PHILIPPINE RURAL DEVELOPMENT PROJECT (PRDP)

I-PLAN Component
Mindanao Cluster

VALUE CHAIN ANALYSIS AND COMPETITIVENESS STRATEGY: COCOA BEAN Mindanao

Source:Bukidnon Philippines Women Cacao Growers Society

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Happy People...Happy Earth!!!

DEPARTMENT OF AGRICULTURE
Mindanao Regions

November 2014

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ACRONYMS

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
AMCFP	Agro-Industry Modernization Credit Finance Program
ASEAN	Association of Southeast Asian Nation
ATI	Agricultural Training Institute
BAFPS	Bureau of Agriculture and Fisheries Products Standards
BAS	Bureau of Agriculture Statistics
BPI	Bureau of Plant Industry
BSWM	Bureau of Soil and Water Management
CBAED	Cacao-Banana Agri-Enterprise Development
CDA	Cooperative Development Authority
CIDAMI	Cacao Industry Development Association of Mindanao
CSI	Chokolate de San Isidro
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
FAO	Food and Agriculture Organization
FEDCO	Federation of Cooperatives in Mindanao
FGD	Focus Group Discussion
GAP	Good Agriculture Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Point
ICCO	International Cocoa Organization
KFI	Kennemer Foods International
KII	Key Informant Interview
LGU	Local Government Unit
MLGU	Municipal Local Government Unit
MRL	Maximum Residue Level
NAFCI	National Agriculture and Fishery Council
NCCAP	National Climate Change Action Plan
NGO	Non Government Organization
PDP	Philippine Development Plan
PhilMech	Philippine Center Post-Harvest and Mechanization
PIDS	Philippine Institute of Development Studies
PLGU	Provincial Local Government Unit
RCEP	Regional Comprehensive Economic Partnership
SUCs	State Universities and Colleges

EXECUTIVE SUMMARY

The cocoa bean is one of the priority products of all the regions in Mindanao. Cacao is an important cash crop for producing countries and a key import for processing and consuming countries. Cocoa producing countries are unable to fulfil the growing demand for cocoa products worldwide, especially chocolate (Cocoa Barometer 2010). The Philippines itself is a net importer of cocoa products with annual consumption equivalentto 50,000 MT of dried cocoa beans. By 2020, the Philippines chocolate industry's projected demand is expected to reach an estimated 100,000 metric tons of dried cocoa beans which would translate to 50-70 million trees and 120-150 thousand hectares of land. In the world market, demand for cocoa beans is projected to reach 4.7M to 5 M in 2020 with average annual deficit of 100,000 MT. These trendsare of particular interest to Mindanao, which is responsible for approximately 90% of the country's cacao production. The Philippine cocoa industry with Mindanao in the lead particularly Davao Region is targeting to produce 100,000 MT of cocoa beans per year starting in 2020.

The demand for certified cocoa used to be limited to niche markets under minor confectionery brands. In response to pressures from consumers for cocoa processors and chocolate manufacturers to be transparent about their chain especially with regards to their environmental footprint, to provide product information (traceability), and to pay fair prices to farmers parallel to the need to increase cocoa bean production to cope with demand, there is an increasing demand for certified cocoa beans. Demand for cocoa that can be traced to a specific origin and in certified production systems that follow certain social and environmental guidelines is expected to reach 50% of total world demand by 2020 (Cocoa Barometer 2012). It is recommended that the Mindanao cocoa industry to start laying the groundwork for sustainability certification.

Among the regions in Mindanao, Davao has the widest range of cocoa products and the widest market outreach. The region produces and trades dried fermented beans and all its key by-products. The most dominant product traded by the region in both domestic and export markets is the cocoa beans. Dominant product currently produced and traded in the domestic region by other regions in Mindanao is the tablea or the cocoa liquor in tablet form.

Export of cocoa beans is carried out by integrators affiliated with multinational grinders and multinational chocolate companies and Davao-based exporters who are also processors, and recently by FEDCO, a federation of banana cooperatives who have diversified into cocoa beans production and trading. A recent development in the cocoa bean for export value chain is the outgrowership contracts being initiated by integrators/consolidators representing large global players in the cocoa industry. This effectively makes the chain shorter and facilitate access of farmers to inputs, technology, and capacity building.

Davao Region sells cocoa beans to Northern Mindanao, Cebu, Manila, and the export market. Farmers in SOCCSKSARGEN who have sizeable volume sell to traders and consolidators in Davao. Traders in SOCCSKSARGEN offer a lower price compared to consolidators as they deal with lower quality beans intended for the tablea market and for home consumption. In addition to beans, Davao Region is also the source of planting materials. Traders of beans and tablea makers in Northern Mindanao source from Davao Region, Caraga, and ARMM. Exports from Zamboanga Peninsula and ARMM generally pass through Davao integrators and exporters.

Fermentation and drying process are still rudimentary. The traditional fermentation and drying method being practiced by many farmers in Mindanao yield dried cocoa beans of inferior quality, compared to those processed using the appropriate fermentary facilities. Moreover, smallholders

have difficulties in drying the beans properly particularly during the rainy season, thereby selling cocoa with high humidity levels which affects the price the quality and the price they are paid. Likewise, farmers often take a shortcut by reducing the time spent on postharvest activities in order to sell the beans quickly, which also results in an adverse effect on quality. As such, agents or buyers of global cocoa traders generally prefer to buy wet beans from farmers.Even if beans are well fermented, they will develop 'musty' flavours if they are not properly dried or if they are smoke contaminated. The price differential between under-fermented and well fermented cocoa in the international market is around US$ 200 to 250 per MT..Without access to adequate facilities and skills, farmers are left with few opportunities for value addition

Of the 4,366.52 MT of cacao beans produced in Mindanao, 88% came from Davao Region. Northern Mindanao had the 2nd highest production although volume was only about 5% of Davao's production. Average yield in Mindanao in 2013 was 590 kilograms per hectare, which is 12% higher than the national average. Field tests conducted by various research institutes in cacao producing countries suggest that it is possible for farm yields to be from 1.5 to 2.5 metric tons/hectare with the combination of improved pest control management, use of planting materials of high yielding varieties, and appropriate fertilizer application.

There are only 11 nurseries in Mindanao accredited with the Bureau of Plant Industry (BPI) with 64% located in Davao Region. Zamboanga Peninsula, Caraga, and ARMM have no BPI accredited cacao nurseries.Aside from quality issues of planting materials, the current aggregate production capacity of nurseries in Mindanao is not sufficient to support the achievement of the 2020 target of 100,000 MT beans. Total production of nurseries in Mindanao is estimated to be between 2.8M to 3M seedlings per year. Assuming that Mindanao retains 90% share of the production of cocoa beans and an increase in productivity from 590 kilograms per tree to 2 kilograms per tree, it would require about 44,848,766.60 trees to produce about 89,697.53 MT of beans.This means that Mindanao has to plant 41,764,826.60 trees by 2018. At 80% seedling survival rate, this would require 52,206,033.25 pieces of seedlings.

According to the Philippine Institute for Development Studies (PIDS) study released sometime early 2014; poor infrastructure is the main cause for inefficiencies in fertilizer prices nationwide. Infrastructure problems have made fertilizer prices expensive in some regions and cheaper in others. The most expensive fertilizers are in the Autonomous Region in Muslim Mindanao (ARMM) and Eastern Visayas.

Farmers are generally knowledgeable on the basic rudiments of cocoa farming and traditional pest and disease control. However, farmers lack the resources to comply with GAP and sustainable farming practices which are paramount to disease prevention and control in cocoa production and increasingly becoming important to ensure access to markets. It is important to deepen their appreciation of good agronomic practices. There is also the need to promote the adoption of biological control measures which can reduce the use of chemicals thereby preventing environmental pollution and reducing greenhouse emissions.

Poor roads to farms also influence the work quality of farmers and laborers. Long walks due to non-accessibility by motorized vehicles result to shoddy works leading to low productivity.

The farm-gate price for cocoa beans in Mindanao rangesbetween 70% to 80% of the international terminal exchange price. When domestic demand is very high, farm gate price can be higher than the terminal price. In West Africa, cocoa farmers receive from 50 to 63% of the final FOB price.

The main challenge in the cocoa industry in the short term is to evolve to intensive yet sustainable production that will: (i) increase exports and improve the balance of trade; (ii) supply the domestic processing industry especially the large companies to create a strong internal market; and (iii) reduce vulnerability to economic liberalization and globalization. In 2020 and beyond, the Mindanao cacao industry plans to incrementally transition from supplier of high quality dried fermented beans to exporter of processed cocoa products by strengthening its processing capacity during the next 5 years. Industry players and stakeholders identified the following priority areas for action: for the next five years:

a) Increased access, availability, and use of good quality clean planting materials of the high yielding varieties

b) Improved access to, availability, and use of fertilizer and other inputs appropriate for cacao smallholders while reducing environmental costs

c) Enhanced flow and quality of extension services for cacao farming to facilitate adoption of GAP and Sustainable Farming Practices

d) Improved access to GMP compliant postharvest facilities and extension services necessary for the consistent production of high quality fermented beans

e) Judicious utilization of existing coconut and banana farms through cacao intercropping to increase areas planted to cacao with priority given to contiguous areas to facilitate establishment of cocoa hubs

f) Improved physical/infrastructure linkages to input, support, and product markets

g) Enhanced organizational capacity of farmer groups to become effective economic players

h) Improved flow and transparency of information at all nodes of the chain including basic traceability system

i) improved access to facilities and resources to catalyze value addition and lay the groundwork for commercial scale processing of cocoa by-products

Section 1:
INTRODUCTION

A. BACKGROUND INFORMATION AND RATIONALE[1]

The agricultural sector strategy (Agri-Pinoy) embodied in the Philippine Development Plan (PDP) for 2011-2016 advances the principles of inclusive growth, food staple sufficiency, natural resource management and area-based development. Agri-Pinoy also includes the following new strategies: (i) institutionalizing regionally-based, spatial planning (ii) developing a systems approach for both planning and resource allocation; (iii) providing the critical infrastructure needed by priority value chains; and (iv) building a more resilient production base to accommodate fluctuations in global markets and effects of climate change. Complementing the Agri-Pinoy strategy is the National Climate Change Action Plan (NCCAP) which highlights the priority to be given to the rural sector in pursuing climate adaptation measures.

The Philippine Rural Development Project (PRDP), a flagship project of the Department of Agriculture (DA), is aligned with the Agri-Pinoy strategy. It is a six-year program (2013-2019) designed to establish the government's platform for a modern, climate-smart and market-oriented agri-fishery sector. Externally, it will focus on expanding market access and improving competitiveness. Internally, it will introduce reforms in operating the DA bureaucracy. Specifically, it aims to achieve the following development objectives:

- At least, 5% increase in annual real household incomes of farmer beneficiaries; 30% increase in income for targeted beneficiaries of enterprise development
- 7% increase in value of annual marketed output
- 20% increase in number of farmers & fishers with improved access to DA services

To facilitate the achievement of above objectives, the program has four main components, namely:

- I-PLAN: Investment for AFMP Planning at the Local and National levels
- I-BUILD: Intensified Building-Up of Infrastructure and Logistics for Development
- I-REAP: Investments for Rural Enterprises and Agricultural and Fisheries Productivity
- I-SUPPORT: Implementation Support to PRDP

The design of PRDP and its implementation aspects draw heavily on the experiences of the Mindanao Rural Development Projects (MRDP 1 and 2), a program that has been successfully implemented over the past decade. The program adopts a value chain development approach as a platform for promoting inclusive, climate resilient, and sustainable growth in key agricultural subsectors and value chains.

The cocoa bean is one of the priority products of all the regions in Mindanao. Cacao is an important cash crop for producing countries and a key import for processing and consuming countries.Cocoa producing countries are unable to fulfil the growing demand for cocoa products worldwide, especially chocolate (Cocoa Barometer 2010). The Philippines itself is a net importer of cocoa products with annual consumption equivalentto 50,000 MT of dried cocoa beans. By 2020, the Philippines chocolate industry's projected demand is expected to reach an estimated 100,000 metric tons of dried cocoa beans which would translate to 50-70 million trees and 120-150 thousand

[1]Overview of PRDP was taken from the Program Information Document – World Bank website.

hectares of land. In the world market, demand for cocoa beans is projected to reach 4.7M to 5 M in 2020 with average annual deficit of 100,000 MT. These trendsare of particular interest to Mindanao, which is responsible for approximately 90% of the country's cacao production. The Philippine cocoa industry with Mindanao in the lead particularly Davao Region is targeting to produce 100,000 MT of cocoa beans per year starting in 2020.

The increasing demand for cacao worldwide has encouraged the establishment of new cacao communities and the revitalization and expansion of existing cacao farming communities in Mindanao. Based on estimates from the Cacao Industry Development Association of Mindanao Inc. (CIDAMI), 13,500 of the 15,000 cacao farmers in the Philippines are in Mindanao. Per industry estimates, 90% of the cacao farms are small farm holdings. Cacao growing is labour intensive thus providing more livelihood and employment opportunities in the rural areas.Returns from cocoa are higher than copra, coffee or other cash crops. Cocoa trees are capable of producing acceptable yields for several decades. Depending on the variety, it can take between 3 and 5 years for yields to peak, with the newer hybrids reaching their peak more quickly. The pace of decline thereafter is determined mainly by cultivation practices. Processing of cacao to tablea (cocoa liquor in solid form) augments income of smallholders and the households within the proximity of cacao farms/plantation.

The climateof Mindanao makes it a conducive environment for Theobroma Cacao trees to thrive and grow. Expansion of cacao farming in Mindanao would primarily be done via intercropping in existing coconut and banana farms.

B. OBJECTIVES OF THE VCA

The decision to conduct a Mindanao cluster level value chain analysis was borne out of the need for the six regions to jointly exploit the large trade potential of cocoa in the domestic and export markets. The cluster approach also recognizes that the 6 regions in Mindanao are interdependently linked with each other in various functions in the chains particularly with regards to inputs markets and distribution or marketing of cocoa beans. The cluster level approach to value chain analysis also hopes to bring cohesiveness into the various cocoa development initiatives that would be undertaken on a provincial basis.

