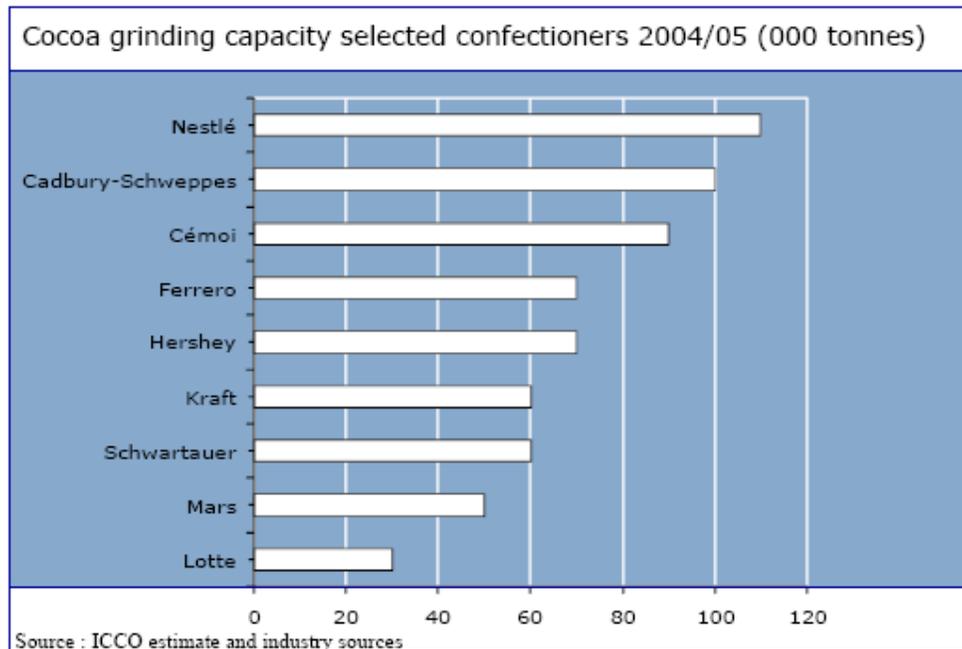
**Figure 3: Current grinding capacity of major cocoa grinders.**



Source: Rabbobank (2005) The Cocoa Industry: From value to volume based growth. (pp. 12)

*Chocolate manufacturers* - Multinational manufacturers, such as Hershey's, are dedicated chocolate producers and are generally located close to their final consumer markets. There are also integrated multinational processors and manufacturers who are involved in multiple functions of processing and manufacturing of final products. One of the largest, Mars, has significant presence and representation in Indonesia.

**Figure 4: Major companies and cocoa grinding capacity**



Source: Rabbobank (2005) *The Cocoa Industry: From value to volume based growth.* (pp. 9)

### **F 3.6 Fermented versus Unfermented Indonesian Cocoa Beans**

*Fermented Sulawesi cocoa* - Over the past 15 years there have been many projects to ferment cocoa beans. To our knowledge none have been commercially successful. There are many reasons but the main reason is that the market is not willing to pay the farmer for what he perceives as the increased cost to produce good fermented beans. This can be because the farmer over values his time and costs or the market does not value the Sulawesi fermented beans at a cost that the farmer is willing to produce them.

*Future opportunities for fermented Sulawesi cocoa* - Indonesia imports about 30,000Mt of fermented beans from Africa. There is an opportunity replace a portion of these beans with properly fermented Indonesian beans. AMARTA in partnership with Olam is exploring the possibility of designing and implementing a small pilot project (500 to 1,000 Mt) that will utilize new low cost fermentation methodologies. The decision of whether to initiate a small scale fermenting intervention in Sulawesi is still pending additional review with alternative geographic regions like Bali, Sumatra and West Papua. The product (fermented beans) will be tested in the market place (as a replacement for African beans) to determine its suitability as a replacement and a decision will be made based on cost and suitability to determine if the project should be escalated.

### **G 3.7 Summary of industry perspective attitudes to Indonesian cocoa**

*Global processing* - The global processors that buy and use FAQ Sulawesi beans seem quite happy to buy them as long as they meet the quality standards (2.5% trash, beans counts of 115 or less and 7.5% humidity). Processors are currently utilizing Sulawesi as a major source of cocoa butter while using beans from other origins for chocolate. Opportunities for Indonesian fermented beans are outlined in section 3.6 above. As the production has increased over the years (from 30,000Mt to over 450,000 Mt) the market has absorbed this increased production into the market place. One concern long term is the % fat content of the Sulawesi beans. The trend is down meaning that average fat content has declined over time (15 to 20 years), along with bean size. This is directly related to the CPB infestation.

*Industry demand for Sulawesi cocoa beans* - US chocolate manufactures have learned how to process and utilize Sulawesi beans in chocolate in small percentages (10-25%) without any negative flavor consequences however European chocolate manufactures currently have not used Sulawesi beans in chocolate formulas. There appears to be some indication that if the quality of Indonesian FAQ beans improves that market opportunities in Europe could develop.

### **H 3.8 Assessment of key issues affecting the Indonesian cocoa value chain**

*Issues of Pest and Disease* – Despite previous interventions targeting pests and disease in recent years Indonesia's competitive advantage has continued to be threatened by poor and inconsistent quality. The primary cause of this poor and inconsistent quality is the infestation from the cocoa pod borer (CPB). In order to address this problem caused by the CPB, various public and private initiatives have been undertaken to conduct research, train and transfer the improved production practices to the smallholder cocoa farmers in Indonesia. Despite these efforts the CPB infestation has spread to include all of Sulawesi cocoa and the adoption of improved production practices by cocoa farmers has been limited. This is a key issue that requires continued support (see Annex 2/3 for an overview of the problems in current cocoa production systems).

*Rehabilitation efforts* - Long term efforts to replace aging cocoa tree stock with new genetics with larger bean size and higher fat content is beyond the scope of the ARMATA project. ARMATA will provide training in side-grafting that will give farmers the skills necessary to rehabilitate their trees. ARMATA will also seek to collaborate with other institutions to source appropriate bud-wood genotypes as replanting material. It is currently proposed that a proportion of the 20,000 farmers will be provisioned with side-grafting training with finalization of the nature of this intervention dependant on additional feedback from the field. There are a number of possible interventions i) that each farmer group would be trained, or ii) that a percentage of the total target number of farmer groups will be trained with implementation potentially managed by ARMATA or alternatively sub-contracted out to another organization.

*Sub-optimal trading dynamics* - The common practice has been for the first buyer (local collector) to pay the same price per kilogram for good and poor quality cocoa, mixing the beans and forwarding these mixed beans on through the present collection system. When the beans eventually arrive at the warehouse of the international exporter they then need to be un-mixed to meet the international buyer's specifications. This results in higher processing costs. Premiums paid by the international buyers were needed to 'un-mix' or separate the good beans from the poor quality beans and none of this premium ever

reached the farmer. Therefore the signal to the farmer from the market place was that it was 'OK' to sell poor quality beans. The current signal sent to smallholder cocoa farmer by the market place does not reward or encourage farmers to produce export quality cocoa. Under the current buying arrangements the market place has failed to ensure that there is a benefit to farmers to producing good quality cocoa.

*Lessons learnt from the SUCCESS Alliance Model* – AMARTA has the opportunity to build on the market linkages that were being formed during the latter stages of the SUCCESS Alliance Program. In addition, AMARTA will consolidate and target training materials and communication packages to build upon and address the specific goals of the program. One example will include training materials that help farmers to produce export quality cocoa.

*Utilizing 'market pull' as a catalyst for improvements to smallholder cocoa production and quality* - Farmers have been slow to adopt interventions that control the CPB because there has been an absence of market linkages. AMARTA will develop and implement models that connect farmers groups with exporters and processors. The result expected is that quality premiums paid by processors will reach the farmer, encouraging the farmer to adopt measures that will improve quality. The objective will be to teach the farmer to produce export quality cocoa at the farm gate.

## 4. PROPOSED AMARTA COCOA VALUE CHAIN INTERVENTIONS

### 4.1 A context to AMARTA interventions

*Background* - The foundation of recommended AMARTA cocoa interventions is an integrated approach to farmer training utilizing applied research to control the cocoa pests and diseases that plague cocoa production in Indonesia. These efforts will increase the productivity and income of smallholder farmers. Sustainable cocoa production begins with farmers adopting appropriate cultural practices, an integrated pest management approach, cocoa garden rehabilitation as well as improving the genetic stock of their trees through side-grafting. In addition to improved cocoa cultural practices AMARTA will provide training enabling farmers to supply export quality cocoa. To date this type of support has not been attempted on a broad scale and it will also continue to expand on on-farm best practice techniques with additional information that will enhance post-harvest handling and quality.

*Benefits to smallholder cocoa farmers from AMARTA* - Unique to AMARTA will be the strong market pull resulting from the direct purchase of improved export grade cocoa. There will be a number of benefits to smallholder cocoa farmers. Firstly, farmers who can produce export quality cocoa will receive a premium for their extra effort, the economies of a more efficient market purchasing system will also be passed on to the farmer, while the technological package targeting cultural practices will result in improved farm yields.

*Complementarity with other AMARTA value chains* – The following interventions represents an effective ‘tool-box’ for development practitioners. There is a strong likelihood that the suggested tools that will be utilized in the cocoa program could be relevant to other AMARTA activities. The basis for the following interventions is the transfer of relevant and focused information for smallholder farmers. This information will provide farmers with an improved understanding of how to improve productivity, mitigate the damage from pests and disease, address post-harvest handling and quality issues that so commonly reduces Indonesian smallholder competitiveness.

*Scope of intervention* – AMARTA in conjunction with industry partner PT. Olam will conduct interventions that seek to: a) assist farmers in the mitigation of CPB, b) improve cocoa farm management practices that results in higher productivity, and c) attain a price premium paid to smallholder farmers for export grade cocoa. AMARTA proposes to train 20,000 smallholder cocoa farmers in two provinces (South, Southeast Sulawesi and possibly West Sulawesi) over a three-year period.