This report provides an overview and analysis of the cocoa bean value chain with the aim of identifying main leverage points and key strategies to improve competitiveness of Mindanao regions and promote development in a pro-poor and sustainable manner. It will provide the basis for the formulation of the Provincial Commodity Investment Plan and will lay the foundation for PRDP's cooperation with the private sector and other government agencies active in the cocoa industry. Specifically, the value chain analysis aims to:

a) Provide an in-depth understanding of the range of factors and relationships that affect the performance of the cocoa industry in the six regions and in Mindanao in general, including end markets, enabling environment and coordination/cooperation among firms.

b) Identify in a participatory process the systemic chain level issues that hinder or promote the gainful participation of rural households, sustainability of the chain, and its competitiveness in general.

c) Under a participatory process, identify and prioritize interventions needed to overcome bottlenecks throughout the chain that would foster value chain competitiveness and climate change resiliency.

d) Identify and explore how to catalyze private and public sector stakeholders in the cocoa industry to collaborate for improved industry performance

C. METHODOLOGY AND APPROACH

Figure 1. VALUE CHAIN ANALYSIS WORKSHOP WITH LGUs AND INDUSTRY PLAYERS

An initial desk study was conducted to collect and summarize information from currently available reports and studies. It provided guidance to issues that needed to be the focus of field research. The field work component of the study was conducted using qualitative research techniques particularly value chain analysis workshops, key informant interviews (KII), and focus group discussions (FGDs). Key informants and participants to the workshops and FGDs consisted of farmers, traders, processors, exporters, and representatives from relevant government agencies. Key informant interviews were used for collecting data on individuals' perspectives, experiences, and quantitative data. FGDs were effective in generating broad overviews of issues of concerns to the groups or subgroups represented and in the triangulation/vetting of information obtained from the KII.

Figure 2.VALIDATION AND VETTING OF FINDINGS/RANKING AND PRIORITIZATION OF CONSTRAINTS

Constraints and interventions were identified and further elaborated based on iterative and inductive analysis of responses during the KII and FGD/Stakeholders Workshop primarily from the following perspectives:

- Context of key informants and FGD participants
- Third party observations (e.g., government agencies, providers, VC facilitators with experience in cocoa VC development projects, etc.) were important for suggesting important issues to explore and for substantiating the results of the company interviews
- Experiences of other cocoa producing countries such as Indonesia, Nigeria, Ghana, Papua New Guinea, Ecuador, and Cote d' Ivorie.
- Past assessment studies of the Philippine cocoa industry

Competitiveness is generally defined as the ability to efficiently produce goods (and services) for which there is high demand that leads to increased income generation capacities that are sustainable in the future. Strategy is about choice --- choosing what to do to build competitiveness from a long list of viable and promising options. Given the competing and varied incentives and motivations among and between stakeholders and players, the process required iterative ranking and prioritization and arriving a consensus on what needs to be done within the next 5 years. The competitiveness strategies proposed in this report reflect the choices made as a result of extensive analysis of the industry's key constraints and a dialogue with stakeholders and players.

Section 2:
OVERVIEW OF THE INDUSTRY

A. PRODUCT DESCRIPTION

Cacao (Theobroma cacao spp.) is a rainforest, understudy tree that requires shade and wind protection. It is grown in all humid tropical lowland regions around the equator, most notably Central and South America, West Africa and Sri Lanka, Indonesia and the Philippines. It thrives best in areas where rainfall is between 1,150 to 2,500 mm per year and temperatures between 21 to 30 degrees centigrade.

Figure 3. CACAO PRODUCTS AND BY PRODUCTS IN MINDANAO

The tree produces pods that contain about 20 to 60 cocoa beans surrounded by a sweet tasting pulp. When fermented and processed, the beans produce one of the most desired flavour in the world – chocolate. The world cocoa market distinguishes between two broad categories of cocoa beans: "fine or flavour" cocoa beans, and "bulk" or "ordinary" cocoa beans. Fine or flavour cocoa beans are produced from Criollo or Trinitario cocoa-tree varieties, while bulk cocoa beans come from Forastero trees. There are, however, known exceptions to this generalisation. Nacional trees in Ecuador, considered to be Forastero-type trees, produce fine or flavour cocoa. On the other hand, Cameroon cocoa beans, produced by Trinitario-type trees and whose cocoa powder has a distinct and sought-after red colour, are classified as bulk cocoa beans. The share of fine or flavour cocoa in the total world production of cocoa beans is just under 5% per annum. Virtually all major activity over the

past five decades has involved bulk cocoa (*ICCO website*). Mindanao primarily grows Forastero trees and produces "bulk" beans.

Philippines grows cacao as well as produces and consumes chocolate based products. Cocoa travels along a global supply chain crossing countries and continents. The complex production process involves numerous parties including, farmers, buyers, shipping organizations, processors, chocolatiers, and distributers. Overall, it is possible to identify four major product categories based on different stages of processing, namely:

- Dried cocoa beans (fermented/unfermented);
- Semi-finished cocoa products (cocoa paste/liquor, cocoa butter, cocoa powder);
- Coverture, or industrial chocolate;
- Finished chocolate products.Key products from cacao beans are the following

The semi-finished cocoa products are used mainly in the food, cosmetics, and pharmaceutical sectors. About two thirds of global cocoa production is used to produce chocolate and confectionery. The key semi-finished cocoa products are the following:

a) Cocoa butter - the oily liquid obtained by pressing ground roasted cocoa nibs.Cocoa butter is used in the manufacture of chocolate. It is also used in cosmetic products such as moisturising creams, lotions, petroleum jelly, and soaps. Cocoa butter is also used as a suppository and ointment base as well as an emollient. The pharmaceutical and cosmetics usually obtain their requirements from sources using solvent extraction or methods other than pressing cocoa butter from cocoa shell. Some use cocoa beans that are not suitable as a food item.

a) Cocoa powder - the dry residual solid mass from cocoa butter production. Cocoa powder can be used as an ingredient in almost any foodstuff. For example, it is used in chocolate flavoured drinks, chocolate flavoured desserts such as ice cream and mousse, chocolate spreads and sauces, and cakes and biscuits.

b) Cocoa liquor - Cocoa liquor is used, with other ingredients, to produce chocolate. Chocolate is used as a product on its own or combined with other ingredients to form confectionery products. The Philippine tablea is cocoa liquor in tablet form.

Cocoa products traded by the Philippines in the international market include the following:

- Cocoa beans, whole/broken, raw/roast
- Cocoa Powder not containing added sugar / other sweetening matter
- Cocoa Paste, not defatted (liquor)
- Cocoa Butter, fat/oil
- Chocolate Confectionery
- Chocolate or Cocoa Powder, chocolate blocks
- Cocoa Paste, wholly / partly defatted (Cocoa Cake)
- Sweetened Cocoa Paste

Among the regions in Mindanao, Davao has the widest range of cocoa products and the widest market outreach. The region produces and trades dried fermented beans and all its key by-products. The most dominant product traded by the region in both domestic and export markets is the cocoabeans with farmers from other regions especially SOCCSKSARGEN contributing to its supply base. Dominant product currently produced and traded in the domestic region by other regions in Mindanao is the tablea or the cocoa liquor in tablet form.

Table 1 . Cocoa Product Formats in Mindanao					
Region	**Cocoa Beans**	**Tablea/ Cocoa Liquor**	**Cocoa Butter**	**Cocoa Powder**	**Chocolate**
Zamboanga Peninsula	○	●			
Northern Mindanao	○	●			○
Davao Region	●	●	○	○	○
SOCCSKSARGEN	●	●			○
Caraga	○	●			
ARMM	○	●			
Legend	●	Dominant	○	Emerging	
Source: Interviews/FGD					

Cocoa beans constitute only 10% of the fresh weight of the cocoa fruit. This means that only about 10% by weight of the cocoa fruit is commercialized while 90% by weight (mainly cocoa pulp and cocoa pod husk) is discarded as cocoa waste. The waste from cocoa can be transformed into commercial products and provide farmers with opportunities to diversify their business. The following are some examples of products that could be derived from the Cacao tree without infringing on seed yields (*Antonio Figueira, Jules Janick, and James N. BeMiller, 1993-cacaoweb.net*):

a) Animal feed from cocoa husk - As pelletised dry 100% cocoa pod husk, it can be used as an animal feed. The animal feed is produced by first slicing the fresh cocoa husks into small flakes and then partially drying the flakes, followed by mincing and pelleting and drying of the pellets.

b) Production of soft drinks and alcohol - In the preparation of soft drinks, fresh cocoa pulp juice (sweatings) is collected, sterilised and bottled. For the production of alcoholic drinks, such as brandy, the fresh juice is boiled, cooled and fermented with yeast. After 4 days of fermentation the alcohol is distilled.

c) Potash from cocoa pod husk - Cocoa pod husk ash is used mainly for soft soap manufacture. It may also be used as fertiliser for cocoa, vegetables, and food crops. To prepare the ash, fresh husks are spread out in the open to dry for one to two weeks. The dried husks are then incinerated in an ashing kiln.

d) Jam and marmalade - Pectin for jam and marmalade is extracted from the sweatings by precipitation with alcohol, followed by distillation and recycling of the alcohol in further extractions.

e) Mulch - Cocoa bean shells can be used an organic mulch and soil conditioner for the garden.

B. PRODUCTION TRENDS

1. Global Production

World cocoa/cacao bean production in 2011/12 reached about 4.085 million metric tons. Global output was dominated by Cote d'Ivoire which accounted for 36.4% Ghana and Indonesia comprised 21.5% and 10.8% of global production, respectively. Indonesia is the largest producer of unfermented bulk beans. Ghana cocoa beans have long been known for their quality and depth of

flavour and, as such, receive a price premium in the world market. According to the International Cocoa Organization (ICCO), Ghana cocoa is richer in Theobromine compared to beans produced in other countries and Flavonoidswhich have given the beans the unique, mild and rounded flavor. As such, the quality of Ghana cocoa beans has become the world‟s standard against which all cocoa is measured.

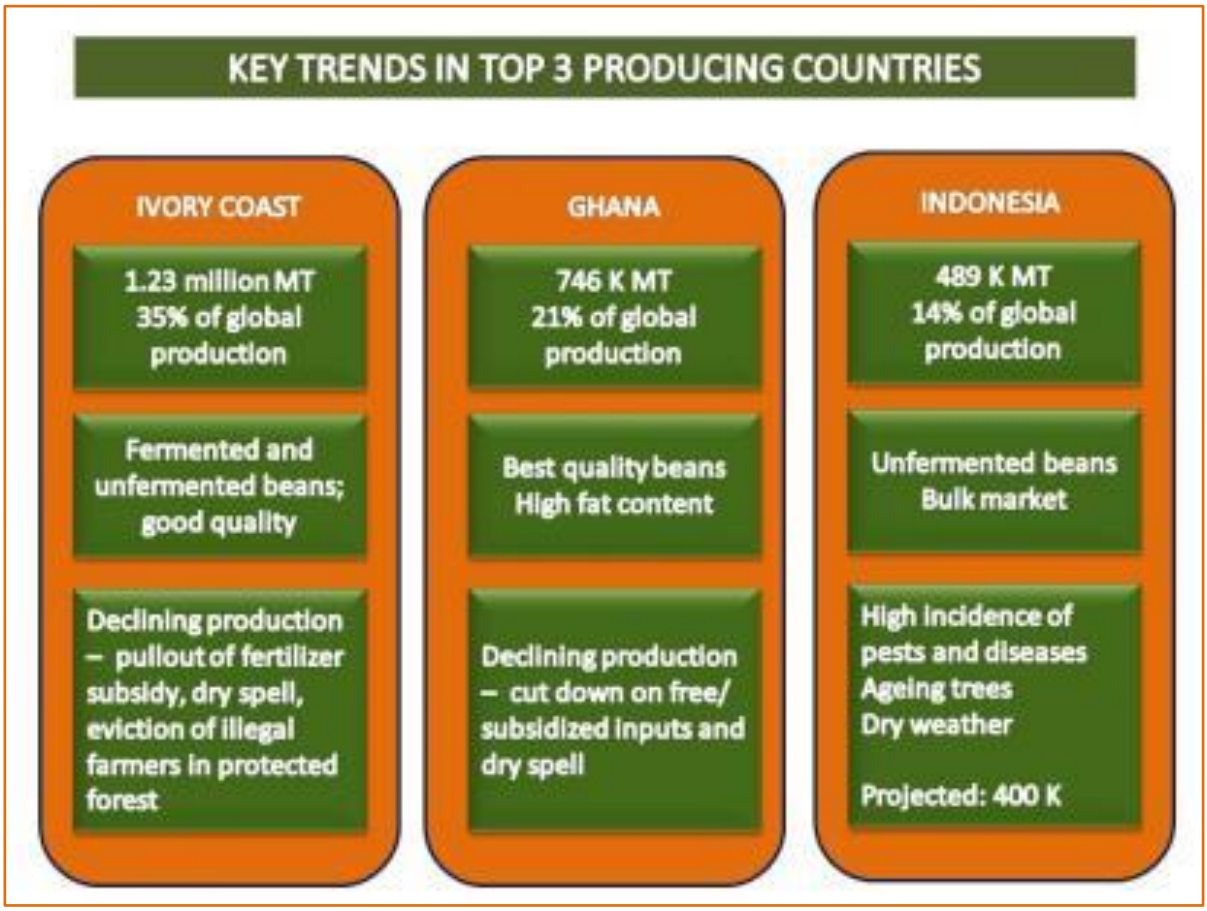
Table 2. World Production of Cocoa Beans, Cocoa Year 2011/12

Region/Country	Production Volume (in thousand MT)	% to World Production
Africa	**2,919**	**71.5%**
Cameroon	207	5.1%
Cote d' Ivoire	1,486	36.4%
Ghana	879	21.5%
Nigeria	225	5.5%
Others	113	2.8%
America	**655**	**16.0%**
Brazil	220	5.4%
Ecuador	198	4.8%
Others	237	5.8%
Asia and Oceania	**511**	**12.5%**
Indonesia	440	10.8%
Papua New Guinea	39	1.0%
Others	33	0.8%
World Total	4,085	

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Vol. XI, Cocoa year 2013/14
Published 28 Feb 2014

During the past two years, key cocoa producing countries experienced decline in their production. In Cote d' Ivoire, for example, the dry spell in September 2013 hindered pod and flower development across the country, contributing to the sharp slowdown towards the end of the mid-crop (June-September). Moreover, reports indicated that there was a sharp drop in the use of insecticides and anti-fungal treatments which increased losses from fungus, pests and disease. Sales of both inputs fell by 60% to 70% in June and July, the period when they are applied to cocoa trees, reflecting the squeeze on farmer's incomes from higher food and transport prices and the inability of smallholders to raise financing. As a result, the spread of black pod disease – which affected an estimated 12% of theIvory Coast's cocoa plantations – intensified, further reducing yields. A further constraint on production is the government's ongoing programme to evict illegal farmers from protected forest land, a policy that has so far moved 25,000 farmers off cocoa plantations, taking an estimated 70,000 MT out of Ivory Coast's production capacity. With further planned evictions of the estimated 800,000 farmers, Ivory Coast could face a sharp drop in production.