*Proposed delivery* - The training will be staggered beginning with training ±5,000 farmers in year 1 with ±5,000 added to the training program every six months. The number of training sessions offered to farmer groups will vary (between 3-8 classes) depending on the needs of the farmers and particular stage of the program. Participating farmers will receive follow up training and support to consolidate on prior training with the level of intervention declining over the life time of the program. The training will be both flexible and responsive to the needs of the farmers providing them the opportunity to improve productivity and quality.

*Expected benefits to participating farmers* – Current cocoa production is estimated as being 650kgs/ha/yr per smallholder. Farmers that utilize ‘best practice’ techniques in their cocoa

gardens have demonstrated the ability to increase this yield to 800kgs/ha/yr.<sup>4</sup> As an average, the benefit in terms of productivity to smallholder cocoa farmers from implementing the 'best-practice' represents a  $\pm 23\%$  improvement on current yields. The second area where smallholders will gain will be from the reduced discounting on price that they typically incur when selling cocoa beans with higher proportions of waste plus a price premium for export grade cocoa (typically  $\pm 5\%$ ). Based on previous fieldwork this price premium will itself be of considerable attraction to smallholder farmers and their capacity to access improved prices.

*Expected benefits from USAID investment in AMARTA cocoa interventions* – By the end of the twenty-nine months of program implementation a total of 20,000 farmers will have been trained in improved cocoa production techniques, means of mitigating CPB, improving quality and benefiting from the market pull that will accrue from the Blommer, Olam and AMARTA partnership. It is expected that throughout the duration of the program that approximately  $\pm 35,000$  tons of export grade cocoa will be purchased by Blommer. It is anticipated that an average gain of 25% (i.e. 20% + 5%) to smallholder cocoa producers will be derived from the training in improved farm management, CPB mitigation and methods to produce export grade quality cocoa. This represents a volume gain of 8,750 tons of cocoa directly the result of the AMARTA training and Blommer/Olam price premium. At today's farm-gate price for export grade quality cocoa this represents a return on investment of  $\pm$  USD\$12 that will be gained from the USAID investment of  $\pm$  USD\$ 1 million.<sup>5</sup>

#### **A 4.2 Development of cocoa training materials**

*Development of farmer training materials* - The consultants propose that a variety of materials be both refined and developed to support improvements to smallholder cocoa production and market quality. Under previous programs funded by USAID a number of training materials were developed to mitigate the cocoa pod borer via 'best practice' cultural farming typically referred to as PsPSP. A key activity under AMARTA will be the development of training materials that provides cocoa smallholders with an understanding of the necessary requirements of export quality cocoa and how to achieve this. Thus, while there is a range of materials that have already been produced they will need to be refined and updated to reflect the specific needs of the AMARTA program.

*Process of developing farmer training materials* - A team of short-term consultants and AMARTA technical staff will refine and design additional modules where necessary to include such things as cocoa quality standards, 'farming as a business', 'group marketing' and others as identified. The development of cocoa training materials will be completed by AMARTA staff based in Makassar in conjunction with international short-term consultants qualified in the development of 'farmer training' materials.

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<sup>4</sup> Best practice cocoa cultivation techniques include frequent harvesting, sanitation, fertilization and pruning (PsPSP). These best practice techniques are the acknowledged basis for effective cocoa husbandry. Farm management practices like sleeving, pesticide use, side-grafting and replanting are important but are typically utilized in addition to the core suite of 'best practice' measures.

<sup>5</sup> Based on industry data the price paid to smallholder cocoa producers for export grade cocoa was IDR 12,000/kg. This price will of course fluctuate over time.

*Defining and controlling methodologies* – A key component of the technology transfer process to smallholder farmers is the judicious selection of training methodologies. The identification and selection of these methodologies will be conducted in conjunction with the development of the technical aspects specific to smallholder cocoa production (i.e. improving productivity, reducing pest/disease, farmer group organization, and improved quality).

*Farmer participation and feedback* – A core philosophy of the AMARTA interventions will be to encourage flexibility and responsiveness in design and delivery. A golden rule of the methodology and development of training materials and delivery of farmer field school training is that ‘if in doubt ask the farmer’ as to the efficacy of the materials. A key objective of this training program will be that the training meets the needs of the farmers and that it is readily understood and adopted. Where possible, pilot training of the modules will be conducted once the various training topics have been completed so as to better incorporate ideas and issues that the farmers might have with respect to training material content. It is also possible that former farmer trainers could participate in the design of material content from the start – this still requires consideration.

*We anticipate that short-term consultant(s) will play a role in the identification, development and selection of training material development for the various cocoa activities.*

#### **B 4.3 Training of Trainers (TOT's)**

*Transfer of skills to farmer trainers* – Once training materials have been developed a group of trainers will need to be identified and then trained in the various techniques and content. To deliver this practical training in smallholder cocoa farming techniques farmer trainers will need to be provided with intensive training in the actual training materials (or best practices) methodology and approaches to cultivating adult participatory and discovery learning techniques.

The F/T's are trained in short term training seminars by ‘master trainers’ that are experience in farmer empowerment. These training-of-training activities could require anywhere between 7-10 days conducted ideally in small groups of between 10-15 participants facilitating maximum transfer of training and technical knowledge.

#### **C 4.4 Farmer Field School (FFS)**

*Participatory adult education* - This requires suitable technology, its efficient transfer to farmers, and the provision of farmer training across the targeted cocoa producing areas through farmer field schools (FFS). The FFS method of technology transfer is an ‘adult education’ based program that uses ‘participatory and discovery learning techniques’. The FFS system uses facilitation skills to empower the farmer to absorb knowledge and make good farming decisions.

*Role of farmer trainers in training* - The FFS system typically uses facilitation/trainers (F/T's) in groups of 25 farmers in open field class settings combined with practical skills based tasks that allow the farmers to see and do the recommended activities while learning. Under the

current model it is suggested that farmer field schools span the whole program period ensuring ongoing presence and support network for participating farmers groups.<sup>6</sup>

The cocoa training materials focus on a low-cost, low-input cultural method for controlling the cocoa pod borer (CPB) and other pests as well as increasing tree productivity, developed by ACRI through the *Sulawesi Cocoa Pod Borer Management Project* in 1995-1998 and updated based on its application through the SUCCESS Alliance Program.

*Smallholder 'best-practice' cocoa production techniques* - This method is now commonly known by its Indonesian acronym, PsPSP. The cultural practices that are taught in FFS providing the foundation for 'best practice' cocoa production techniques include:

- *Frequent harvesting [Panen Sering]* - This method requires the removal of the pods from the garden while the larva is still inside, thus preventing them from exiting and multiplying. It also reduces potential damage to beans. Farmers are encouraged to harvest a minimum of three times per month year round.
- *Pruning [Pemangkasan]* - This is necessary for increasing production, as it creates a better-lit farm, which is not the preferred habitat for the adult CPB moth, and farmers are able to see and harvest all the pods. Unharvested pods are a major source of infestation.
- *Sanitation of pod husks [Sanitasi]* - Sanitation destroys the larva still living in the pod husks. Sanitation of pods is accomplished through burying them or covering them under plastic sheeting for a few days.
- *Fertilizer [Pemupukan]* - The method emphasizes good soil fertility through composting and application of chemical fertilizers such as urea, Potassium chloride, and Tri-sodium phosphate. Application of fertilizer promotes healthier trees that are better able to resist CPB. Many farmers cannot regularly afford to purchase fertilizer, so there is training also on organic fertilizers and composting.

These cultural management practices remain the most promising and easiest technology to disseminate to farmers, and are the main thrust of training on CPB control and increased productivity. In the course of working with cocoa farmers in the farmer field school environment, adaptations to the curriculum have been made and additional training modules developed.

#### **D 4.5 Communications and Public awareness activities supporting cocoa**

*Cocoa information for farmers* – AMARTA will produce a variety of materials targeting farmer knowledge of cocoa this will include information linked with ways of mitigating CPB, identifying common cocoa pests and disease, seasonal calendars, post-harvest handling and export quality standards. Posters, brochures, and calendars demonstrating improved CPB control practices, cocoa production, marketing and quality standards will be developed for wider distribution of the training messages promoted by the program. Posters will be

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<sup>6</sup> It is proposed that 1 training unit with 1 farmer trainer will train 875 farmers over the course of the training program with multiple follow-up visits. There will be a total of 23 training units by the close of the program responsible for training and support to 20,000 smallholder cocoa farmers.

placed in farm input stores, cocoa buying/trading stations, government offices, village offices and meeting areas.

*Leveraging support for improved communication* - Sponsorship from interested parties from both the public and private sector will be sought to finance more extensive printing and distribution of AMARTA project posters as well as other print material. These companies (traders, input suppliers, etc.) can place their logo on the posters and distribute them through their existing rural networks.

#### **E 4.6 Utilization of VCD's media in farmer training**

*VCD training* - During its program the SUCCESS Alliance developed a VCD training series with a set of companion materials on PsPSP and good farming practices. This series will be modified somewhat to include new lessons and methods. It is proposed that additional VCD's are produced in collaboration with other stakeholders that address areas that have not currently been address through such communications packages.<sup>7</sup> Another opportunity exists in the form of producing a VCD that outlines the quality standards necessary for export grade cocoa and how this can be achieved i.e. through appropriate drying practices, sorting and grading cocoa.

*Proposed context of VCD training* - It is NOT proposed that VCD training be utilized as the standard means of technology transfer but as a means of follow-up support with farmers following preliminary more intensive FFS training. The extent of actual VCD training will be dependent on finalization of the budget for cocoa activities and consultation with technical/ implementation staff once on the ground in Makassar.

*Operational implementation* – During the SUCCESS Alliance it was established that target communities had sufficient access to the televisions and VCD players to warrant the use of this training technique. Baseline studies conducted during the initial stages of implementation will verify and determine more accurately the extent of access to electricity, televisions, radios and VCD's. The methodology employed during the SUCCESS Alliance for VCD trainings, required that a field training facilitator visit a selected village on four separate occasions. The first visit was used to conduct socialization and to establish a time to carry out the VCD training. VCD training typically occurred on the second visit. The third and fourth visits will be follow-up and monitoring visits, allowing farmers to ask questions and discuss outcomes. The VCD training itself will be a full day event. There will be pre- and post-testing, viewing of the VCD, exercises in the group and practical exercises to carry out in the garden as well as time for discussion.<sup>8</sup>

*Revisions and synchronization of VCD methodology with AMARTA activities* - The VCD methodology utilized during the SUCCESS Alliance program will be reviewed for its efficacy

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<sup>7</sup> For example this might include a VCD on pest and disease recognition in cocoa gardens and the relevance of 'best-practice' techniques (PsPSP) to reducing crop losses.

<sup>8</sup> Under the SUCCESS Alliance the initial training groups were relatively small (20 and 25 people) as space around a television set is limited. However, to increase the number of farmers that are able to take part in the activity, the initial training groups will be required to train a further 20-25 farmers in their village, including carrying out pre-and post testing, to measure effectiveness of the method. At a minimum, this will double the number of people in a village exposed directly to the message and decrease the likelihood of 'knowledge hoarding' (refusing to share the VCD with others and using the material as a status enhancer).

and efficiency by AMARTA field staff with modifications as required. Given the probability of additional VCD's dealing with a variety of issues and the fact that it may be used as a follow up training mechanism there would be less need to coordinate socialisation etc with the farmer group. One of the benefits of the proposed VCD's to be developed as a component of AMARTA cocoa interventions will be that these new materials can be utilized as follow-up support activities for participating farmers.

*Pilot testing of VCD's* – As with all training materials and communication packages that are developed it is **STRONGLY** recommended that AMARTA staff pilot these interventions with local farmers to ensure that context, content, and absorptive capacity are maximized and that feedback and revisions are incorporated where there is a benefit to do so.

#### **F 4.7 Cocoa Fermentation Trials**

As iterated in the value chain assessment the issue of fermented Sulawesi cocoa beans requires additional support and pilot programs (**see section 3.5**). Under the AMARTA program it is proposed that ±1,000-2,000 cocoa farmers participate in a pilot activity to produce fermented cocoa beans. This will be achieved through an activity that works with 40-80 groups of 25 farmers that are prepared to participate in the fermentation trials. This initiative will depend on the determination by industry that they can market fermented Sulawesi cocoa profitably. Alternatively as mentioned earlier additional enquiries are being pursued wherein alternative geographic areas beyond Sulawesi are being considered for fermentation trials including Bali, Sumantra and West Papua. Depending on the level and nature of private sector support for the program AMARTA will finalize program interventions accordingly.

#### **G 4.8 Cocoa garden rehabilitation: Side-grafting training to smallholder farmers**

*The rationale for side-grafting* - Improved genotype selection of cocoa and side grafting of selected genotypes onto cocoa is a proven method for improving the genetic stock of cocoa and increasing resistance to diseases and pests. Masterfoods, in cooperation with Australian Centre for International Agricultural Research (ACIAR), has conducted research and development of genotype gardens in Sulawesi that could provide a source of improved genetic material to be distributed to farmers. The research is focusing on resistance to black pod (*Phytophthora palmivora*) and Vascular-streak Dieback (VSD) diseases and CPB. During the field trip consultation with Masterfoods staff established that a number of promising cocoa clones had been identified and that could serve as genetic material for side-grafting activities. Further consultation with Masterfoods and ACIAR is required to determine whether there are any suitable clones that could be utilized in AMARTA activities.

*Side grafting has several key benefits* - First, it enables the farmer to select the most productive trees from their cocoa gardens and then to graft those on to existing rootstock.<sup>9</sup> Second, side grafting rehabilitates production on aging cocoa farms faster than

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<sup>9</sup> This should dramatically increase production over the long-term since usually 70 percent of cocoa production comes from only 30 percent of the farm's trees. It has been reported in Malaysia that CPB

any other method. It usually takes a new seedling 2-3 years of growth before it produces cocoa pods, however, under suitable conditions, side grafting can produce pods in only 12 months. Third, if existing trees can be rehabilitated and brought back into production more quickly, it could mitigate the tendency of farmers to abandon unproductive aged gardens to open up new areas, possibly forested lands, to cocoa production.

*Side-grafting activities in AMARTA* - The transfer of side-grafting skills to farmers was accomplished under the SUCCESS Alliance but in a limited volume. It is proposed that side-grafting skills be incorporated in to AMARTA farmer training programs but on a smaller scale than of the broad based best practice, post harvest handling and quality training that is currently being proposed. It is possible that 2,000 farmers will be trained in side-grafting areas where the need is greatest. The exact number and area for side-grafting training will depend on budget and personnel constraints. There are two possible sources for cocoa planting materials firstly bud-wood identified from within the farmers garden or secondly sourced from a research of industry institution. A range of potential sources exist and could include Masterfoods, ICCRI, local NGO's, estate crops office or ACIAR. Additional consultation with stakeholders is required to determine the best available source and specific genetic material that would be utilized. It is important that all genetic material provided to beneficiary farmers be certified by the authorized Indonesian government agencies.

#### **H 4.9 Prioritization of core cocoa interventions under AMARTA**

*The development need* – It is undisputed that the development imperative for support to Indonesian smallholder cocoa is well documented. It is important that AMARTA be cognizant that due to the ambitious nature of the program in both the geographic breadth and extent of value chains that will be the focus of interventions that not all activities can be pursued under the current program.

*The need for specific interventions* – For these reasons it is not recommended that AMARTA attempt to tackle sector wide issues linked with smallholder cocoa production like: access to finance, extensive garden replanting, support for farmer training in pesticide use and application, research and development in new genotype materials etc. The range of interventions that are currently proposed attempt to illustrate that through clear market linkages and improved cocoa farming practices will result in tangible benefits to smallholder farmers.

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infestation drops sharply for several years on farms that have been recently side grafted. This is attributed to the reduction in cocoa canopy and shade, which CPB prefers, on side-grafted farms.

## 5. STAKEHOLDER ROLES WITH AMARTA

During the consultancy a range of stakeholders were consulted and the following section summarizes some of the areas where potentials for leveraging, harmonization and collaboration exists.

### A 5.1 GOI Counterparts

The opportunities for direct engagement of GOI counterparts require further consideration and consultation. Due to the nature of the proposed interventions where the 'market pull' is acting as an added incentive for farmers then it is less likely that government counterparts will participate directly in active training or on a day-to-day basis.

i) **National Estate Crop Agency** – The role of this agency is still under consideration and will be better defined at later date.

ii) **Provincial and District Estate Crops Agencies** - The role of this agency is still under consideration and will be better defined at later date. Possible avenues for collaboration include the leveraging local staff that could be included in FFS training activities. Additional areas for support could include provincial/district support for the provision of funding to expand the volume of materials generated through public awareness/communications strategies. This might include funding for radio/television broadcasts, VCD, leaflets, posters, cropping calendars and manual/books on technical aspects of cocoa cultivation.

### B 5.2 Donors (Multilateral/Bilateral)

During fieldwork several bilateral and multilateral agencies were consulted as to the possible areas where collaboration might exist.

**Smallholder Agribusiness Development Initiative (SADI-AusAID)** - This program has three sub-components and is currently being funded by AusAID. The three sub-component activities include support for i) private sector; ii) adaptive smallholder research; and iii) support for the World Bank *kecamatan* development program (KDP). Opportunities for collaboration and leveraging SADI within AMARTA interventions will require discussion by both parties to better determine where avenues exist. Due to the different time frames and duration of program activities it will also be potentially difficult to synchronize effectively. It is not anticipated that there would be cross-over with the third sub-component (KDP).

**IFC PENSA** - The private sector arm of the World Bank has a technical assistance office located in Makassar. This office is primarily focused on Agribusiness Linkages with three sub-component areas that include support for cocoa, integrated maize/poultry and seaweed. The IFC is likely to have a role in the upcoming World Bank loan that is targeting improvements to agricultural extension. As a member of the Cocoa Sustainability Partnership (CSP) the IFC is taking a lead role in farmer empowerment primarily through support for access to finance and micro-finance activities. AMARTA will retain a focus on farmer groups as a primary point of contact for interventions in cocoa but AMARTA will not be likely to conduct significant activities for support in micro-finance.

### C 5.3 Cocoa Industry Counterparts and Organizations

Throughout the cocoa value chain assessment counterparts from the following private sector organizations were contacted regarding the potential opportunities for collaboration with AMARTA. The following

**Blommer Chocolate** - Blommer is the largest cocoa processor/grinders in the US and one of the largest in the world. Blommer Chocolate via a buying arrangement established as a result of the SUCCESS Alliance with PT. Olam has been buying export quality cocoa beans from farmers trained by SUCCESS Alliance. Blommer Chocolate is seeking to expand the size of its purchasing to include all cocoa produced by farmers trained via the AMARTA project. Karl (Kip) Walk is Director of Cocoa Procurement, with responsibility for cocoa bean purchasing strategy and execution for Blommer Chocolate. Kip leads Blommer's cocoa sustainability activities, which includes his role as Chairman of the South American Sustainability Programs for the World Cocoa Foundation [at <http://www.blommer.com/history.html>]. PT. Olam has indicated that there is also a need to provide support to farmers currently supplying cocoa to their operations.

**World Cocoa Foundation** - Possible contributions to AMARTA in the form of technical assistance as well as possible access to small grants to support cocoa related activities. Still requires consultation with WCF.

**Masterfoods (PT. EFFEM)** - PT. Effem through its PRIMA program has been working with cocoa farmers in and around Noling village. PT. Effem through this program has conducted considerable research into cocoa germ plasm (new clonal varieties). It is hoped that there will be collaboration between AMARTA and PT. Effem that maximizes lesson learnt as a result of the PRIMA program particularly linked with developments in technology and research.

**PT. Olam** - Olam is one of the world's largest originators of cocoa, being physically present in all the major exporting countries in Africa and Asia. Olam has a strong marketing and trading presence centered upon the cocoa headquarters in London and regional hubs in Singapore and New York. In all countries they have built upon their origination strengths to ultimately provide chocolate manufacturers and cocoa powder with quality cocoa beans [[http://www.olamonline.com/htmlDocs/bd\\_cc.html](http://www.olamonline.com/htmlDocs/bd_cc.html)].