Figure 4. KEY TRENDS IN TOP THREE CACAO PRODUCING COUNTRIES, 2014



The outlook for Ghana's crop is also not so bright, owing both to dry weather in the lead-up to the main crop and a sharp drop in the use of fertiliser. It is expected that there will be a drop in the use of fertilizer following the decision by the Ghana Cocoa Board (Cocobod) to cut back its subsidy program. Owing to increasing financial constraints,Cocobod is winding up its free pest-spraying program and is planning to reduce the provision of subsidisedfertiliser to just 300,000 bags in 2013/14, compared with 2 million bags in 2012/13. This has already caused an increase in fertilizer prices, which have risen from an average of GHS32/bag earlier in the season to as high as GHS54/bag, forcing farmers to significantly reduce their application of fertiliser. Giventhat the improved use of fertiliser and other inputs have been key factors in more than doubling Ghana's output of cocoa over the past decade, the impact on yields could be devastating, especially as the country also suffers from black pod disease. The situation in Ghana also provides insights on the danger of putting in heavy subsidies on inputs without laying the groundwork for a sustainable exit mechanism.

Preliminary estimates for Cocoa Year 2012/13 also indicate a drop in Indonesia's production. Indonesia has still vast land for possible expansion and, thus, can still potentially increase production. However, persistent problems with pest and diseases have led to increasing number of farmers shifting to other crops.

This bullish production growth rate especially in key cacao producing countries is expected to continue in the coming years, as cocoa trees are sensitive to changing weather patterns. Periods of drought and of excessive rain or wind can negatively impact yield, and will continue to fluctuate as climate change intensifies. Likewise, rising cost of inputs especially fertilizer significantly affect production yield.

Percentage share of Philippines to global cacao production is less than 1%. Nevertheless, the Philippines, particularly the island of Mindanao, is among the countries in Asia seen to have a competitive advantage for cacao production given its strategic location, climatic conditions, and soil characteristics. This is borne by the increasing presence of integrators of major global players in Davao Region and in emerging cocoa producing regions in Mindanao.

In the latest revised forecast released by ICCO last May 2014 for the current 2013/2014 cocoa year, world production is expected to increase by 5.9% over 2012/13 figures. On the other hand, world grinding in current year is projected to be 2.7% higher over last year. Deficit for current year is estimated at 75 thousand metric tons.

Table 3. Revised Forecasts on World Production and Grindings as of 30 May 2014

Cocoa Year (Oct – Sept)	2012/2013	2013/2014		Year-on-Year Change	
	Revised Estimates*	Previous Forecasts	Revised Forecasts		
	In Thousand Metric Tons				%
World Production	3 929	4 104	4 162	+ 233	+ 5.9%
World Grindings	4 083	4 178	4 195	+ 112	+ 2.7%
Surplus/Deficit **	- 193	- 115	- 75		
End-of-season stocks	1 640	1 547	1 565	- 75	- 4.6%
Stocks/Grindings ratio	40.2%	37.0%	37.3%		

Notes:
* Estimates published in Quarterly Bulletin of Cocoa Statistics, Vol. XL - No. 1 - Cocoa year 2013/2014
** Surplus/deficit: net world crop (gross crop adjusted for loss in weight) minus grindings

Source: Issue No. 2 - Volume XL - Cocoa year 2013/2014, ICCO, May 2014

2. Domestic Production

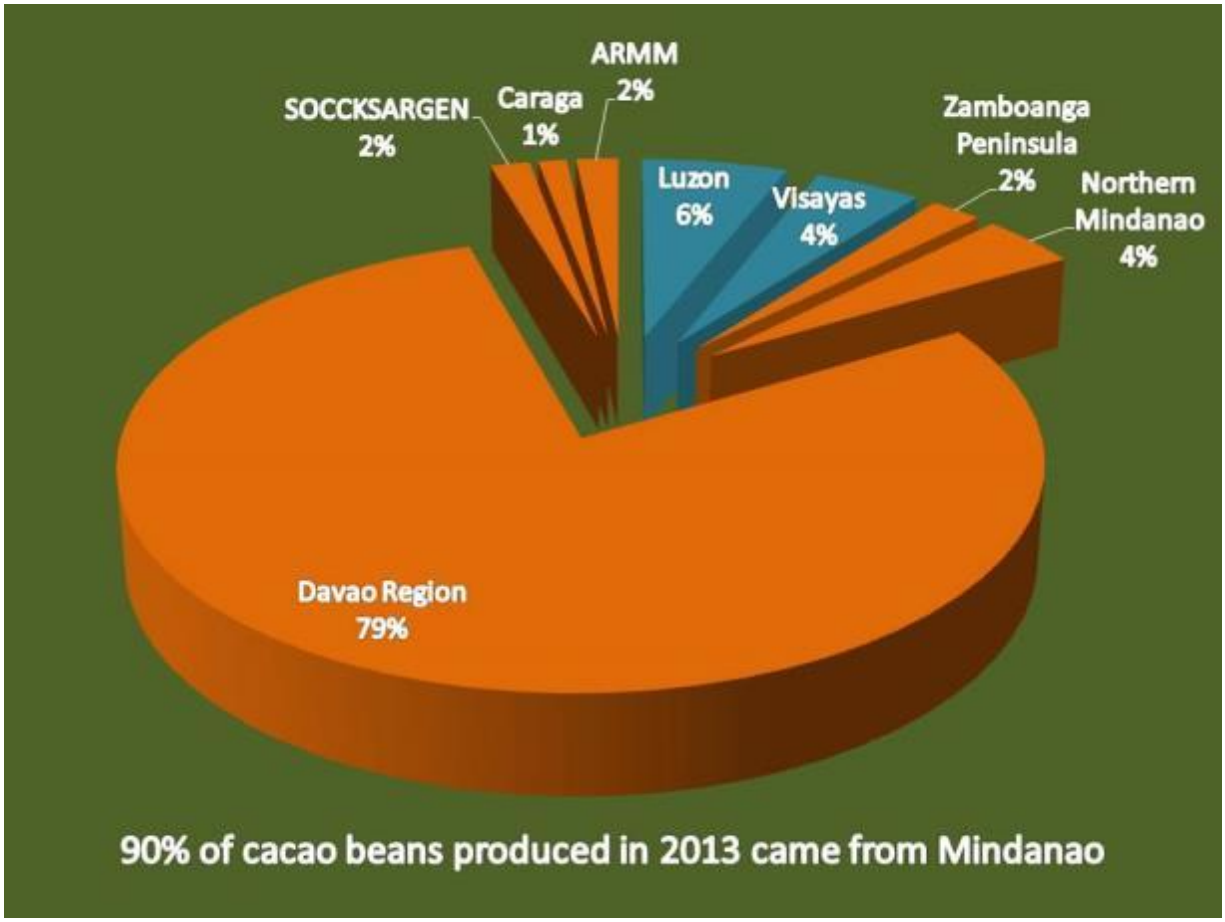
Table 4. Mindanao Cacao Production vis-à-vis the Rest of Country, 2013

Island Group/Region	Production Volume (in MT	% Share to RP Production
Luzon	293.60	6%
Visayas	215.47	4%
Mindanao	**4,366.52**	**90%**
Zamboanga Peninsula	**103.51**	**2%**
Northern Mindanao	**196.31**	**4%**
Davao Region	**3,844.30**	**79%**
SOCCSKSARGEN	**79.10**	**2%**
Caraga	**57.84**	**1%**
ARMM	**85.46**	**2%**
Philippines	**4875.59**	**100%**

Source: BAS

In 2013, Philippine cacao bean production was at 4,831 MT with Mindanao accounting for 90%. Mindanao's production in 2013 decreased slightly by 4% over 2009 figures. Except for Davao Region and SOCCSKSARGEN, production volume in all regions was lower in 2013 compared to 2009. Of the 4,366.52 MT of cacao beans produced in Mindanao, 88% came from Davao Region. Northern Mindanao had the 2nd highest production although volume was only about 5% of Davao's production.

Figure 5. CACAO PRODUCTION IN THE PHILIPPINES, 2013



Based on BAS data, area planted to cacao in 52% of the provinces in Mindanao decreased in 2013 over 2009 figures. Correspondingly, total cacao hectarage in Mindanao decreased from 7,830.82 hectares in 2009 to 7,413.00 hectares in 2013. It has been observed that decline in hectarage devoted to cacao was more pronounced in areas where cacao is primarily for local consumption.

The first Five of the top 10 cacao producing provinces in Mindanao are all in Davao Region. Davao del Sur is the largest cacao producing province in Mindanao based on BAS data. Provinces in rank 6th to 10th in terms of production volume are Bukidnon, Zamboanga del Norte, Lanao del Sur, Lanao del Norte, and South Cotabato.

Average yield in Mindanao in 2013 was 590 kilograms per hectare, which is 12% higher than the national average. Based on BAS statistics, average yield in Mindanao in 2013 increased only by 1% over 2009 performance.Field tests conducted by various research institutes in cacao producing countries suggest that it is possible for farm yields to be from 1.5 to 2.tmetric tons/hectare with the combination of improved pest control management, use of planting materials of high yielding varieties, and appropriate fertilizer application.

Zamboanga City had the highest yield at 1.57 MT/ha but total cacao hectarage was only 4 hectares. Six of the top 10 provinces in terms of average yield had less than 50 hectares planted to cacao. Except for Zamboanga del Sur, provinces that delivered the 10 highest yields had productivity higher than the 2013 national average of 0.52 MT/hectare. The four areas that were among the Top 10 in both volume and average yield are Davao del Sur, DavaoCity, Davao Oriental, andBukidnon.

Majority of the provinces had a lower average yield in 2013 compared to 2009 performance. Surigaodel Sur posted the highest percentage increase in average yield in 2013. Other provinces whose average yield increased in 2013 over 2009 figures are Zamboanga Sibugay, Davao del Sur, Davao del Norte, Davao City, and Maguindanao.

Table 5. Top TenCacao Producing Provinces in the Philippines, 2013

Top Ten Provinces: Production Volume			Top 10 Provinces: Average Yield/Hectare		
Province/City	**Volume (in MT)**	**Ave. Yield_ (MT/ha)**	**Province/City**	**Ave Yield (MT/ha)**	**Area Planted (in Ha)**
Davao del Sur	**1,718.04**	**1.27**	Zamboanga City	1.57	4
Davao City	**1,129.73**	**0.84**	**Davao del Sur**	**1.27**	**1,355**
Davao Oriental	**483.13**	**0.54**	**Davao City**	**0.84**	**1,352**
Davao del Norte	371.82	0.36	Misamis Oriental	0.82	7
Compostela Valley	141.58	0.26	Sarangani	0.68	41
Bukidnon	**115.00**	**0.58**	North Cotabato	0.58	33
Zamboanga del Norte	69.64	0.31	**Bukidnon**	**0.58**	**200**
Lanao del Sur	55.95	0.22	**Davao Oriental**	**0.54**	**892**
Lanao del Norte	52.86	0.14	Tawi-tawi	0.53	4
South Cotabato	28.09	0.33	Zamboanga del Sur	0.45	21

Source: Derived from BAS data

Zamboanga Peninsula

Zamboanga Peninsula accounted for 2% of the total cacao bean production and 5% of the total area planted to cacao in Mindanao in 2013. Of the 103.51 MT of cacao beans produced in Zamboanga Peninsula, 67% came from Zamboanga del Norte.

During the period 2009 to 2013, production in Zamboanga Peninsula declined by an average of 4.37%. Average yield increased at an average of 0.03% per year during the same period. In all provinces except Zamboanga Sibugay, volume in 2013 was lower than in 2009. Based on discussions during the Stakeholders Workshop and interviews with key informants, farmers are generally not yet very much aware of the market opportunities. It was only during this year that Kennemer has set-up a satellite office in Dipolog – Zamboanga del Norte.