**PT. Cargill and PT. Armajaro** - Both companies were approached it was determined that the various collection systems in place would be less effective than that of Olam with both of these companies not currently having up-country buying stations in place.

### D 5.4 Research Institutes

There are a number of research institutes both national and international that may to varying degrees provide support in some capacity to AMARTA interventions. These will need to be determined at a later time following previous discussions - a range of opportunities exist for collaboration.

**Indonesian Coffee and Cocoa Research Institute (ICCRI)** - This institute could provide technical support linked with cocoa production and post-harvest technologies. Avenues are being explored whereby ICCRI staff members are also incorporated in AMARTA program activities. This could include technical support in vetting and reviewing information linked with cocoa production. Further discussion and coordination with ICCRI is required.

**Balai Pengkajian Teknologi Pertanian (BPTP) Agency for Applied Agricultural Technology Assessment** - This Indonesian government agency is responsible for testing and assessing new technologies related to cocoa in specific geographic locations. The exact nature of collaboration with this agency still requires consideration.

**USDA Beltsville Maryland** - This US based organization is currently conducting research into the use of pheromones as well as developing a better understanding of the biology of the cocoa pod borer with the aim of establishing how to better combat this pest. AMARTA will contact the Beltsville facility to ensure that as information becomes available that this will be incorporated where possible within farmer training and public awareness/communication material

**Imperial College (UK)** - In the past Imperial College has provided support in the form of technical advice and support for the collection and statistical analysis of data linked with cocoa pod borer and cocoa production systems in Sulawesi. ICCRI is also currently collaborating with this agency in sharing cocoa germ plasm. Field trials are currently being conducted by ICCRI but results are not yet available. Imperial College has provided training material for the safe spraying application of pesticides. AMARTA will examine ways of continuing with this collaboration during the program lifespan.

**Hasanuddin University (UNHAS)** - Possible areas exist for collaboration with AMARTA but that requires further consideration.

## **6. POTENTIAL AMARTA TRAINING DELIVERY MECHANISMS**

Three possible delivery mechanisms appear available to AMARTA under the cocoa component. Under any of these proposed delivery mechanisms paradigms it essential that AMARTA retain control and oversight of the methodological approaches, content and monitoring and evaluation systems that are eventually determined by AMARTA. Eventual selection will depend on a range of factors including cost, leveraging, potentials for replication and complementarity between AMARTA value chains.

### **A 6.1 Option 1 - Implementation in partnership with Industry**

Following initial dialogue and consultation possible industry counterparts could include PT. Olam, PT. Effem, PT. Cargill and PT. Armajaro. The basis for this relationship would be to establish where market linkages i.e. end buyers are prepared to offer a price premium for export quality cocoa beans. Blommer Chocolates has via its international exporter PT. Olam been sourcing export quality beans. Blommer has indicated a desire to purchase a significantly greater volume of this export quality cocoa from PT. Olam.

Following preliminary discussions with PT. Olam has agreed to consider expanding the number of up-country cocoa bean purchasing stations that are currently buying directly from farmer groups. To meet the increased demand for export beans PT. Olam has stated that they do not have the skills or experience required to design and deliver the technical assistance package required ensuring that farmer groups are producing export quality beans. AMARTA has been asked to facilitate the design and training materials that would then be implemented by PT. Olam.

### **B 6.2 Option 2 - Direct implementation by AMARTA**

This mode of delivery will require the organization of a dedicated training unit to deliver the proposed training and activities to farmers identified by the exporter partner. The training package and methodology would be developed and controlled by AMARTA however a large tier of farmer trainers would need to be hired and managed by AMARTA. This delivery mechanism would also result in a dearth of field training staff that would be in a similar position to ex-SUCCESS Alliance employees.

### **C 6.3 Option 3 - Implementation by former SUCCESS Business Service Providers**

This mode of delivery would be by contract between AMARTA and a qualified local NGO that would deliver the training specified by AMARTA. The technology package and methodology would be controlled by AMARTA but via oversight and contract, as trainers would not be AMARTA employees. Feedback from industry counterparts and others engaged in the cocoa sector seemed to suggest that these organizations were comparatively inactive with most staff members absorbed into other employment opportunities rather than opportunities emerging for a sustainable private sector engagement.

## **RECOMMENDED DELIVERY MECHANISM**

The consultants propose that the first delivery mechanism be adopted from the three potential models. There are a variety of reasons for this recommendation including overall efficiency, responsiveness of the delivery system to on-the-ground realities, and most

importantly the synergies that are gained by close a partnership between the trainer and buyers.

## **7. AMARTA COCOA VALUE CHAIN PROGRAM MOVING FORWARD**

*Overview* - The following section provides some guidelines for potential means of implementing the cocoa interventions recommended in this report. These programmatic recommendations should be considered as being a starting point for further discussion with AMARTA implementation and technical staff once on the ground in Makassar. Due to the nature of the partnership numerous aspects linked with implementation will need to be discussed with the industry partner PT. Olam to ensure complementarity between the differing objectives.

### **A 7.1 Proposed AMARTA Management Structure**

*AMARTA/Olam oversight, reporting and management* - It is the consultants' recommendation that the first delivery mechanism be utilized with a management tier consisting of a technical team, provincial and district coordinators that would provide technical assistance, be responsible for data collection and reporting, supervise staff, as well as assisting Olam in general coordination (see *Annex 4* for proposed management structure).

*Structure of staffing* – The figure on the following illustrates the proposed management organization for the cocoa intervention. AMARTA will through a number of management levels ranging from technical, provincial/district coordination retain control and direction of program activities. It is recommended that AMARTA retain control of staff employed through the program.

*Field Collaboration between AMARTA and Olam* - Close coordination and consultation with Olam employees at all management levels will be required to ensure the most efficient and effective implementation possible. It is anticipated that there will be close coordination at the field level between Olam procurement and AMARTA training field staff. There is still some debate between Olam and AMARTA regarding the exact hire/fire arrangements for field training workers. There are strong arguments for AMARTA to retain management control especially for staff that are operating at higher levels with oversight, reporting and management responsibilities.

### **B 7.2 Development and signing of MOU with industry counterparts**

An MOU has been prepared that outlines the various responsibilities between the three partners i.e. AMARTA, Blommer Chocolate and PT. Olam. A *pro forma* version of the proposed MOU is listed in *Annex 5*. A signing ceremony to be held on the 14<sup>th</sup> February at AMARTA offices with representatives from Blommer Chocolate, PT. Olam and AMARTA present that will be witnessed by the USAID mission director.

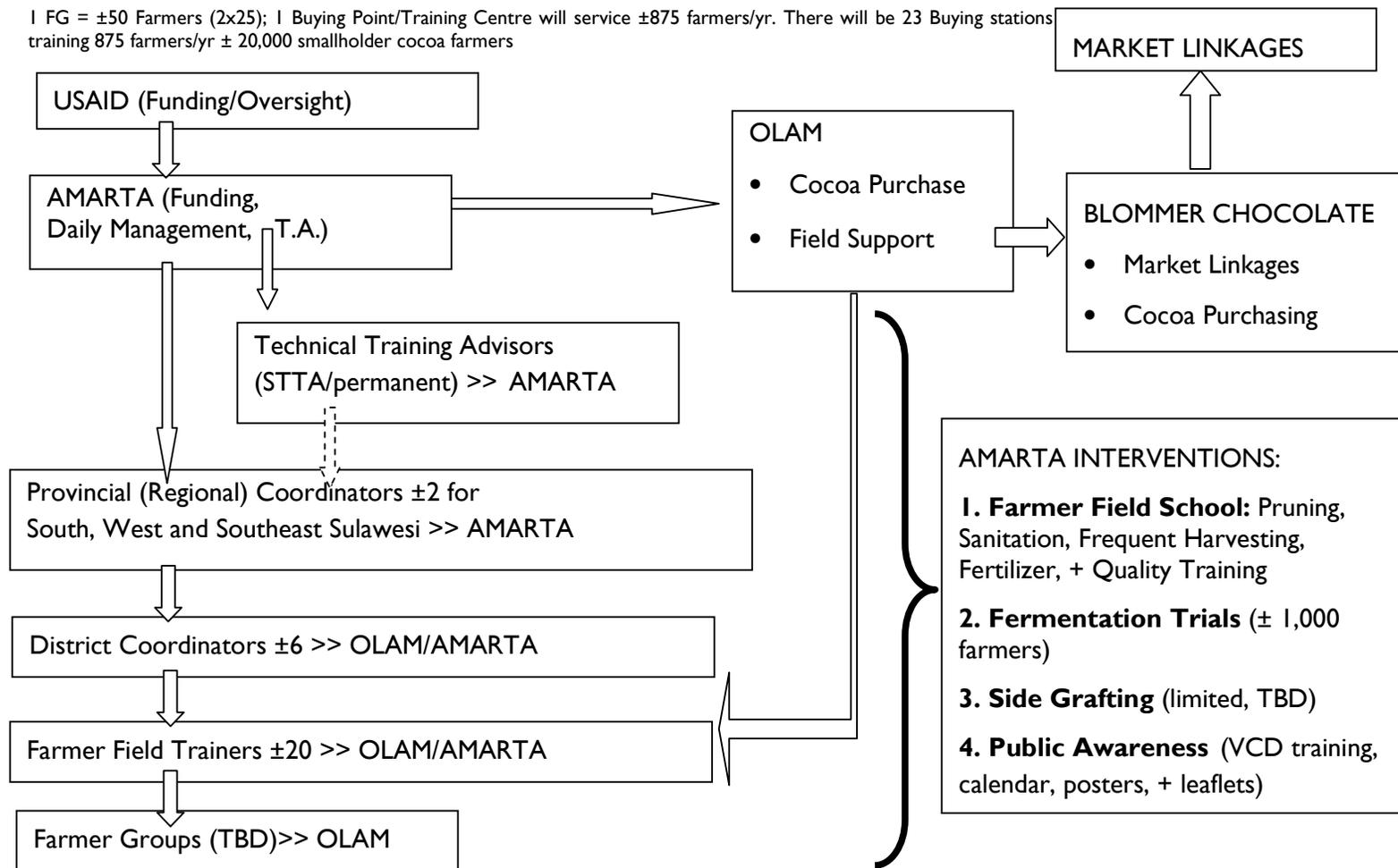
### **C 7.3 Development of Activity Work Plan (2007) – Next Steps**

Following the signing of the MOU a series of key activities will need to occur with a *pro forma* list of activities (see *Annex 6*). Essentially, these include i) the recruitment of long-term staff to support operations in Makassar, ii) ground truth proposed project areas (with Olam counterparts) begin identification of farmer groups to be trained, iii) finalization of work plan and detailed budget, iv) refine and develop farmer training materials, v) conduct TOT sessions for farmer trainers, develop fermentation guidelines, activities and locations (with Olam), vii) develop materials for the communications program, viii) begin training

farmer groups, ix) the development of baseline surveys and long term project and monitoring surveys that will facilitate the collection of sufficient information to accurately capture the impact of the project.