Major cocoa farms recently established or in the process of being established are the following:

a) Zamboanga City: Golden Beans Eco-Agro Producers Cooperative cacao plantation under a growership agreement with Kennemer Foods International (KFI)

b) Zamboanga del Norte: TVI Resource Development Philippines Inc. (TVIRD) formed a partnership with KFI for the establishment of a cacao plantation to provide livelihoods for the displaced

workers. The cacao business initially covered 100 hectares of consolidated plantations in two towns before expanding to 1,600 hectares of block farms in four years.

c) Zamboanga del Sur: Midsalip Farmers Multi-Purpose Cooperative (MIFAMCO) cacao plantation covering an initial of 200 hectares; also under a growership agreement with KFI

Table 6. Production Trends in Zamboanga Peninsula, 2009 to 2013
Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare

	2009	2010	2011	2012	2013	Ave Annual Growth Rate
ZAMBOANGA PENINSULA						
Volume	132.43	121.63	112.37	115.24	103.51	-4.37%
Area Planted	446.00	425.00	394.00	359.00	348.00	-4.39%
Average Yield	0.30	0.29	0.29	0.32	0.30	0.03%
Zamboanga del Norte						
Production Volume	82.73	77.63	76.64	82.79	69.64	-3.16%
Area Planted	220.00	224.00	224.00	225.00	225.00	0.45%
Average Yield	0.38	0.35	0.34	0.37	0.31	-3.54%
Zamboanga del Sur						
Volume	23.64	18.72	13.64	11.57	9.45	-12.01%
Area Planted	126.00	98.00	67.00	32.00	21.00	-16.67%
Average Yield	0.19	0.19	0.20	0.36	0.45	27.97%
Zamboanga Sibugay						
Production Volume	16.62	16.36	14.76	14.86	18.15	1.84%
Area Planted	95.00	98.00	98.00	98.00	98.00	0.63%
Average Yield	0.17	0.17	0.15	0.15	0.19	1.17%
Zamboanga City						
Production Volume	9.44	8.92	7.33	6.02	6.27	-6.72%
Area Planted	5.00	5.00	5.00	4.00	4.00	-4.00%
Average Yield	1.89	1.78	1.47	1.51	1.57	-3.40%
Source: BAS						

Northern Mindanao

Percentage share contribution of Northern Mindanao to Mindanao's cacao production in 2013 was about 4%. The region accounted for about 9% of the 7,413 hectares of land planted to cacao in Mindanao. Among the 5 provinces that comprise the region, Bukidnon has the highest production volume of cacao beans. Misamis Oriental registered the highest yield at 820 kilograms per hectare but total land area devoted to cacao was just about 5.74 hectares.

From a production volume of 561.58 MT in 2009, production in the region decreased to 196.31 MT in 2013. The average annual percentage decrease in production volume during the period 2009 to 2013 was higher than the percentage decline in area planted. Stakeholders indicated that decline

can be attributed to devastations caused by Typhoons Sendong and Pablo and productivity issues due to poor agronomic practices. Bukidnon had the highest percentage decline both in terms of volume and area planted.

Misamis Oriental is set to become one of the major players in the cacao industry. In line with the production and trading agreement signed between the provincial government and KFI, the province has committed to establish 40,000 hectares of cacao plantation. The reason behind the 40,000 target is the objective of the provincial government to set up a grinding and chocolate processing plant which to be viable has to have at least an assured supply of cocoa beans equivalent to 30,000 hectares. To date, the provincial government is initially starting with a 1,000 hectares plantation equally divided between the towns of Balingasag to Magsaysay and Jasaan to Lugait.

Table 7. Production Trends in Northern Mindanao, 2009 to 2013
Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare

	2009	2010	2011	2012	2013	Ave Annual Growth Rate
NORTHERN MINDANAO						
Production Volume	561.58	554.52	396.07	220.94	196.31	-13.01%
Area Planted	937.00	927.00	877.00	877.00	678.00	-5.53%
Average Yield	0.60	0.60	0.45	0.25	0.29	-10.34%
Bukidnon						
Production Volume	466.00	462.00	310.00	140.00	115.00	-15.06%
Area Planted	460.00	450.00	400.00	400.00	200.00	-11.30%
Average Yield	1.01	1.03	0.78	0.35	0.58	-8.65%
Camiguin						
Production Volume	8.41	8.03	7.57	6.44	6.58	-4.35%
Area Planted	32.00	32.00	32.00	32.00	34.00	1.25%
Average Yield	0.26	0.25	0.24	0.20	0.19	-5.27%
Lanao del Norte						
Production Volume	60.40	56.85	54.00	51.30	52.86	-2.50%
Area Planted	387.00	387.00	387.00	387.00	387.00	0.00%
Average Yield	0.16	0.15	0.14	0.13	0.14	-2.50%
Misamis Occidental						
Production Volume	16.84	16.14	15.86	15.95	16.13	-0.84%
Area Planted	50.00	50.00	50.00	50.00	50.00	0.00%
Average Yield	0.34	0.32	0.32	0.32	0.32	-0.84%
Misamis Oriental						
Production Volume	9.93	11.5	8.64	7.25	5.74	-8.44%
Area Planted	8	8	8	8	7	-2.50%
Average Yield	1.24	1.44	1.08	0.91	0.82	-6.79%

Source: BAS

Davao Region

Table 8. Production Trends in Davao Region, 2009 to 2013 Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare						
	2009	2010	2011	2012	2013	Ave Annual Growth Rate
DAVAO REGION						
Production Volume	3,509.89	3,506.33	3,617.11	3,762.89	3,844.30	1.91%
Area Planted	4,945.00	4,958.00	5,226.00	5,151.00	5,193.00	1.00%
Average Yield	0.71	0.71	0.69	0.73	0.74	0.86%
Davao del Norte						
Production Volume	313.87	332.83	342.03	346.57	371.82	3.69%
Area Planted	920.00	928.00	932.00	936.00	1,045.00	2.72%
Average Yield	0.34	0.36	0.37	0.37	0.36	0.86%
Davao del Sur						
Production Volume	1,682.17	1,664.72	1,680.79	1,709.97	1,718.04	0.43%
Area Planted	1,385.00	1,385.00	1,385.00	1,355.00	1,355.00	-0.43%
Average Yield	1.21	1.20	1.21	1.26	1.27	0.88%
Davao Oriental						
Production Volume	486.52	491.22	506.16	485.25	483.13	-0.14%
Area Planted	682.00	682.00	842.00	842.00	892.00	6.16%
Average Yield	0.71	0.72	0.60	0.58	0.54	-4.82%
Compostela Valley						
Production Volume	177.28	181.17	204.61	206.31	141.58	-4.03%
Area Planted	670.00	675.00	735.00	675.00	549.00	-3.61%
Average Yield	0.26	0.27	0.28	0.31	0.26	-0.51%
Davao City						
Production Volume	850.05	836.39	883.52	1,014.79	1,129.73	6.58%
Area Planted	1,288.00	1,288.00	1,332.00	1,343.00	1,352.00	0.99%
Average Yield	0.66	0.65	0.66	0.76	0.84	5.32%
Source: BAS						

In 2013, Davao Region accounted for about 70% of the total hectarage planted to cacao in Mindanao. Based on BAS data, the region produced a total of 3,884.30 MT of cocoa beans in 2013. From 2009 to 2013, production volume grew at an average rate of 1.9% while area planted to cacao increased at an average rate of 1% per year.

The largest producer of cacao beans in the region in 2013 based on BAS statistics was Davao del Sur, which accounted for 45% of the total production in region. The province also had the highest yield at 1.27 MT/hectare. Davao City had the 2nd highest production at 1129.73 MT or 29% of the region's total production. During the five year period, production volume of Davao City increased by an

average of 6.58% per year. The minimal increase in area planted was compensated with improvement in yield which increased on the average by 5.32% annually.

During the last five years, buyers especially agents of multinational corporations have focused their attention in developing their supply chains in Davao Region.. The proximity of large volume buyers appears to have significantly helped in motivating farmers to engage in cacao farming and/or expand their farms. Likewise, the integration of cacao development in the Department of Environment and Natural Resources (DENR) National Greening Program, Philippines Coconut Authority (PCA) Kaanib Program, and projects of DA and the Department of Agrarian Reform (DAR) has facilitated the massive planting of cacao in the region. Total number of seedlings distributed by these various programs in 2012 and 2013 was about 2,089,740. Assuming an 80% survival rate at a planting density of 500 trees per hectare, the number seedlings distributed would be equivalent to 3,343hectares. Industry players estimate that as of end of 2013 the region has 16,500 hectares of cacao farms with around 8 million trees planted (*Southern Mindanao Cacao Industry Roadmap 2014-2020*).

For 2014, the DENR National Greening Program in Davao Region targets to distribute 1,342,000 seedlings. At 80% survival and planting density of 500 trees per hectare, the target seedling distribution translates to an expansion of about 2,147 hectares. The Greening Program in Davao Region is being implemented in partnership with PhilCocoa, a partner of OLAM International Limited. Further increase in cacao hectarage can be expected this year with the signing of a contract growing agreement between seven ARCs in Davao City and KFI.

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In Davao Oriental, 1,250 hectares are already planted to cacao since the launching of its Village Cacao Plantation Model in 2012 according to the Provincial Agriculturist Office. The provincial government targets to plant cacao in 15,000 hectares of land by 2016. Targeted areas for expansion are Mati, Lupon, San Isidro, and Governor Generoso. As per PAO, annual production as of 2013 was at 875 MT.

In Davao City, 7 Agrarian Reform Beneficiaries Organizations (ARBOs) signed a Cacao Production and Purchase Agreement with KFI last June 2014. The contract growing area covers some 274 hectares. The ARBOs will also be establishing a cacao nursery. The seven ARBOs are ARB Cooperative, Carmen Agricultural Multi-Purpose Cooperative, Balacan Development Multi-Purpose Cooperative, Suawan Proper Multi-Purpose Cooperative, Fatima Multi-Purpose Cooperative, CallawaBonggan Employees ARB Cooperative, and Latungan Farmers Multi-Purpose Cooperative.

Although Davao del Sur has maintained its lead in terms of production volume and average yield (based on BAS data), production appears to have somewhat stagnated during the last five years. According to officers of the United CARP Beneficiaries Multi-Purpose Coop (UNICARB MPC), Southern Davao Multi-Purpose Coop (SDMC) and the PCEC-Kumassie Employees-ARB Multi-Purpose Coop (PMPC), many of the farms are in need of rehabilitation and replanting of additional hills. They are able to still maintain a relatively high level of productivity due mainly to adoption of good agronomic practices.

SOCCSKSARGEN

Area planted to cacao increased from 133 hectares in 2009 to 177 hectares in 2013. Production volume in 2013, however, decreased slightly over 2009 figures. Average yield declined at an average rate of 5.02% per year. The decline in yield may be most like because many of the crops are still not in a fruiting stage as significant expansion started in 2012.

Between the period 2009 and 2013, NorthCotabato had the highest rate of expansion. South Cotabato also had a positive growth rate during the same period. SOCCSKSARGEN, which had the lowest hectarage devoted to cacao in 2013, is targeting a 2,000 hectares expansion under the DENR National Greening Program.

Table 9. Production Trends in SOCCSKSARGEN, 2009 to 2013
Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare

	2009	2010	2011	2012	2013	Ave Annual Growth Rate
SOCCSKSARGEN						
Production Volume	79.38	73.36	72.71	73.97	79.10	-0.07%
Area Planted	133.00	130.00	134.00	161.00	177.00	6.62%
Average Yield	0.60	0.56	0.54	0.46	0.45	-5.02%
North Cotabato						
Production Volume	11.78	10.11	10.61	13.34	19.25	12.68%
Area Planted	12.00	12.00	11.00	24.00	33.00	35.00%
Average Yield	0.98	0.84	0.96	0.56	0.58	-8.12%
Sarangani						
Production Volume	34.90	32.22	30.35	28.75	27.75	-4.10%
Area Planted	48.00	45.00	42.00	41.00	41.00	-2.92%
Average Yield	0.73	0.72	0.72	0.70	0.68	-1.38%
South Cotabato						
Production Volume	27.73	26.27	27.58	27.83	28.09	0.26%
Area Planted	55.00	55.00	65.00	80.00	85.00	10.91%
Average Yield	0.50	0.48	0.42	0.35	0.33	-6.89%
Sultan Kudarat						
Production Volume	4.97	4.76	4.17	4.05	4.01	-3.86%
Area Planted	18.00	18.00	16.00	16.00	18.00	0.00%
Average Yield	0.28	0.26	0.26	0.25	0.22	-3.86%

Source: BAS

Caraga

Production volume in Caraga decreased from 157.40 MT in 2009 to 57.84 MT in 2013. Average yield during the last five years was at 120 kilograms per hectare. The declining trend started sometime between 2010 and 2011 with the steepest decline observed in Agusandel Norte.

As per BAS data, land area planted to cacao in Agusandel Sur has remained at 385 hectares during the last four years and with average yield fluctuating between 60 to 80 kilograms per hectare. However, in the 2011 Annual Report of the Provincial Government of Agusan del Sur, total area planted to cacao was at 1,062 hectares and area harvested was at 737 hectares. According to the same report, total production volume was 1,236 MT or a yield of 1.7 MT/hectare. In 2010, the

province only had 110 hectares planted to cacao. Cacao areas in the province are primarily the municipalities of Santa Josefa and La Paz.

Among the 4 provinces comprising Caraga, Surigaodel Sur exhibited the highest improvement in yield albeit still below the national average and optimum output.

Caraga, which as of 2013, had 570 hectares planted to cacao, is also set to establish 3,725 hectares of cacao plantation under DENR National Greening Program. The local government of Marihatag in Surigaodel Sur and KFI signed an agreement sometime in July 2014 for the massive planting of four million cacao trees in the town's 5,000 hectare pilot site. The municipalities of Cagwait, San Agustin, Lianga,Tago, Bayabas, and San Miguel have signified interest to join Marihatag in the cacao venture. Each municipality will allocate 200 hectares for cacao plantation. The cacao coalition of 7 municipalities is known as Macasaltabayami.

Table 10. Production Trends in CARAGA, 2009 to 2013
Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare

	2009	2010	2011	2012	2013	Ave Annual Growth Rate
CARAGA						
Production Volume	157.40	124.14	58.57	63.44	57.84	-12.65%
Area Planted	855.00	840.00	825.00	585.00	570.00	-6.67%
Average Yield	0.18	0.15	0.07	0.11	0.10	-8.98%
Agusan del Norte						
Production Volume	84.54	54.11	6.50	5.60	7.14	-18.31%
Area Planted	200.00	195.00	190.00	50.00	35.00	-16.50%
Average Yield	0.42	0.28	0.03	0.11	0.20	-10.35%
Agusan del Sur						
Production Volume	27.14	23.85	23.44	31.88	25.11	-1.50%
Area Planted	395.00	385.00	385.00	385.00	385.00	-0.51%
Average Yield	0.07	0.06	0.06	0.08	0.07	-1.02%
Surigao del Norte						
Production Volume	29.15	28.76	14.77	11.50	10.55	-12.76%
Area Planted	90.00	90.00	82.00	70.00	70.00	-4.44%
Average Yield	0.32	0.32	0.18	0.16	0.15	-10.69%
Surigao del Sur						
Production Volume	16.57	17.42	13.86	14.46	15.04	-1.85%
Area Planted	170.00	170.00	168.00	80.00	80.00	-10.59%
Average Yield	0.10	0.10	0.08	0.18	0.19	18.58%

Source: BAS

ARMM

ARMM's production droppedfrom 110.06 MT in 2009 to 85.46 MT in 2013.Average yield is about 200 grams per hectare. Production from Lanao del Sur comprised about 65% of the region's production.At least 4 ARCs in Lanao del Sur have signified interest to go into cacao production covering 300 to 400 hectares under a contract agreement with KFI and with the support of DAR.

In Basilan, Lamitan Agrarian Reform Beneficiaries Cooperative (LARBECO) is currently rehabilitating some 400 hectares of cacao plantation. Many of the trees are 35 years old and above. The group has entered into a growership agreement with KFI.

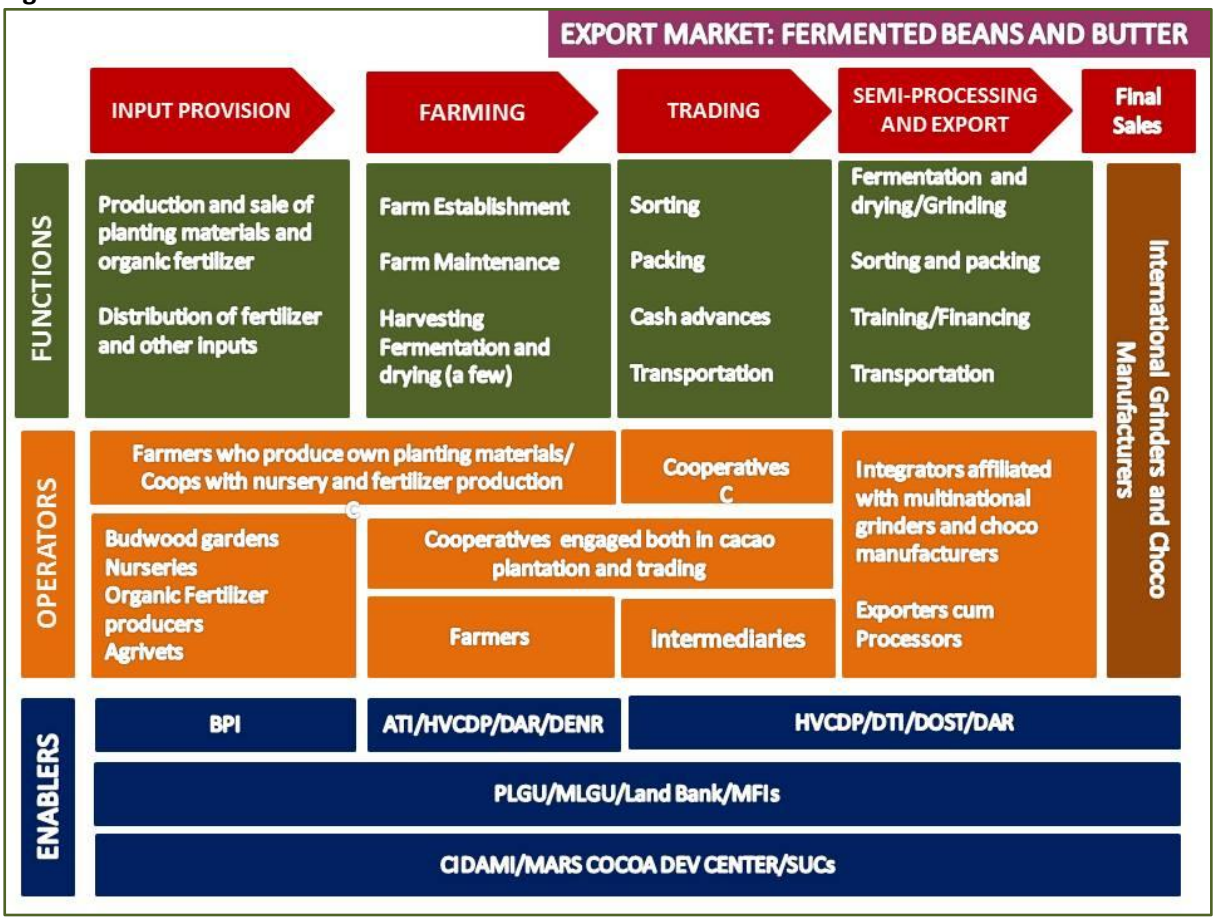
Table 11. Production Trends in ARMM, 2009 to 2013
Volume: Metric Tons Area Planted: Hectares Average Yield: MT/hectare

	2009	2010	2011	2012	2013	Ave Annual Growth Rate
ARMM						
Production Volume	110.06	101.45	91.40	83.31	85.46	-4.47%
Area Planted	514.82	499.80	464.00	448.90	447.00	-2.63%
Average Yield	0.21	0.20	0.20	0.19	0.19	-2.11%
Basilan						
Production Volume	3.92	3.74	3.44	3.14	2.98	-4.80%
Area Planted	35.00	35.00	35.00	35.00	45.00	5.71%
Average Yield	0.11	0.11	0.10	0.09	0.07	-8.17%
Lanao del Sur						
Production Volume	61.20	59.13	55.40	51.96	55.95	-1.72%
Area Planted	250.00	250.00	250.00	250.00	250.00	0.00%
Average Yield	0.24	0.24	0.22	0.21	0.22	-1.72%
Maguindanao						
Production Volume	3.26	2.85	2.75	2.55	2.33	-5.71%
Area Planted	35.00	30.00	25.00	20.00	18.00	-9.71%
Average Yield	0.09	0.10	0.11	0.13	0.13	7.79%
Sulu						
Production Volume	38.80	33.10	27.50	23.30	22.10	-8.61%
Area Planted	190.00	180.00	150.00	140.00	130.00	-6.32%
Average Yield	0.20	0.18	0.18	0.17	0.17	-3.35%
Tawi-tawi						
Production Volume	2.88	2.63	2.31	2.37	2.10	-5.42%
Area Planted	4.82	4.80	4.00	3.90	4.00	-3.40%
Average Yield	0.60	0.55	0.58	0.61	0.53	-2.43%
Source: BAS						

Section 3:
NATURE AND STRUCTURE OF INDUSTRY

A. VALUE CHAIN MAPPING

Figure 6.VALUE CHAIN MAP FOR FERMENTED BEANS AND BUTTER FOR EXPORT MARKET



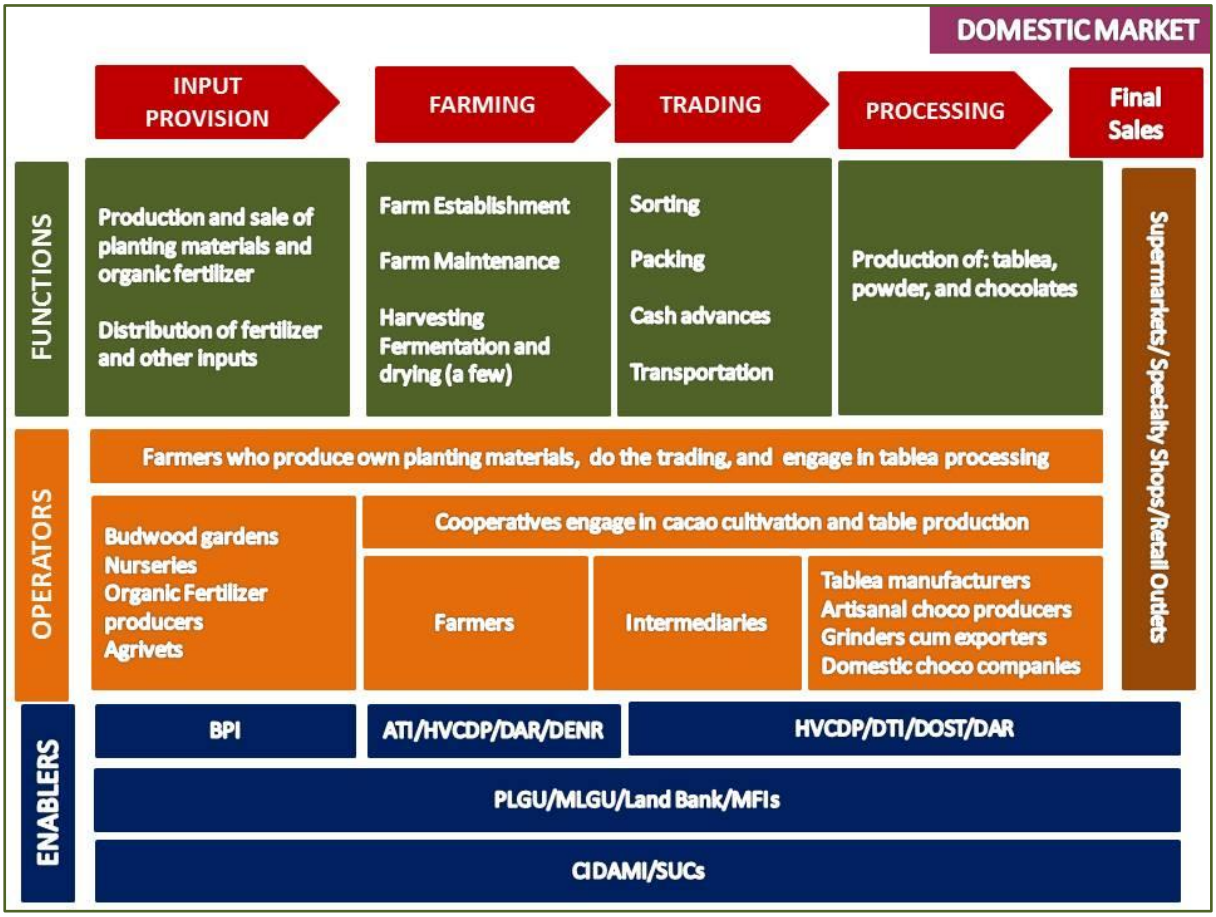
Cacao is cultivated by about 13,500 farmers in Mindanao.With proper care, cacao trees begin to yield pods in 18 months and reaches full bearing capacity in 4 years producing 70 to 100 pods or more per tree per year. After ripe pods are harvested, they need to be cut open with machetes and the beans are taken out. The cocoa beans then need to be fermented, dried, cleaned and packed. Farmers in Mindanao though generally sell wet beans.

Oftentimes, cacao beans pass as many as three different levels of traders to get from farmers to grinders and manufacturers. There is no clear delineation between local, provincial, and regional traders as well as integrators as all of them can buy beans directly from farmers or cooperatives.

Export of cocoa beans is carried out by integrators affiliated with multinational grinders and multinational chocolate companies and Davao-based exporters who are also processors, and recently by FEDCO, a federation of banana cooperatives who have diversified into cocoa beans production and trading. FEDCO exports directly to ADM Asia – Singapore, an international grinder. In many cases, the integrators/consolidators and exporters prefer to do the drying and fermentation to ensure consistency. Fermentation is a critical step for the chocolate flavour to be fully developed on subsequent roasting in the factory.

A recent development in the cocoa bean for export value chain is the outgrowership contracts being initiated by integrators/consolidators representing large global players in the cocoa industry. This effectively makes the chain shorter and facilitate access of farmers to inputs, technology, and capacity building.

Figure 7.VALUE CHAIN MAP FOR TABLEA, COCOA POWDER, AND ARTISANAL CHOCOLATES FOR DOMESTIC MARKET



Beans for domestic processing and consumption may be sold via intermediaries or directly from farmers to end users. There is a wide range of processors of cacao products in the Philippines --- from large companies who are located in Manila to household tablea makers. The production of tablea, which is the most traditional and commonly produced domestic chocolate product in Mindanao, does not require the use of fermented beans. There are manufacturers though who combine both fermented and unfermented beans in order to produce higher quality tablea. Large domestic chocolate manufacturers generally use imported beans and cocoa powder.Artisanal chocolate manufacturers usually prefer to use the local cocoa beans.

Figure 8 presents the key cocoa marketing channels or supply chains in Mindanao. It is estimated that about 70% of Mindanao's production is absorbed by the export supply chains with Davao Region as the trading and consolidation hub. The tablea subsector utilizes about 19% of the wet cocoa beans. About 11% of Mindanao's production are used in the manufacture of chocolates, cocoapowderr, and other intermediate products for the domestic market. Artisanal chocolate is relatively sill a small subsector with cocoa bean consumption of about 0.6% of total production.