## Proposed management structure for AMARTA cocoa interventions

1 FG = ±50 Farmers (2x25); 1 Buying Point/Training Centre will service ±875 farmers/yr. There will be 23 Buying stations training 875 farmers/yr ± 20,000 smallholder cocoa farmers



#### **D 7.4 Pro forma budget for AMARTA/Olam Partnership**

1. The proposed budget for the AMARTA/Olam cocoa activities indicates a cost of USD \$19,081 invested by Olam in each new buying/training point that is established. The plan calls for a total of 23 up-country buying/training stations with each capable of training  $\pm 875$  farmers per year. This cost is broken down into staff, travel, warehouse, etc (see Annex 5). The budget also indicates the AMARTA costs per each buying unit. Each unit will have an AMARTA financed farmer trainer plus the cost of transportation and communication and cost \$7,457 per unit.
2. The *pro forma* budget in Annex 5 indicates that each buying/training unit buys from approximately 875 farmers organized into farmer groups (FG) of  $\pm 50$  each. Therefore each unit will have between 17-18 farmer groups totalling 875 individual farmers. The AMARTA/Olam partnership will have 23 buying points thus by the end of the program the objective will be to be purchasing quality cocoa from  $\pm 20,000$  farmers.
3. The cost of one farmer training session per farmer group is USD\$91, which covers materials, tools and lunch if necessary. Each FG will receive between 3-8 training sessions depending on the specific needs of the farmer group.
4. The total identified cost for Olam is USD \$1,316,612 while the cost for AMARTA will be \$1,148,276. The number of hectares expected to receive improved practices supported by AMARTA is  $\pm 20,000$  with on-going support across the lifetime of the program. The exception to this continued training support will be the final 5,000 farmers but who will receive more intensive training support to achieve program objectives.

#### **E 7.5 Staff and Office Considerations**

*Required support for AMARTA cocoa interventions* – A range of additional support resources and mechanisms will need to be in place to ensure that the AMARTA program activities maximize outcomes. This would likely include TA linked with training material design, GIS mapping for project areas, communications and media, data base management and IT, financial/accounting, as well as an office manager. The following resources could potentially be housed in an independent AMARTA office or alternatively located with OLAM.

*Office and staffing requirements for AMARTA cocoa component* – It is proposed that a regional office be established in Makassar (South Sulawesi) with locally recruited staff providing support to a long-term program manager/technical commodity advisor. The nature and size of the cocoa intervention and its comparative importance within the priorities identified by USAID in the RFP would seem to support the need for dedicated personnel. The likelihood that additional program activities related to differing value chains will be concentrated in and around Sulawesi (North Sulawesi, North Maluku, and Kalimantan) makes a regional office located in Makassar a logical choice.

A number of proposed positions and roles are advocated for the Makassar office and will be required to effectively ensure proposed interventions are being implemented satisfactorily. Table 2 provides an overview of the key positions that are anticipated as being necessary. It is proposed that as the Makassar office will be comparatively small that the office/financial manager share responsibilities. If suitable candidates are available there would be opportunities for this candidate to carryout field inspections, manage grants, assist in the

development of training materials targeting farmer group organization, financial capacities etc. Ideally a dynamic, experienced candidate, that was prepared to provide financial/administrative oversight; would fill this position but that also had the capacity and desire to actively participate with implementation.

Salaries that have been listed in the following table are only a very rough approximation and will need to be verified once confirmation for the regional office in Makassar has been approved.

Olam has indicated that experienced field trainers will receive a higher price than procurement staff. This might equate to approximately IDR ±1.5million/month and will need to be verified once on the ground in Makassar. It will be imperative to obtain the best possible field trainers that are available. Typically, Olam budgets staff salaries over a 15-month period to reflect the difficulties of working in isolated field environments citing that staff are often required lengthy distances on motorbike to cover larger geographic areas.

**Table 1 Proposed staff positions for Makassar regional office**

Positions	Approximate Salary per month**	Role/Reporting Responsibilities	Oversight
Office/Financial Manager*	Potentially IDR ±9-10 million	Oversight of admin and finances - development of financial training materials, grant management, field supervision.	AMARTA Commodity Advisor
Receptionist	IDR ± 2-2.5 million	Support office manager (Admin and Finance)	Office Manager
Database Manager	IDR ± 2.5-3.5 million	Responsible for coordinating collection, processing and cleaning of data	AMARTA CA
Communications/IT	IDR ± 2.5-3.5 million	Responsible for maintaining IT network, and preparation of training/communications materials	AMARTA CA
ST Technical Staff	To be determined	Support in development of training materials, oversight	AMARTA CA/Olam
2 x Provincial Coordinators	IDR ± 4-5 million		AMARTA CA/Olam
6 x District/Regional Coordinators	IDR ± 2.5-3 million		AMARTA CA/Olam
20 x Field Trainers	IDR ± 1.5 million		AMARTA CA/Olam
Office Assistant			

The final staff required will also depend on the number of value chains that will be managed from the Makassar office. In addition due to the ambitious nature of the cocoa intervention there seems to be a sound basis for a stand-alone data-base, data entry manager so as to expedite the monitoring and evaluation.

The following is a proposed level of effort and activities for consultant BK Matlick 2007 - **March visit** ( $\pm 15$  days) Activities – i) support budget development, ii) identify staff, iii) visit Olam buying points, iv) visit farmer groups, v) develop quality workshops with Olam, vi) identify & select training modules and protocol for farmer involvement, vii) support TOT development and viii) develop fermentation project. **June Visit** ( $\pm 15$  days) – i) attend farmer training, ii) visit Olam buying points, iii) review progress of cocoa purchases, iv) update on fermentation project, v) support side-grafting training and vi) identify problems. **Sept. Visit** ( $\pm 15$  days) to i) progress update, ii) begin fermentation project, iii) side-grafting update, iv) identify problems, v) solve problems as identified by Project Manager, and vi) provide a review for Blommer.

## **F 7.6 Establishing Baseline and M&E Systems**

A key component of the next steps phase in addition to administration, logistical, and staffing considerations will be the development of a baseline questionnaire that will provide a detailed overview of the beneficiary farmers. This baseline will enable the program to measure the extent of progress and impact that has occurred as a result of the various interventions.

Six indicators were selected for the AMARTA program include: i) the number of additional hectares under improved technologies or management practices as a result of USG assistance; ii) the number of additional surveillance and/or control systems in place for agricultural threats (biological and environmental) as a result of USG assistance; iii) the number of producer organizations, water user associations, trade and business associations, and community based organizations (CBO's) receiving USG assistance; iv) the number of individuals who have received short term agricultural sector productivity; v) the percent change in value of international exports of targeted agricultural commodities as a result of USG assistance; and vi) the percent change in value of purchases from small holders of targeted commodities as a result of USG assistance.

As a component of the 'next steps' phase in the development of the AMARTA cocoa interventions the cocoa 'team' will prepare a baseline survey in addition to a more comprehensive questionnaire that can be fielded periodically throughout the duration of programmatic implementation. The key aim of these questionnaires will be to gauge the level of impact across the six indicators. It is proposed that between 5-7.5% of farmers would be surveyed as to the efficacy and impact of the various interventions on cocoa productivity, pest and disease, methods to reduce cocoa pod borer, as well as the steps necessary to produce export quality cocoa.

## 8. CONCLUSIONS AND RECOMMENDATIONS

### A 8.1 Conclusions from cocoa value chain assessments

Indonesia is the third largest producer of cocoa in the world after Ghana and the Ivory Coast and the most significant cocoa bean supplier in East Asia. Indonesia's competitive advantages include low cost, high production capacity, efficient infrastructure and open trading/marketing system.

In recent years this competitive advantage has been threatened by poor and inconsistent quality. The primary cause of this poor and inconsistent quality is the infestation from the cocoa pod borer (CPB). In order to address this problem caused by the CPB, various public and private initiatives have been undertaken to conduct research, train and transfer the improved production practices to the smallholder cocoa farmers in Indonesia. Despite these efforts the CPB infestation has spread to include all of Sulawesi cocoa and the adoption of improved production practices by cocoa farmers has been limited.

As a result the export quality of cocoa from Indonesia has deteriorated and the value reduced to the international marketplace. This reduced value has resulted in lower prices to the farmer in the form of larger discounts. This has also reduced the demand for Indonesian FAQ cocoa as buyers changed to other origins establishing substitutes for Sulawesi cocoa. Previous efforts to train farmers in the improved production practices to control the CPB have been limited primarily by the lack of price incentives to encourage the farmers to adopt the new technology package.

The common practice has been for the first buyer (local collector) to pay the same price per kilogram for both good and poor quality cocoa, 'mixing' the beans and forwarding these mixed beans on to the next buyer (village collector). When the cocoa beans eventually arrive at the warehouse of the international exporter they then need to be cleaned or 'unmixed' to meet the international buyer's specifications. Premiums paid by the international buyers were needed to 'un-mix' or separate the good from the poor quality beans. Typically, little or none of this premium reached the farmers. Therefore, the market signal sent to farmers is that it was 'OK' to sell poor quality beans. Under these buying arrangements the market place has failed to reward the farmer to produce good quality cocoa.

### B 8.2 Recommended interventions for AMARTA

The consultants working with AMARTA have identified an international exporter (Olam) and a US based cocoa bean processor (Blommer Chocolate) that are willing, together with AMARTA to enter into a partnership. Blommer is the largest cocoa processor in the US and one of the largest in the world. Blommer will pay a quality premium for cocoa that meets their export specifications. Blommer has indicated a desire and willingness to purchase export quality cocoa in significant quantities supplied by Olam with support from AMARTA. Partnership with these companies will provide the 'market incentives' for farmers to adopt AMARTA interventions and produce export quality cocoa that to date has been lacking for much of Indonesia's cocoa production.

An international exporter with offices in London, Singapore and Makassar Olam has agreed to purchase beans from farmer groups and pass on that premium to the farmers. Olam views the current initiative with AMARTA as complementing both its business and

Corporate Social Responsibility (CSR) mission. Olam has established a number of up-country buying stations as well as providing limited training to farmers.

The consultants have concluded that in order for the demand to be met that smallholder farmers require additional training and support to satisfy this demand. AMARTA will train smallholder cocoa farmers in new farming practices that when adopted will serve to reduce pests, increase productivity as well as most importantly provide 'export quality' beans. This purchasing system will reduce the need to 'mix' and 'un-mix' the beans and pass on this marketing efficiency to the farmer.

The partnership will by-pass at least two links in the current buying and collection system, the local collector and village collector. This new partnership will 'send a signal' to the cocoa farmer that the market needs good quality beans and is willing to pay a price premium. In addition to the training in CPB control AMARTA will provide a range of interventions that will improve the smallholding farmer profitability. They will include: pest and disease controls, requisite quality standards for export grade cocoa, side grafting, fermentation trials as well as opportunities for quality workshop field days.

AMARTA will work with Olam in delivering a staggered approach to training activities. The first year (April –Sept 07) will see  $\pm 7,000$  farmers - the next twelve months will see  $\pm 8,000$  farmers with the remaining  $\pm 5,000$  farmers trained in the last twelve months. Participating farmers will be trained in 'best practice' cocoa farming and CPB mitigation techniques, post-harvest handling and the knowledge of how to provide export quality beans. Over the thirty-month period 20,000 farmers will be trained in these practices. Follow-up training sessions will be provided to participating farmer groups to ensure that they are able to maximize techniques taught in the early training session.

By the end of program implementation a total of 20,000 farmers will have been trained in improved cocoa production techniques, means of mitigating CPB, improving quality and benefited from the market pull that will accrue from the Blommer, Olam and AMARTA partnership. It is expected that throughout the duration of the program that approximately  $\pm 35,000$  tons of export quality cocoa will be purchased by Blommer. It is anticipated that an average gain of 25% (i.e. 20% + 5%) to smallholder cocoa producers will be derived from the training in improved farm management, CPB mitigation and methods to produce export grade quality cocoa. This represents a volume gain of 8,750 tons of quality cocoa directly as a result of the AMARTA training and Blommer/Olam price premium. At today's farm-gate price for export grade quality cocoa this represents a return on investment of  $\pm$  USD\$12 million that will be gained from the USAID investment of  $\pm$  USD\$ 1 million.

In conclusion, there is significant scope for AMARTA through the proposed interventions to provide a model that utilizes market pull (quality premium), up-country buying stations (more efficient purchasing and collection systems) and training (targeted interventions) that will improve production, quality and farmer incomes.

## ANNEXES

### Annex I: Activities and stakeholder consultation process conducted during AMARTA Cocoa Assessment

DATE	COMPANIES/ORGANIZATIONS	CONTACT PERSON	ADDRESS/CONTACT NUMBER
16-Jan-07	Mars/Masterfood	Peter van Grinsven	(031) 651850080
	Farmer Group	M. Husin Purung	Batulappa, Pinrang
	Mars Incorporated-Global Project Masterfoods, A Division of Mars UK	Alastair Child	Telp. 044-0-1753550055 Fax. 044-0-1753550111
	Cocoa Village Collector		Siwa, Pinrang
17-Jan-07	Mars Cocoa Sustainability Field Office	Dr. Smilja Lambert	Masterfoods, based in Australia
17-Jan-07	Mars Sustainability Outreach, Noling, Palopo	M. Husin Purung	Cell. 08124124189
17-Jan-07	Trader of Pesticide, Fertilizer	Ibu	Noling, Palopo
17-Jan-07	Farmer Group of cocoa and coffee mixed farming		Salupputi, Makale, Toraja, Sulsel
18-Jan-07	PT Jaya Bumi Perkasa-Armajaro Group	David TK Ngu	Jl. Kapasa Raya No. 24, Makassar, Sulsel. Telp. 411-5050911; Cell: 0811410680
19-Jan-07	PT EFFEM Indonesia Jl.Kimia 10 Kav A6 Daya, Makassar	Noel D. Janetski	Tlp. 0411-515702; Fax. 0411-515704 Cell. 08124184335
19-Jan-07	PT Olam Jl.Kimia 4 Kav 6 & 7 Daya, Makassar	Sumanta De Vijay Karthick	Tlp. 0411-511695; Fax. 0411-512372 Cell. 081146544
19-Jan-07	Cargill Cocoa – PT Cargill Indonesia	Rudyanto Hady	Tlp. 0411-514361; Fax. 0411-514370

	Jl. Kimia 9 Kav. L 7B, Daya, Makassar		<b>Cell. 0811411080</b>
19-Jan-07	Field School Facilitator Coordinator	Ir. Lengkang	<b>Jl. Kapasa Raya No. 24, Makassar, Sulsel. Telp. 411-5050911; Cell: 081342742900</b>
22-Jan-07	DPP-ASKINDO (National Level)	H. Halim Abdul Razak, SE, MSi	<b>AEKI Building 3 rd Floor, Jl.RP Soeroso 20,</b>
<b>23- 31 Jan</b>	<b>Work Jakarta on design of program activities</b>		

## Annex 2: Background to cocoa production in Indonesia

Nearly one million hectares of cocoa have been developed in Indonesia since 1980s, where about 70% of the area found in Sulawesi, especially in South Sulawesi, central Sulawesi and Southeast Sulawesi (see Table I). Fast development of Indonesian cocoa was due to the high price of cocoa in world market, besides the decreased supply of cocoa from West Africa. Available of suitable land in Sulawesi make it possible for the development of cocoa in that island. Cocoa is one of important plantation commodities in Indonesian economy as national foreign income, source of farmer income, creating jobs for farmers, stimulating agribusiness and agro industry and region development. In 2005, foreign national income derived from cocoa export in a value of US\$468 million. At this position has placed cocoa as the third main source of foreign income from plantation crops after oil palm and rubber. Besides, cocoa farming has labored 1.1 millions of farmer families in villages, mainly in eastern parts of Indonesia.

Table I. Area distribution of cocoa in Indonesia based on provinces (Ditjenbun, 2006)

Province	Area (ha) in Year		
	2003	2004	2005
North Sumatera	59,991	64,298	65,545
East Java	34,431	35,975	35,975
Papua	30,695	30,745	30,539
East Kalimantan	32,927	37,321	37,321
Central Sulawesi	142,577	184,552	184,552
South Sulawesi	296,039	217,400	217,400
Southeast Sulawesi	136,345	175,349	175,349
<b>Total Indonesia</b>	<b>964,223</b>	<b>992,191</b>	<b>992,446</b>

During the last 36 years, cocoa area has significantly increased. In 1967 the area was only 12 thousands hectares but in 2005 the area had reached 992 thousand hectares. Besides, the spread of areas cover from 8 provinces in 1967 but it reached 30 provinces in 2005. Related with the increase of cocoa area, cocoa production also increases from 1,233 tones in 1967 to 652,396 tones. Cocoa cultivation in Indonesia has been carried out in three forms: 1) smallholder farming, 887,735 ha (89%), 2) government owned plantation, 49,976 ha (5%); and private owned plantation, 54,737 ha (6%). Production derived from smallholders reached 586,672 ha (90%), government own plantation 32,946 ha (5%) and private owned plantation 32,778 ha (5%).

The type of cocoa typically cultivated is dominantly bulk cocoa, while the rest is fine flavor cocoa that mainly produced by government own plantation located in East Java and Central Java. Based on quality, Indonesian cocoa beans produced is similar to the quality of cocoa beans in the world when fermented properly and give good taste as produced by Ghana. The superiority of Indonesian cocoa is that it contains fat melting at high temperature (hard

cocoa butter). With this superiority, the chance of Indonesian cocoa for export and domestic consumption is widely open. In other word, there is a wide potential of using cocoa industry to stimulate growth and distribution.

### Ageing and Productivity

Considering that 25 years old trees have reached low productivity, means that next 5 years there will be 30% of cocoa population classified as old trees. As available land decreases and the age of bearing trees increases, more intensive production techniques will be required to maintain and or expand cocoa farm productivity. Nevertheless, beside its superiority Indonesian cocoa agribusiness still have several complicated problems, such as low productivity due to infestation by cocoa pod borer, low quality of cocoa beans and slow development of secondary products. To increase national cocoa production, there should be programs of rehabilitation, plantings on new land, replanting and diversification. Otherwise, production of cocoa in national level will decrease (Figure 1).

### Fermentation

Most of Indonesian cocoa is considered to be unfermented or partially fermented. The problems related with the unfermented beans are due to that there is no differentiate in price between fermented and unfermented beans in local markets. With the condition of no obligation for fermentation tend to stimulate farmers producing low quality of cocoa beans. Fermentation of cocoa beans can help bring out their inherent favor, but it is not generally done in Sulawesi. Cocoa farmers on some of the other islands in Indonesia (e.q. Papua and Sumatera etc.) do ferment their beans, but their production is quite small and is mainly sold to local processors rather than exported. There have been efforts to encourage smallholder farmers in Sulawesi to expand production of fermented beans, but commercial incentives for such a widespread shift in production practices are inadequate.