Figure 8. KEY MARKET CHANNELS IN MINDANAO

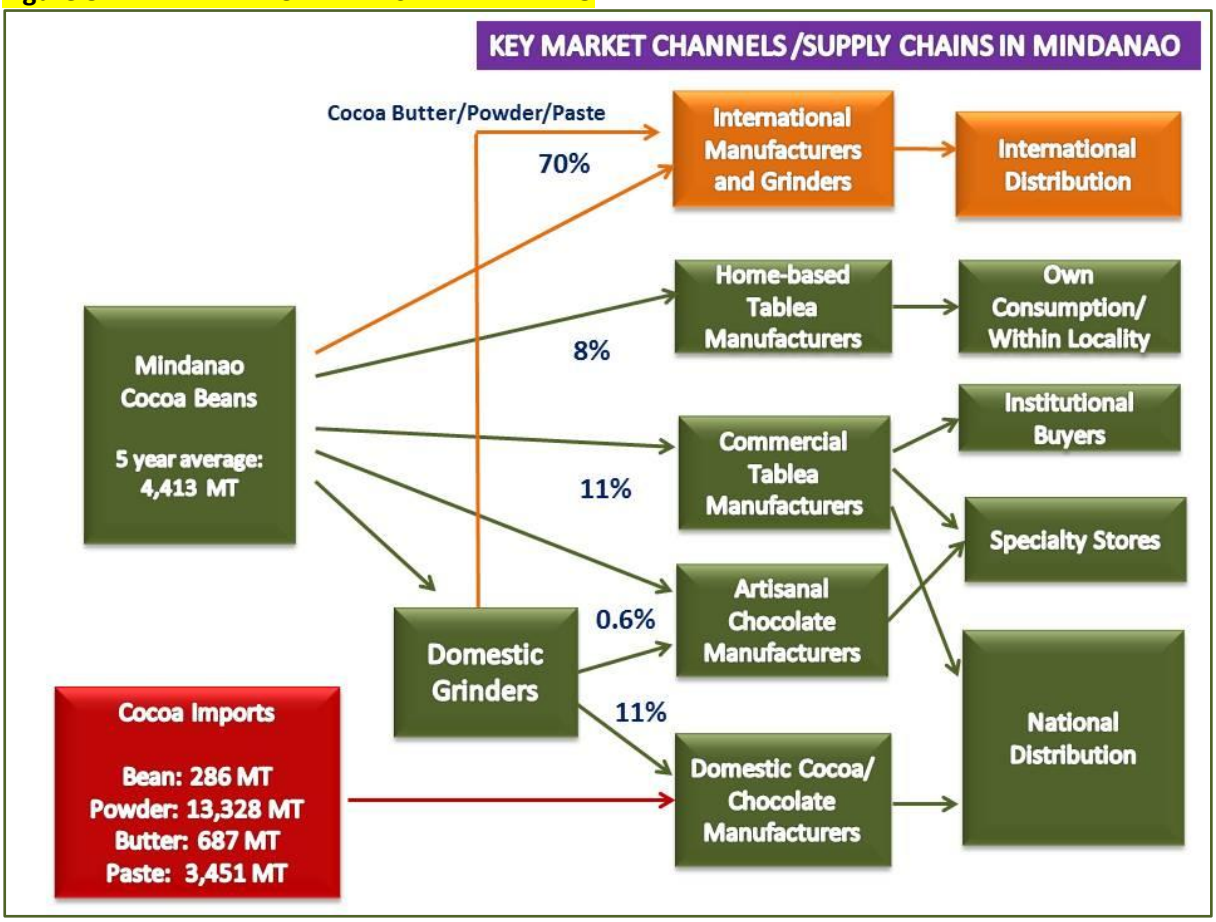


Table 12describes the existing supply chains in each of the Mindanao regions. A snapshot assessment of the level of development of each of the key supply chains is also presented.

Legend							
●	Established	○	Some farmers already involved in the channel	○	Start-up phase and very low volume	◌	Still being established

Table 12. Key Supply Chains in Mindanao

Region	Status	Description
Export of cocoa beans to multinational chocolate manufacturers/grinders and premium chocolate manufacturers via exporters and integrators		
Zamboanga Peninsula	○	Integrator – KFI. With office in Dipolog Current volume traded in this channel is still very low Main business model: Outgrowership agreement – !st batch in cacao plantation establishment phase; Spot transactions for non-outgrowers
Northern Mindanao	◌	Integrator – KFI. Cacao plantation has yet to be established. Procurement operations not yet fully in place.
Davao Region		Integrators/Exporters – KFI, CSI Trade, PhilCocoa, Fuentespina,

Table 12. Key Supply Chains in Mindanao		
Region	**Status**	**Description**
		Seed Core, etc. Dominant channel in region. Main source of integrators during the last five years. Both outgrowership agreement and spot sales (either directly to integrators/exporters or via intermediaries)
SOCCSKSARGEN		Integrators/Exporters – KFI and other integrators (via consolidators in Davao); CSI – direct Volume traded in this channel is still low.
Caraga		Integrator – KFI 1st batch in cacao plantation establishment phase Agusan del Sur sells beans to Davao consolidators
ARMM		Integrators – KFI it is said that PhilCocoa/Nestle used to source from Basilan group Basilan – rehabilitation of cacao farms but production is ongoing at a low scale Lanao del Sur – establishment phase
Small volume sales of unfermented beans to home based tablea makers who sell within their locality or for their own consumption.		
All regions		Tablea makers buy either directly from farmers or from traders and wet market In many cases, home-based tablea makers also have their own cacao farms
Fermented and unfermented beans to commercial tablea makers within and outside the region (e.g., Cebu, Northern Mindanao, and Manila) who sell to institutional buyers, specialty stores, supermarkets, and other retail outlets		
Northern Mindanao		Commercial tablea makers get their cocoa beans within and outside the region (Davao).
Davao Region		The region supplies commercial tablea makers in the region, Northern Mindanao, Cebu, and Manila
SOCCSKSARGEN		The region has one commercial tablea producer (Kablon Farm) who sources beans from own farm and farmers.
Good quality beans from traders and cocoa powder from grinders to artisanal chocolate manufacturers within the region, Cebu, and Manila who sell to specialty stores and high end supermarkets		
Northern Mindanao		The region has one manufacturer of artisanal chocolates. Main market is the pasalubong store in the airport. Beans are sourced from within and outside the region.
Davao Region		Many of the artisanal chocolate manufacturers in the Philippines source their cocoa beans and/or powder from Davao. The region has two chocolate manufacturers.
SOCCSKSARGEN		One company is producing artisanal chocolates. Most of the

Table 12. Key Supply Chains in Mindanao		
Region	**Status**	**Description**
	○	cocoa beans though are sourced from own farm. The company sources from other farmers when their own farm cannot supply requirement.
Cocoa beans and powder for domestic chocolate manufacturers who sell nationwide.		
Davao Region	●	Only a small percentage of bean and cocoa powder requirements of large chocolate manufacturers are sourced domestically. They use imported cocoa powder primarily from Malaysia.
Source: KII/FGD		

The geographic flow of products which also shows the synergies between the six regions in Mindanao is presented in Table 13 and Figure 9.Davao Region sells cocoa beans to Northern Mindanao, Cebu, Manila, and the export market. Farmers in SOCCSKSARGEN who have sizeable volume sell to traders and consolidators in Davao Region. Traders in SOCCSKSARGEN offer a lower price compared to consolidators as they deal with lower quality beans intended for the tableamarket and for home consumption. In addition to beans, Davao Region is also the source of planting materials. Traders of beans and tablea makers in Northern Mindanao source from Davao Region, Caraga, and ARMM.Exports from Zamboanga Peninsula and ARMM generally pass through Davao integrators and exporters.

Table 13. Geographic Flow of Products and Synergies								
SOURCE	**MARKET**							
	Mindanao Regions						**Cebu/ Manila**	**Export**
	R9	**R10**	**R11**	**R12**	**R13**	**ARMM**		
R9	Beans Tablea Planting materials		Beans					Beans (low volume) Via Davao
R10		Beans Tablea Planting materials						
R11		Beans Planting Materials	Beans Tablea Powder Planting materials	Planting Materials	Planting Materials	Planting Materials	Beans Tablea Chocolate	Beans Butter
R12			Beans	Beans Tablea Chocolate Planting materials			Chocolate	Beans (low volume) Via Davao exporters
R13		Beans	Beans		Beans Tablea Planting materials			
ARMM	Scions	Beans	Beans			Beans	Beans	Beans

Table 13. Geographic Flow of Products and Synergies								
SOURCE	MARKET							
	Mindanao Regions						Cebu/ Manila	Export
	R9	R10	R11	R12	R13	ARMM		
						Tablea Planting materials		(low volume) via Davao
Source: KII/FGD								

Figure 9.GEOGRAPHIC FLOW OF COCOA PRODUCTS

B. KEY PLAYERS AND FUNCTIONS

1. Input Provision

Figure 10. CACAO NURSERY IN BUKIDNON

Farmers acquire planting materials via the following ways:

a) Seeds from larger fruits in own farm to plant seedlings, which is a common practice among smallholders and the "old-timers" in cacao farming: In many cases, these farms have low yield and are highly vulnerable to pests and diseases;

b) Free/subsidized planting materials from development programs implemented by NGOs, national and local government agencies; this has significantly contributed to the expansion of cocoa farms. A major concern, however, of industry stakeholders is the inconsistent quality of planting materials. A significant percentage of planting materials distributed were non-grafted. Care must also be taken that distribution of free seedlings does not create dependence on government but rather stimulate the demand for good quality planting materials leading to the development of a vibrant market for inputs.

c) From buyers as part of the outgrowership contract agreement: This is a recent development and has so far been effective in addressing the lack of capacity among farmers to pay upfront for planting materials. Likewise, with secured markets, farmers are more willing to invest in good planting materials. It is also assumed that buyers would exercise great caution in the selection of planting materials as it is of their interest for farms to have high yield.

d) Purchase of planting materials from nurseries: Main clientele of nurseries are the commercial farmers, new entrants to cacao farming, and government and development agencies.

Among the regions in Mindanao, Davao Region has the highest number of nurseries followed by Zamboanga Peninsula. From just 10 nursery operators in 2008, there is now an estimated 167 nurseries in Davao Region. The aggregate production of these nurseries in 2013 was estimated at 3 million seedlings. One of the nurseries well known for its quality grafted seedlings of UF 18, BR 25 and PBC 123 (a hybrid of between Trinitario and Upper Amazon) is thePuentespina Farms in Malagos. The nursery is accredited with the Bureau of Plant Industry. A concern of the nursery operators in Davao Region is the proliferation of nurseries which have not applied for Bureau of Plant and Industry accreditation and majority do not have budwood garden to source their scion. Likewise, quality of seedlings is of varying levels. To support the development and further strengthen nursery operation and for intra-industry policing, the Davao Seedlings Producers Association was organized.

In Zamboanga Peninsula, the Cacao Industry Development Association of Mindanao Incorporated (CIDAMI) has identified about 40 to 50 nurseries during the field assessment they conducted in 2013. Farmer owned nurseries had production capacity of about 4,000 to 5,000 seedlings. Nurseriesproducedfrom 500 to 1,000 seedlings per month. In Zambaongadel Norte and Sibugay, seedlings were sold at PhP 25 to 30 each. The price of seedlings in Zamboanga City ranges from PhP 18 to 20. Sometime in 2011, the Office of the Provincial Agriculturist (OPA) in Zamboanga del Norte received a PhP1.6 million grant from ACDI/VOCA for the implementation of the "CoCoPal Farming System Extension Project" in the Provincial Agro-Industrial Center (PAIC) at Brgy. Irasan, Roxas. Majority of the funds went to the construction of 120,000-capacity cacao nursery and the establishment of 1,000 hills cacao budwood garden. The propagated clones are the NSIC-approved varieties, K1, K2, UF18, UIT1, ICS40, and BR25. A bulk of the propagated plants is dominated by the BR25 and UF18 varieties. Assessment of CIDAMI of the nurseries in Zamboanga Peninsula indicated that operators need further knowledge and training on good nursery management practices. From data gathered from BPI, it appears that none of the nurseries in Zamboanga Peninsula has an been accredited.

In Bukidnon, there are only two accredited nurseries of cacao planting materials, namely:. La Suerta's Fruit Tree Nursery and the Binahon Agro-forestry Farm (BAFF). La Suerta's Fruit TreeNursery deals primarily with planting materials of fruit trees and with cacao as its secondary line.The Binahon Agroforestry Farm (BAFF) is a model upland farm that practices sustainable ecological agriculture. BAFF has its own tree nursery and produces planting materials for all kinds of trees and plants including cacao. A bigger percentage of its nursery production is focused on coffee than cacao. . The farm is equipped with a training and accommodation facilities with a capacity of 50 training participants.

In SOCCSKSARGEN, there ae two accredited cacao nurseries. These nurseries supply a wide range of planting materials --- rubber, coffee, fruit trees, and cacao. In Arakan – North Cotabato, DAR is supporting the establishment of one hectare of cacao nursery in each of the key cacao producing barangays. These nurseries are expected to produce 288,000 cacao seedlings.

The provincial government of Agusandel Sur has established two coffee and cacao seedling banks. The first seedling bank is in the Government Center while the other one is located at Tagoyango – Sibagat. In 2011, the planting materials were distributed at a Plant Now Pay Later scheme. During the same year, 40,000 pieces of seedlings were distributed to about 60 farmers in Bayugan, Esperanza, and Loreto under the DA's Agri-Pinoy program.

Basilan in ARMM has a budwood garden operated by the Lamitan Agrarian Reform Beneficiaries Cooperative (LAMBERCO). Clones propagated are the BR25, UF18, UIT1, ICS40, K2 and K1. Zamboanga nurseries without a budwood garden get their scions from LAMBERCO. Planting materials produced by the cooperative are currently being used to rehabilitate their 400 hectare farm since many of their trees are already 35 years old.

Figure 11. BUDWOOD GARDEN/NURSERY OF LARBECO IN BASILAN

Other areas with budwood gardens are: a) USM in Kabacan, Cotabato; b) Sta. Maria – Davao del Sur; c) San Isidro – Davao del Norte; d) Mati – Davao Oriental; e) San Isidro – Davao del Norte: f) Mati- Davao Oriental; g) NinoyAguino – SultanKudarat; h) Zamboanga City; i) ZamboangaSibugay; and j) Dipolog – Zamboanga del Norte.

Although there are a number of nurseries in the 6 Mindanao regions, there are only 11 nurseries accredited with Bureau of Plant Industry with 64% located in Davao Region. Zamboanga Peninsula, Caraga, and ARMM have no BPI accredited cacao nurseries.