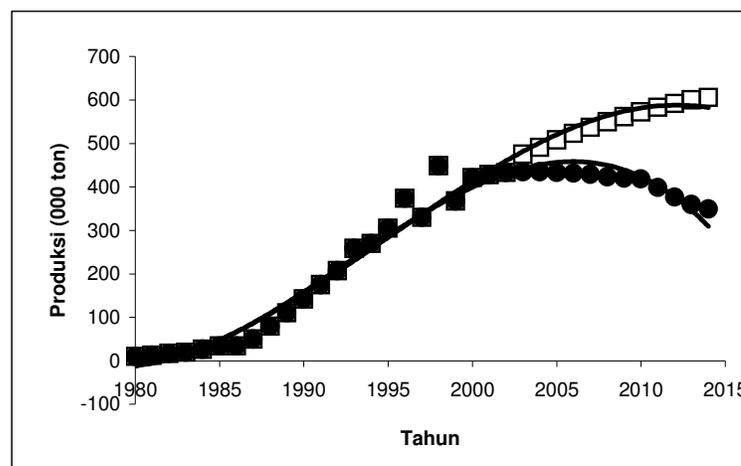


Figure 1. Trend of national cocoa production without any effort to increase national production of old farms (back circle) and when there are efforts (square) (Ditjenbun, 2006)

### Industrial Demand

Most of Indonesian cocoa beans produced are exported to America and European countries. The global demand for unfermented bulk beans is relatively inelastic and not

significantly affected by changes in price. As the largest producer of unfermented bulk beans, Indonesia currently occupies a strong position with few competitors in this segment of the global market.

### **Cocoa Pod Borer**

Fast development of cocoa in Indonesia faced the problem of infestation of cocoa pod borer (*Conopomorpha cramerella*) since 1995. At present nearly all provinces are growing cocoa and have been infested by this pest. Yield loss caused by this pest in may up to 80%, in the forms of unusable beans, clumped beans and low quality beans. Several means of control techniques have been applied to overcome the yield loss, those are: 1) use of superior high yielding planting materials, 2) good agricultural practices involving proper pruning to get tree height of 3.5-4 m and good aeration around, sanitation, fertilizing, frequent and regularly harvest, 3) biological control using black ants, 4) pod sleeving, and 5) the last alternative: spraying of insecticides of pyrethroid group.

Although the technologies to control the CPB are already available, the application in the fields is not properly carried out which result in high yield loss. It is not strange that until now many cocoa farms are still having high level of infestation by CPB. On the other hand, good agricultural practices applied in cocoa plantations in East Java have resulted in low level infestation (less than 10%). An experience in a 700 hectare-plantation in East Java, with good agricultural practices involving biological means of control done for the last 5 years gave a high land productivity for cocoa yield with no input of insecticide. Breeding for cocoa resistance to CPB in Indonesian Coffee and Cocoa Research Institute was conducted by the strategy of exploration the promising trees of hybrids population in epidemic areas, i.e. Sulawesi, East Kalimantan and North Sumatera. After four years testing in the field in Southeast Sulawesi, up till now, of 49 tested clones, it has been identified some promising resistant clones based on percentage of extractable beans. Those clones are KW 514, KW 566, KW 570 and KW 571.

### **Current Farming Practices**

To produce high cocoa production and high cocoa productivity in cocoa farms, it is important to carry out good agricultural farming practices.

**1. Cultivation on suitable land** - Planting cocoa should take into account land characteristics suitable for growing cocoa. Land characteristics considered include soil, landscape and climate. Although other factors, such as planting materials used are considered superior high yield, their production potential will not turn out when the land is not suitable.

**2. Planting materials** - Clones in form budwoods or hybrids in form of seeds are two forms of planting materials. Farmers should use superior planting materials, involving high yield or tolerant or resistant pest and or disease. It is quite hard for breeding activities to involve all superior characteristics in one plant. When farmers have plants with characteristics of high yielding, the loss of pods may be compensated by high number of pods. By this approach, the production of the farms is still high, due to “the dilution effect”.

**3. Planting** - Cultivation of cocoa in Indonesia should take into account the presence of shade trees. With Indonesian climate conditions, characterized by high intensity of sunshine and long sunshine hours, cocoa farms without shade trees should be compensated with high inputs, such as adequate of water and nutrients in soil. Otherwise, cocoa tree growth will be worse. Besides, depth of planting holes, especially when it is faced with soil with physical

characteristic limitation must be considered. Soil with physical limitation, the size of planting hole should be bigger than those without.

**4. Pruning** - The aim of pruning is to get an ideal tree condition. With this activity, unproductive branches and leaves are taken down which result in good aeration condition surround the trees that is suitable for fungal disease such as pod rot. Other activity is to maintain the height of trees maximum 4 m, to make it easy in control of pests, pruning and harvesting.

**5. Rehabilitation** - It is common to find that in farm a part of cocoa tree population is not productive, less pods produced, besides tree population itself is low. Considering that cocoa production related with plant density, its important to fulfill the standard population of the farms and to improve productivity of poor trees.

**6. Fertilizing** - Soil fertility support plant productivity by supplying nutrients needed by plants. When soil is unable to fulfil cocoa plant requirement for nutrients, then fertilization should be carried out. To get optimum fertility of the soil, application of inorganic fertilizers contain macro and or micronutrients may achieve the aim. These materials do not tend to produce sustainable cocoa farms. Therefore, farmers are encouraged to apply organic fertilizers, such farmyard manure and composts by using wastes of cocoa farms.

**7. Control of Pests and Diseases** - Climate condition of Indonesia is favorable for development of organisms that potentially reduce yield of cocoa plants. Important cocoa pests in Indonesia are cocoa pod borer (*Conopomorpha cramerella*) and *Helopeltis spp.*, while the damaging cocoa diseases are pod rot caused by *Phytophthora palmivora* and vascular streak dieback caused by *Oncobasidium theobromae*. Appropriate application of good agricultural practices usually is able to overcome potential loss caused by those pests and diseases.

**8. Fermentation of Beans** - In Indonesian national cocoa quality standard, fermented bean characteristic is one of requirements for good and export quality for Indonesian cocoa beans. The aim of fermentation is to produce strong chocolate taste of the beans. Characteristics Fermentation of cocoa beans is actually a simple process technology that is easily adopted by farmers.

### **Annex 3: Factors affecting smallholder Indonesian cocoa production**

Each section in this part of the report will need to summarize the context and extent of the problem; former and current issues to address the various specific problem (stakeholder measures, what's worked – what's not - lessons learnt); opportunities for AMARTA.

1. **Cocoa pod borer (CPB) insect** – The nature of the problem/the extent of the problem. Farmer knowledge and understanding of measures to mitigate CPB still requires attention as a limited number of cocoa farmers have been exposed to best practice farming techniques. The SUCCESS Alliance (USDA/USAID), PRIMA (Masterfoods), ICCRI, ACIAR and ASKINDO activities have been the core initiatives undertaken to address the cocoa pod borer in Indonesia.
2. **Current farming practices and possible improvements** – Current farming practices are adequate as they are the highest yielding small farmers in the world. Improvements will directly address the problem associated with the quality problems due to CPB.
3. **Age and variety of existing tree stock** – This problem cannot be addressed by this short- term project however some of the interventions such as side grafting and introduction of new cultivars that have resistance to the CPB will help.
4. **Condition of soils and plant nutrition** – This problem is typically addressed by the farmer in planting new cocoa on new areas. In the short term AMARTA will address the problem by recommending the use of fertilizers to replenish the soils.
5. **Lack of quality based product differentiation, including grading with appropriate price incentives** – Currently farmers are normally paid the same price per kg for cocoa regardless of cocoa. A major intervention for AMARTA will be to develop market driven programs that will provide a replicable model where there is a price differentiation for cocoa. Farmers who will deliver “export Quality” cocoa will be paid a premium. This in turn will encourage the farmers to adopt the interventions provided by the FFS training.
6. **Post-harvest losses caused by contamination and poor sorting and packaging** – The market driven program will encourage the farmers to: i) adopt the interventions such as pruning, frequent harvesting, etc so that they reduce the amount of contamination and sorting required, and 2) they also will be trained to do the sorting on the farm thus greatly reducing the need to sort down stream.
7. **Difficulty in meeting SPS standards** – By training the farmers to deliver “Export Quality” cocoa the exporters will have little problem meeting the SPS standards.
8. **Dearth of cocoa producer associations in Sulawesi** – It is critical to have farmer organizations to effectively deliver or transfer technology. It is also critical to effective market the cocoa from small farmers and delivers the proper incentives. AMARTA via the market driven program will encourage the development of hundreds of new farmers groups thus providing on opportunity to use this network to deliver information and technology.
9. **Lack of access to finance for inputs and capital investment** – Many small farmers are “captive” to the village buyers who also provide short-term loans to be paid by

the delivery of cocoa. Providing “grants” to responsible farmer organizations to be used as revolving credit for members can break this dependence on the village buyer.

- 10. Additional impediments to yield and product quality** – The CPB is the major impediment and it is difficult in the short term to deal with minor impediments that will take away funding and focus from the CPB. The short term of the AMARTA project requires the major focus on CPB.

## **Memorandum of Understanding**

**Between**

**PT Olam Indonesia**

**With**

**AMARTA**

**&**

**Blommer Chocolate**

**For**

Implementation of a Corporate Social Responsibility program for productivity and quality training of smallholder cocoa farmers in Sulawesi, Indonesia

As of this Wednesday, 14th February 2007, PT Olam Indonesia (Hereinafter referred to as First Party) and AMARTA an USAID funded Agribusiness program (Hereinafter referred to as Second Party), and Blommer Chocolate Company (Hereinafter referred to as Third Party) mutually agree to sign this Memorandum of Understanding (Hereinafter referred to as Agreement) and as represented for this understanding on behalf of the First Party by:

Name :  
Title :  
Address :

Regarding to this understanding, acting on behalf of AMARTA, hereinafter referred to as Second Party will be -

Name :  
Title :  
Address :

Regarding to this understanding, acting on behalf of Blommer Chocolate Company, hereinafter referred to as Third Party will be -

Name :  
Title :  
Address :

## General

- I. The potential of cocoa trade and export in Indonesia is very big, especially in Sulawesi. It has a social and economic impact relating to the farmers and the cocoa value chain in Indonesia. This **Cocoa sustainability program** will cover the entire gamut of activities starting from monitoring of production of cocoa, addressing issues related to educating the farmers in terms of both improving the quality of the cocoa and increasing the quantity of production. It will also involve logistics related to purchase, transportation and export of the product and marketing of the farm produce to the cocoa processor (Blommer) in order to obtain best value for all the players in the value chain. The parties understand that this symbiotic arrangement is needed because there is a big potential for the welfare of cocoa farmers and it can lead to a major increase in the income of the villages and farms involved in the programme and towards enhancing the reputation of Indonesia in the world cocoa market.