Table 14. BPI Accredited Cacao Nurseries, 2012 - 2013

Company	Location
Northern Mindanao	
La Suerta's Fruit Tree Nursery	Don Carlos, Bukidnon
Binahon Agro Forestry Farms (BAFF)	Lantapan, Bukidnon
Davao Region	
Cocoa Foundation of the Philippines, Inc.	Tugbok District, Davao City
Silva Cacao Nursery	Baguio District, Davao City
Dayot Plant Nursery	Talomo District, Davao City
Kennemer Foods International, Inc.	Calinan, Davao City
Puentespina Orchids and Tropical Plants	Baguio District, Davao City
Lola Marge Plant Nursery and Agricultural Development Services	Tugbok Dist. Davao City
JNS Agriplants Nursery	Brgy. Don Salvador Lopez, Mati City
SOCCSKSARGEN	
Cayona-Talento Nursery & Agri. Supply	Kidapawan City

Table 14. BPI Accredited Cacao Nurseries, 2012 - 2013	
Company	**Location**
Mulato Nursery	Makilala, North Cotabato
Source: BPI	

Aside from quality issues of planting materials, the current aggregate production capacity of nurseries in Mindanao is not sufficient to support the achievement of the 2020 target of 100,000 MT beans. Total production of nurseries in Mindanao is estimated to be between 2.8M to 3M seedlings per year. Assuming that Mindanao retains 90% share of the production of cocoa beans and an increase in productivity from 590 kilograms per tree to 2 kilograms per tree, it would require about 44,848,766.60 trees to produce about 89,697.53 MT of beans. Based on BAS data, number of bearing trees in Mindanao was at 3,083,940 in 2013. This means that Mindanao has to plant 41,764,826.60 trees by 2018. At 80% seedling survival rate, this would require 52,206,033.25 pieces of seedlings.

The above projected requirement of planting materials does not include the need for seedlings to rehabilitate farms with senile and low yielding varieties. During the field visits, it was observed that there were still many farmers who produce their own seedlings by picking seeds from the relatively "healthy" trees in their farms. Likewise, some farmers do remember the variety as the trees were already there when they were born but they did notice that their yields have been declining and, as such, they may cut down some trees and prepare a new batch of seedlings. Many farmers are not aware that there are now some varieties that can potentially provide higher yield. Aside from cost consideration, farmers generally lack information on planting materials that will help them to make informed decision.There are also varying interpretations among farmers (and also nurseries) of what is a good quality planting material.

There is a need to develop both the demand and supply of good quality planting materials of high yielding varieties parallel to strengthening the business and technical skills of existing and potential operators to ensure sustainability. Many of the existing nursery operators got their initial stocks under the ACDIVOCA CocoPal Program. Regular access to new high yielding varieties suitable to areas of their clientele is important both for business sustainability, for sustaining the competitiveness of the cacao industry, and achieving the 2020 target. Cacao nursery operators can also learn from the formal seed sector where technical advice is provided to clients as an added service and, thus, laying the foundation for a mutually beneficial relationship. R and D support is also needed by state universities and colleges such as the University of Southern Mindanao and Mindanao State University in the conduct of germplasm collection and breeding programs.

Another key input vital to the achievement of the 2020 target is land. At a planting density of 500 to 800 trees per hectare, Mindanao would need about 70,000 to 105,000 hectares of cocoa farm to achieve 90% share of the Philippine target of 100,000 MT by 2020. Although cacao can be grown anywhere in the country, Mindanao has two advantages, namely, good rainfall and good soil. Studies have shown that the potential expansion for cacao growing is huge: about 1.9 million hectares of coconut lands in Mindanao are highly suited to be interplanted with cacao. Roughly, only about 6% of the total coconut land area will be needed for cacao production even at a planting density of 500 trees per hectare. Intercropping may be the best optionsince coconut is already well established and, as such, will entail less labor cost. It can also provide additional income to coconut farmers. Many of the coconut farmers though are not aware of this iopportunity nor do they have the necessary skills and resources to go into cacao farming. Another issue that may need to be looked into is the land tenure status given that many of the farmers are sharecroppers or tenants. A growing trend during the recent years is to form partnership or growership agreement with agrarian

reform communities (ARCs). Likewise, given that land is a finite resource and soil health is a key asset, there is a need to promote cocoa intensification which involves growing the crop with the objective of increasing productivity while at the same time ensuring sustainability by protecting the environment.

Fertilizer marketing generally passes through three levels, namely, importers/manufacturers; distributors-wholesalers; and dealers-retailers. Distributors operate in one province and sell to dealers, and then dealers sell to end users, such as farmers. Distributors can also sell directly to farmers or large plantations, and may also have a dealer's license. In the study conducted by Philippine Institute for Development Studies (PIDS).Senior Research Fellow Roehlano M. Briones, it was stated that farmer-cooperatives can also import fertilizer.

From the same PIDS study released sometime early 2014; poor infrastructure was identified as the main cause for inefficiencies in fertilizer prices nationwide. Infrastructure problems have made fertilizer prices expensive in some regions and cheaper in others. Data showed that across the country, retail prices of fertilizer based on the dealer's price index vary widely. Relative to the national average, the cheapest fertilizers are found in the Ilocos, Cagayan Valley (in the north); Western Visayas (central) and Davao Region (south). The most expensive fertilizers are in the Autonomous Region in Muslim Mindanao and Eastern Visayas. Variations in fertilizer prices are similar across fertilizer grades and range between 6% and 7%. The widest range in the index is for urea, followed by ammonium sulphate.

Prices were increasing gradually until 2007, after which prices shot up dramatically, before pulling back in 2009. By 2011 fertilizer prices were much higher than in 2007. This accounts for lower fertilizer application after 2007. In the cacao sector, farmers more than ever cut down on their use of fertilizer. Industry players estimate that only about 20% of cacao farmers apply fertilizer.

Organic fertilizer application is practiced as an alternative to chemical fertilizer on a limited basis in Mindanao. During the focus group discussions, some groups have indicated that they use vermicast, mulching, and botanical pesticides (e.g., pepper) which they prepare themselves. The same groups said that they use the cacao pods as substrate for the vermiculture. Shredding of cacao pods, however, can be laborious especially for those who have no access to shredders. According to the groups, their "home/farm made' inputs are combination of what they have learned from the government provided training and from the practices of elders in their household and community.

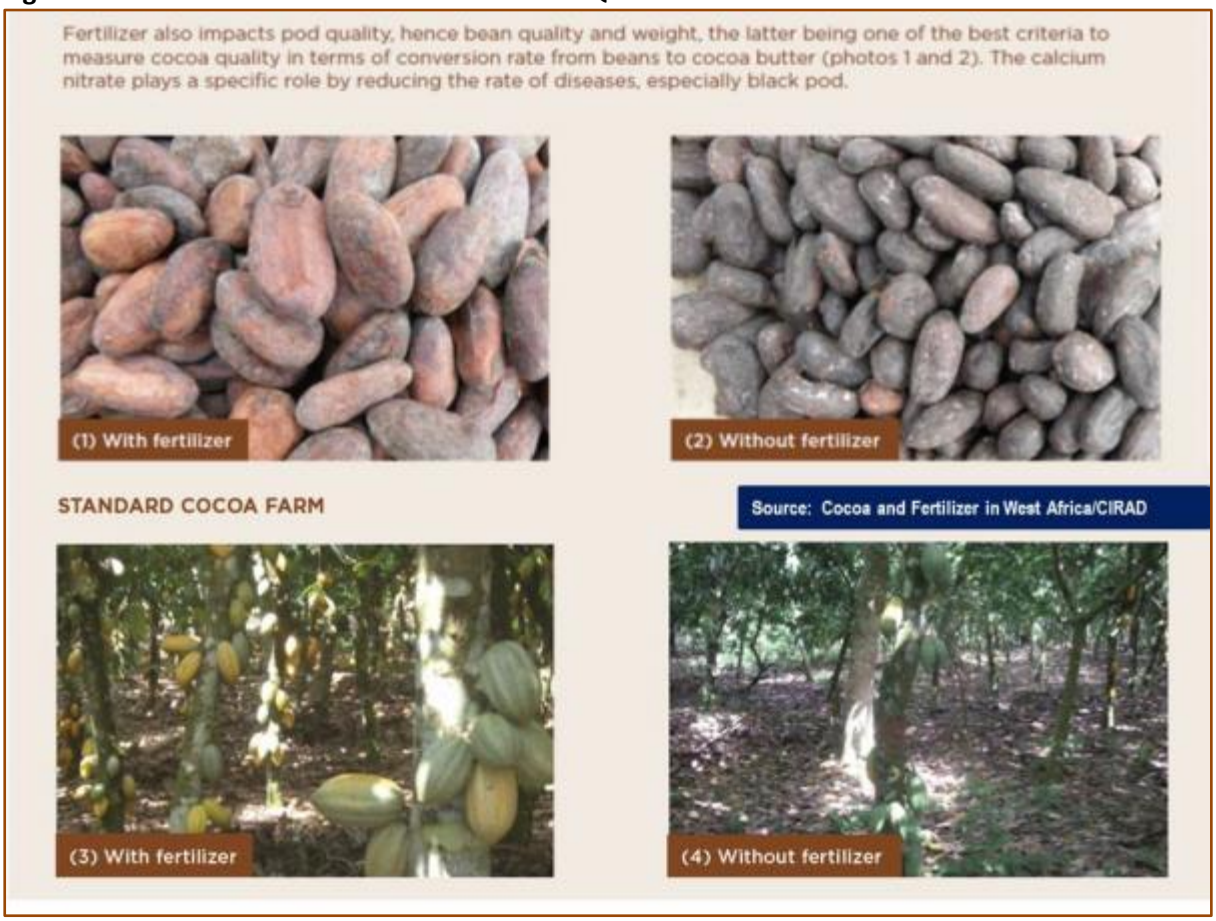
Main issues raised by farmers regarding the use of organic fertilizer are the following:

- More labor intensive as more bags per hectare need to be applied
- Many farmers find it laborious to prepare their own fertilizer and they lack the technical know-how and equipment to go into on-farm organic fertilizer production
- Although there are commercial organic fertilizers, distribution channels are limited. Likewise, farmers are not really so sure about the quality and suitability for cacao trees

A study conducted by CIRAD with support from Mars Chocolate indicated that fertilizer is critical in cocoa farming. Cacao industry experts believe that yield can be improved from current levels of around 590 kilograms/hectare to 1 ton/hectare through use of good quality planting materials and labor intensive measures such as pruning, tree replacement, and sanitation. However, experts are on the opinion that the only way to reach yields of 2 MT per hectare is to use fertilizer and pesticide, neither of which is commonly used on cacao farms. Aside from yield increases, experiments conducted by CIRAD in West Africa showed that fertilizer extends the productive life of trees and

improve pod quality and, consequently, bean quality and weight. Given the critical need for fertilizer, there is a need to make fertilizer safer, accessible, and affordable for the farmers.

Figure 12. FERTILIZER IMPACT ON COCOA BEAN QUALITY AND WEIGHT



Recently, there has been an increasing use of plastic bags for pod sleeving. These bags are readily available within the locality. A problem with these bags though is its disposal. The plastic bags are almost always non-biodegradable and improper disposal can cause clogs in drainage and canals

2. Farming

As per CIDAMI and other industry stakeholders, there are about 15,000 farmers nationwide and of which 13,500 are in Mindanao. Of the 13,500 farmers, 68% are in Davao Region.

About 90% of current production of cacao beans comes from smallholders with farm size ranging from 1 to 3 hectares. Cacao is a labor-intensive crop making it more suitable for smallholder farms than large-scale plantations dependent on external labor. With the entry of ARBOsin cocoa farming and the trend towards contract growing, block farming is fast becoming the new norm.Block farming is aimed at cutting down the syndrome of subsistence farming parallel to cutting down cost of transaction and delivery of extension services. The system involves farmers coming together, in a joint effort to produce crops on a large scale for commercial purposes, under a structured management comprised of the more progressive farmers in the group. . Ownership of the parcels of land remains with agrarian reform beneficiaries. Plantations of ARBOs range from 50 to 400 hectares. According to LABERCO in Basilan, their group has the largest plantation in the Philippines.A mining company in Zamboanga del Norte has also initiated the establishment of a

cacao plantation to support workers that were displaced when the mining winded its operation last year.

Figure 13. BANANA-CACAO INTERCROPPING: FEDCO IN DAVAO REGION

Smallholders usually grow cacao as a supplementary income source with few inputs and low costs, Cacao is a tree crop that is highly suitable or compatible under different production systems (intercropping or multistorey farming, agroforestry, etc). In Mindanao, cocoa is grown both in reforested areas and farms. Banana, coconut, and mango form the bulk of temporary shade crop used for cocoa establishment. There are still though many coconut and banana farmers who are not aware of the cacao farming opportunity. Cacao-rubber intercropping, however, is said to be not viable.

Quality of cocoa beans is impacted by soil status, weather conditions during growing, fermentation and drying as well as storage. If things do not go well with the cacao farming and harvest, all players in the chain are affected especially the giant chocolate manufacturers. There can be nogood chocolate without a sufficient cocoa bean quality. Poor quality cocoa beans may be moldy, infected with pests, broken, and have a high percentage of wastes. More beans per kilogram indicate aged trees or harvest from immature pods. As such, companies such as Mars and Cadbury together with their sourcing agents/integrators are investing on the promotion of sustainable farming practices including research and development.

In Mindanao, farmers within the proximity of the Cacao Development Center (in Davao del Norte) and the pool of cacao doctors and masters (also farmers) and those under a contract growing agreement have relatively better agronomic practices. Nevertheless, adoption of good practices is not fully widespread due to the limited number of providers. Davao farmers especially those who

have established their farms within the last 3 to 5 years have better managed farms compared to old timers and farmers in other regions.