## Operational Area

The scope of the program as per this agreement is to cover suitable cocoa growing areas in South and South East Sulawesi, with concentration in the following probable areas:

- a. South Sulawesi : Palopo, Masamba, Padang Sappa, Pinrang, Mangkutana
- b. Southeast Sulawesi : Kolaka, Wolo, Samaturu, Lambai, Bue Pinang, Ladongi

## Responsibility

The First Party OLAM in their capacity will be responsible for the following activities:

- Buying cocoa, from farmers in various villages involved in the program by developing required skill and infrastructure in quality, processing and procurement.
- Give a fair selling price to the farmers so that they are motivated to learn and continue the improved cocoa farming practices learned in the program.

- Invest \$1.1 million in the provision of offices, personnel, materials and equipment to assist AMARTA in the implementation of a cocoa farmer training program, including the provision of 40 procurement and training officers.

Second Party AMARTA in their capacity will be responsible for:

- Directing and funding the program with assistance from OLAM, to reach 20,000 farmers who will produce approximately 35,000 MT volume of good quality cocoa beans, worth US\$52,000,000 in market value.
- Provide technical assistance and training programs to ensure the desired outcome.
- Invite other interested cocoa farmer groups to share in the knowledge and results of improved cocoa management practices.

Third Party Blommer Chocolate Company will be responsible for:

- Providing a market for the good quality cocoa beans at a fair price. They hereby commit to buy all the cocoa beans meeting their quality specifications, produced under this initiative over the total period of the project.
- Pay farmers a premium over standard cocoa FAQ standards for special quality cocoa beans.

### **Period**

This memorandum of understanding will be valid for a period of 30 months. If possible, both parties will look at other areas of mutual cooperation and synergy during this period and both parties would look at other areas in agro-business within Indonesia where it is possible to enter for developing the industry and for enhancement of stakeholder value which includes the above parties, government, and farmers.

### **Solution of any Dispute**

All dispute between the parties concerning this understanding will be settled by mutual agreement or by mediation by an independent party who suitable to the involved parties.

### **Final Point**

If there is anything technical that is not included in this Memorandum of Understanding it will be attached later and duly added as Annexure by all the parties.

This memorandum of understanding will be signed by the parties in Jakarta at Gedung BRI II, Suite 2804-2806, Jl. Jend. Sudirman Kav 44-46 on the date, day, month and year mentioned previously, and this memorandum of understanding is made in triplicate, for which three copies are equally authentic. The agreement is valid and to be duly implemented starting from 1<sup>st</sup> April 2007.

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Darshan Raiyani  
President Director  
PT Olam Indonesia

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Karl (Kip) Walk  
Director of Cocoa Procurement  
Blommer Chocolate

Witnessed by:

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David J. Anderson  
Chief of Party  
AMARTA

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William J. Frej  
Mission Director  
USAID Indonesia

## Annex 5: Pro forma budget for AMARTA cocoa activities with Olam

Scope of AMARTA Interventions with PT. Olam

Proposed project location – South, West Southeast Sulawesi

Total number of farmers to covered	20,000	<b>Core Training Modules</b> Pest/Disease Identification Frequent Harvesting Pruning Fertilization Sanitation Quality Standards
Duration of AMARTA cocoa Program	3 yrs	
No of hectares expected to be covered	±20,000	
Current production	±13,000	
Expected improvement in 3 yrs	±16,000	
Investment commitment from AMARTA	1,148,276	
Olam Contribution	1,316,612	

NOTE - The costs of fertilizer has been removed from the current budget as responsibility was being negotiated at the time of the report submission.

### Budget Component 1 – Proposed interventions over 29month duration

(all fig in \$)					
Expected Number of Farmers Trained each year*	6000	14000	20000		
	Year 1	Year 2	Year 3	AMARTA investment for 3 yrs	Olam Contribution over 3 yrs
Number of farmer groups per training office	20	20	20	20	
Number of trainers	20	20	20	20	
Number of training office/ procurement offices	23	23	23	23	23
Cost of one procurement office	19081	19081	19081		19081
Cost of one training office	7457	7457	7457		
Cost of one session	91				
Cost of CFFS	729	647	401		
No of farmers to be trained	20000	20000	20000	20000	20000
No of farmers per FG	50				

No of farmers - new recruits	6000	14000	20000		
No of farmers - old recruits	0	6000	0		
Cost of Procurement offices	438,871	438,871	438,871		1,316,612
Cost of training offices	149,142	149,142	149,142	447,425	
Cost of contact classes	87,514	258,895	160,442	506,851	
TOT and training materials				194,000	
<b>Total cost</b>				1,148,276	1,316,612
Cost of training/farmer - 3 yrs				57	66
Cost of training/farmer (yr)				19	22

\* The first training period is currently scheduled to be completed by the end of September for reporting purposes. The exact number of farmers trained in the first five months will ultimately depend on how quickly AMARTA can mobilize, recruit staff in Makassar, conduct baseline assessments, review and prepared training materials and carry out trainer of training sessions. The next two years of program implementation will run over the next twenty-four months.

### Budget Component 3 – Farmer training materials

	USD\$
Cost per training session	91
Cost for 8 sessions	729
Cost of 5 sessions	456
Cost of 3 sessions	273

A typical training session will begin at 08.00 closing at 16.00 depending on the specific module and practical work exercises.

Cost of - 6 Training contacts per year/ FG	
Stationary (pen/book provided to farmers)	250,000
Snack for participant (cost IDR 6,000/farmer)	3,000,000
Documentation	500,000
Miscellaneous (cost of farm implements)	200,000
Socialization/cost of contact	1,000,000
Total cost/farmer per group	4,950,000
	USD\$ 547

Pruning scissors	125000
Plastic grafting	25000
String for	12500
	162500

### Additional training material to farmers

Items	USD\$
Cocoa Calendar	0.45
Posters	1
T-shirts and Caps	3
VCD	1
Handouts	3
Total cost training materials	8.45

**Annex 6: Pro forma activity action work plan for the first 12-months for cocoa activities under the AMARTA program**

<b>Activities</b>	<b>Tasks</b>	<b>Responsible Party</b>	<b>Date of Completion</b>
<b>South, Southeast Sulawesi</b>	Develop and execute MOU with major Partners, ARMATA, Olam, and Blommer.	ARMATA, USAID	Feb, 14, 2007
	Develop detailed cocoa project work plan and budget - Obtain budget approval	ARMATA, Jakarta, BK, Simon	March 15 <sup>th</sup>
		ARMATA, Jakarta, BK, Simon	April 1 <sup>st</sup>
	Find/Open office in Makassar - hire staff	ARMATA, Jakarta	April 1 <sup>st</sup>
	Recruit long term technical, training, office staff	AMARTA, Olam	April 30 <sup>th</sup>
	Ground truth proposed project locations with Olam	BK, Simon, AMARTA, Olam	March 15 <sup>th</sup>
	Develop baseline study, M&E protocols, etc	ARMATA Makassar Staff	March 15 <sup>th</sup>
	Develop training program modules in conjunction with short term and long term AMARTA staff.	BK, Simon, AMARTA, Olam training staff	April 1 <sup>st</sup>
	Develop TOT training program for AMARTA Olam trainers.	BK, Simon, ARMATA staff, James Mangan?	April 1 <sup>st</sup>
	Hold TOT for AMARTA/Olam field trainers	ARMATA Makassar staff, BK, Simon, Consultant	April 10 <sup>th</sup>
	Develop detailed activity work plan for training to Sept 30 <sup>th</sup> and beyond		
Develop Farmer groups (FG)	Olam	April 1 <sup>st</sup>	

Develop materials for communications program	Simon, Makassar Staff	June 15 <sup>th</sup>
Training of Farmer Groups	Olam, Makassar staff	July 15 – end of project
Develop fermentation pilot project in Southeast Sulawesi	BK, Olam	June 1-end of project
Monitor/refine training materials and communications packages	AMARTA, Olam	Continuous
Buy export quality cocoa	Olam, Blommer	Continuous
Complete reporting for USAID deadline	AMARTA, Olam	end-Sept

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## **CONFERENCE PRESENTATIONS**

Summary and overview of presentations made by Indonesian researchers, industry and other stakeholders at the recent conference in Ho Chi Minh City, Vietnam.

Damardjati, D.S. (2006) The role of Indonesian Cocoa Commission in developing the smallholder sector in Indonesia. Conference Presentation at the 3<sup>rd</sup> International SUCCESS Alliance Conference, Oct 31 – Nov 3<sup>rd</sup> 2006, Ho Chi Minh City, Vietnam.

Kadir, I. (2006) Sharing experience about making farmers group and farmers cooperative in Sulawesi. Conference Presentation at the 3<sup>rd</sup> International SUCCESS Alliance Conference, Oct 31 – Nov 3<sup>rd</sup> 2006, Ho Chi Minh City, Vietnam.

Lengkang (2006) Detailed model of transfer technology with farmers of SCORE Institute. Conference Presentation at the 3<sup>rd</sup> International SUCCESS Alliance Conference, Oct 31 – Nov 3<sup>rd</sup> 2006, Ho Chi Minh City, Vietnam.

Murali (2006) Strengthening the smallholder link in the cocoa value chain. Conference Presentation at the 3<sup>rd</sup> International SUCCESS Alliance Conference, Oct 31 – Nov 3<sup>rd</sup> 2006, Ho Chi Minh City, Vietnam.

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van Grinsven, P. (2006) The business of cocoa farming: the role of monitoring and evaluation. MARS Incorporated Conference Presentation at the 3<sup>rd</sup> International SUCCESS Alliance Conference, Oct 31 – Nov 3<sup>rd</sup> 2006, Ho Chi Minh City, Vietnam.