The old cacao farms, low-input farms, and those with very limited access to extension services are not getting the full benefits from growing the crop. Low yield and, oftentimes, low quality production from these farms can be attributed to the following factors:

.

a) Tree stock

- Many of the trees have surpassed the peak of their potential productivity
- Use of planting materials that are of low yielding varieties and of poor genetic quality
- Use of seeds from pods harvested in own farm which may already be of poor quality; seeds from seeds from pods harvested from hybrid trees grown on a farmer's field cannot produce hybrid trees. Trees from these seeds generally have lower yields compared to true hybrids

b) Farm maintenance and management

- Limited and irrational use of fertilizer – no soil analysis and decision to use, frequency of application, and dosage based on their perception of price and cash flow. Majority of the farmers interviewed consider fluctuations in cocoa price as the major source of risk affecting the performance of their farming activity.
- Poor farm management – general thinking that even with good maintenance, yield will still be low because they do not have money to buy fertilizer; the ease of going to farm also influences crop care and maintenance
- Others use natural fertilizer that they make themselves --- usually technology has been handed down to them by elders. Some rely on natural remedies that they have learned from parents or elders
- Apply pesticide when level of infestation is already severe

Cultivation of cocoa is a delicate and labor intensive process, as the trees are susceptible to changing weather patterns, diseases, and insects. The cocoa pod borer (CPB) is the greatest pest threat to cocoa production. Mindanao has once been massively infested by CPB sometime in 1998. This caused the devastation of many plantations and which were subsequently abandoned. The effects of the CPD outbreak were further aggravated by the slump of cocoa prices in 2000 due to oversupply of beans. It is sometimes possible to harvest some beans from an infected pod; but there are fewer beans, and they are of poor quality and should not be fermented. Another disease that plagues cacao farms and even nurseries in Mindanao is the vascular-streak dieback (VSD). VSD is a fungal disease impacting leaves by slowing or stopping the photosynthesis process.

Pruning and phytosantiationand proper application of pesticides can help reduce pest infestations on cacao trees and pods. Phytosanitationinvolves the removal and burial of diseased cocoa pods, branches, leaves, and weeds. The labor time required to remove diseased matter from the tree is compensated by increased production. However, some smallholders report sanitation as too much work especially because pods infected with CPB cannot be sold. However, pruning and phytosanitationmay be the most cost-effective method for reducing pests especially among smallholders with low capacity to purchase inputs. In key cacao producing areas in Davao Region, there are already providers (cacao doctors and masters) of pruning services. To date, main clients are the absentee landowners.

A practice that is also increasingly being adopted by farmers especially in Davao Region and SOCCSKSARGEN is the use of plastic sleeves to reduce incidence of CPB infestation. Although this

poses extra cost for farmers (cost of sleeves and labor), adopters reported a 30% to 50% reduction in the number of pods infested which outweighs the cost and "hard work. These sleeves cost about PhP 2.50/piece.

Farmers do not plant all new trees at once as they must continue to harvest productive trees to earn an income. LARBECO, for instance, has 35 years old cacao trees and opted to incrementally cut the old trees and replace with high yielding varieties. Expertise in tree rehabilitation and grafting is not widely available in Mindanao. The expertise lies primarily with those trained as cacao doctors and with budwood garden operators. The snapshot assessment though conducted by CIDAMI indicates that majority of the nursery and budwood operators still lack the skills on grafting.

3. Fermentation and Drying

Figure 14. THE DIFFERENT FORMATS THAT BEANS ARE TRADED IN THE MARKET

The pillar of post harvest value addition is fermentation. Proper fermentation and drying remove all unpleasant flavours and start the chemical changes necessary to produce the true cocoa and chocolate flavours that emerge after roasting.Properly fermented beans are brown or dark red while partially fermented beans are purple, and over-fermented beans are very dark in color. The fermentation process reduces the weight of beans by 7% to 8%. Following fermentation, the beans must be dried for four or more days to reduce moisture content as is done with unfermented beans. The whole process takes about 7 to 10 days.

Majority of the farmers prefer to sell wet beans and if they do ferment, it is done inadequately. Farmers also do not sort completely and do not dry thoroughly. Trade in the domestic market consist primarily of wet beans bought "all-in". Exporters and integrators generally prefer to do the

fermentation and drying themselves. As per integrators, doing the fermentation and drying in bulk is more efficient and allows them to achieve a uniform high quality standard of beans.

Key reasons why fermentation is not attractive to farmers are the following:

- Farmers prefer to get their cash as soon as possible
- The added income from selling fermented beans is from a farmer's perspective is too small compared to the waiting time and the additional work/labor required
- Lack of access to facilities and skills; oftentimes, only older members of the household know how to ferment (traditional process)

Figure 15. MAKESHIFT CACAO DRYING PLATFORM IN SOUTH COTABATO

Cacao Drying Platform owned by a farmer in South Cotabato who also processes tablea

Cacao beans are dried on the ground or in makeshift platforms. Surface contamination is a major source of fungi in fermented and dried cocoa beans. Infestation of cocoa beans starts from the drying mats and continues in storage. During rainy days, drying of cocoa beans is done on prolonged periods and on an intermittent basis. If drying is done too slowly, moulds may develop. This can cause serious problems for the industry because of the off-flavours created if the moulds penetrate the testa. If the drying is too rapid however, the oxidation of acetic acid can be prevented and this leads to excess acid trapped within the beans. This acid content will ultimately adversely affect the flavour of the nib. Storage of beans is also a constraint especially among smallholders. This traditional method of drying yield inferior quality dried beans, compared to those done in the facilities of consolidators and exporters.

Among the regions in Mindanao, Davao Region has the most number of postharvest facilities. It has about 27 fermentation facilities. These facilities are owned by both the public and private sectors.

The postharvest facilities are generally for exclusive use of members or suppliers of the owners/operators of the facilities or are operated as common service facilities. In the Cacao Agribusiness Zone Center in barangay Talandang in Tugbok District – Davao City, for example, growers can have their beans fermented, dried, and sorted for a fee of PhP 15 per kilo which farmers consider to be too expensive. The facility has a 24-ton capacity fermentation boxes and sets of solar dryers and hybrid (artificial and solar) dryers. The whole process of fermenting, drying, and sorting entails about 10 days. The existing fermentation and drying facilities is just sufficient to cater to the needs of farmers within its proximity. In municipalities where cacao farms have been recently established, there is a lack of postharvest facilities

Figure 16.CACAO DRYING FACILITIES OF INTEGRATORS

In ARMM, only LABERCO in Basilan has a postharvest facility consisting of a fermentation box for a five day fermentation process, mechanical dryer, and a bean sorter. In other regions, fermentation facilities are micro scale and intended for own use of tablea makers (for those who combine fermented and fermented beans).

4. Trading

Davao Region has about 70 to 80 traders. In other regions, number of traders range from 2 to 5. While traders in Davao Region have markets outside the region, traders in the other regions usually sell to public market retailers and to processors within the province or region. In ARMM, the cooperative does the consolidation and ships out the beans to KFI and, in the past year, to Nestle (Manila). In Zamboanga, farmers have the option of selling directly to KFI who has an office in Dipolog.

In Davao where trading is more vibrant, the bean passes through at least two to three intermediaries (barangay/village level trader – municipal trader – lead trader). Some of the traders and consolidators buy directly from the lower levels of the supply chain. Some cooperatives are engaged in cacao bean trading. Transactions are generally spot and on cash basis. Other functions performed by these traders include bulking, transport, quality assurance and financial services function. In many cases, the lead trader provides its network of intermediaries with money for cash advances.

Farmers generally prefer to sell to village traders due to lower cost of transaction (e.g., products are picked up from the farm or delivered to a village store within the locality) and the cash advances. Some of these traders have small sari – sari stores where cacao farmer can get their household needs on credit. Long – time suppliers may also avail of financing from these traders. These advances are deducted from the proceeds of cocoa beans delivered to the trader.

In the international scene, major trading companies in the international market such as ADM and Cargill have taken over cocoa-exporting operations within origin countries, thus achieving a significant degree of vertical integration in the industry. Their reach extends all the way to the farm level, either directly (cocoa-buying stations) or through agency relationships.

5. Export Marketing

The 12 exporters cum grinders/processors are based in Davao Region. These exporters buy beans from collectors and traders who deliver to their warehouses, and then sell primarily to regional buyers for processing. Both small and medium/large scale exporters have found it increasingly difficult to compete with the integrators/consolidators affiliated with multinational companies. As a result, many have begun selling their cocoa beans to the integrators rather than continue to export directly themselves.

There are at least 5 integrators sourcing in Mindanao, namely. Kennemer Food International Inc., Philcocoa Ltd., CSI Trade Ventures, Seed Core Enterprise, and the Federation of Cooperatives. These integrators purchase wet beans from collectors and traders, ferment, dry, sort and grade them for quality, and then sell them to buyers in European countries,Indonesia, and Singapore. In many cases, they are sourcing for one or two global grinders and chocolate manufacturers. Oftentimes, they work together with the multinational companies in providing development support to cocoa farmers.CSI facilitated the gainful participation of cocoa farmers by allowing them to acquire 30% share in the company addition to facilitating supplier's access to postharvest facilities, CSI has established a nursery to ensure that farmer – suppliers and shareholders have access to good quality planting materials.Except for Philcocoa who is based in Manila, the companies have their head office and base operations in Davao Region. KFI has an office in Dipolog City.

Table 15. Integrator – Exporters Sourcing in Mindanao

Company	Global Player Affiliated With	Provinces in Mindanao that they are/will be sourcing from
Kennemer Food International (KFI)	Mars Chocolate	Zamboanga del Norte Zamboanga del Sur Zamboanga Sibugay Misamis Oriental (start-up) Misamis Occidental (start-up) Bukidnon (start-up) Davao Region (all provinces) Surigao del Sur Agusan del Sur Basilan Lanao del Sur
CSI Trade Venture	Traden, Poland	Davao del Norte Davao City Compostela Valley

Table 15. Integrator – Exporters Sourcing in Mindanao		
Company	**Global Player Affiliated With**	**Provinces in Mindanao that they are/will be sourcing from**
		Davao Oriental South Cotabato
PhilCocoa	Olam	Davao Region
Seed Core Enterprises	Barry Callebaut	Davao Region
Federation of Cooperatives	ADM Asia	Davao Region
Source: KII		

Figure 17. SORTING OF CACAO BEANS AT SEED CORE ENTERPRISES

6. **Grinding/Processing**

Cocoa processing, or grinding, entails the transformation of dried beans into a variety of processed cocoa products such as cocoa paste or liquor, cake, powder, and butter. To date, main product produced in Mindanao is the tablea or cocoa liquor. Makers of tablea range from home-based processors to small scale companies.

A greater number of tablea processors are home-based informal enterprises. These are usuall households with cacao farms. According to farmer cum tablea makers, they process the cocoa beans into tablea to optimize the produce from their farms. It also mitigates price fluctuation of

cocoa beans as price of tableya is relatively stable. These households make the tablea with the assistance of household members. Oftentimes, the tableas are sold to trades and retailers within the province or region.

The formal enterprises generally have a wider market. Established and known companies like Malagos Farm/Puentespina, kablon Farms, Maestradp, CSI, Roteo Farms, etc. sell to specialty shops and supermarkets within and outside of the region (Cebu/Manila). CSI seems to be the only company producing cocoa blocks.

According to a news release from FEDCO of Davao Region, a side agreement to the marketing contract between the federation and their buyer, ADM Asia Corporation, is the set-up of a grinding facility as soon as the group has 1.2 million cacao trees solely for ground bean/cocoa powder export. For a processing/grinding plant to be viable, it should be assured of an annual supply of 30,000 to 50,000 MT of cocoa beans.

Figure 17. MINDANAO TABLEA AND ARTISANAL CHOCOLATE PRODUCTS

In the international market, the Netherlands is the world's leading cocoa grinder. Three companies – Cargill, Archer Daniels Midland (ADM), and Barry Callebaut – grind 40% of the world's cocoa. Singapore-based company, Olam/Petra Foods and Blommer complete the Top 5 cocoa grinders. In essence there are three main categories of companies operating in the grinding segment (UNCTAD):

i. Companies with backgrounds in commodity trading and a widely diversified range of trading interests (such as ADM and Cargill);

ii. Companies whose primary interest has traditionally been in producing semi-finished cocoa products and couverture, mainly for sale to third parties (for example, Barry Callebaut, Petra Foods and Bloomer);

iii. Large chocolate companies that are primarily active in the branded consumer market, yet retain some grinding capacities to meet their specialty requirements (for example, Nestlé, Cadbury, Ferrero and Cemoi).

US based companies ADM and Cargill are active in both producing countries (cocoa sourcing and logistics and, in some countries, cocoa processing) and consumer countries (manufacture and supply of semi-finished cocoa products and, a further step down the chain, couverture production and supply).

The Swiss-based Barry Callebaut group was created out of the 1996 merger of Callebaut, a leading industrial chocolate group, and Barry, with complementary sourcing activities and cocoa-processing operations. In cocoa bean producing countries, the company is active in primary processing stages. In consumer countries, it is increasingly moving from semi-finished cocoa products and couverture (the latter being its traditional core business) into the manufacture of consumer chocolate.

Producers of industrial chocolate fall into two broad categories (UNCTAD):

i. Vertically integrated groups which produce their industrial chocolate and mainly use it in-house to make consumer products (integrated chain).

ii. Companies under this category are Nestlé, Mars, Hershey, Cadbury, Kraft Jacobs Suchard, Ferrero and Cemoi. For the most part, they still manufacture couverture for their own use, though there is a trend towards outsourcing even couverture production (and even production of the finished product, one step further along the production chain) to specialized contractors.

iii. Industrial processors that supply most of their output of couverture to third parties (market suppliers).

Companies under this category include leading cocoa-processing companies as Barry Callebaut, Cargill, ADM and Bloomer. In many cases, these companies are also active at the sourcing/trading level (within origin countries and internationally).

7. Manufacturing (Consumer/Finished Products)

At the national scene, chocolate manufacturing is a billion peso industry. The top 3 largest chocolate producers in the country are: Universal Robina Corporation, Commonwealth Foods Inc., andDelfi Foods Inc. Other chocolate manufacturers are: Multirich Foods Corp. (Choco Mucho), Columbia International Food Products Inc. (Klicx Cruncher and Chocquick bars), Monde Nissin (Snitch Choco Bar), Twin Oaks Foods Corp. (Mayfair), Stateline Snack Food Corp. (Stateline Nimble Chocolates), New Unity Sweets Mfg. Corp. (Choc-Nut), Annie Candy Manufacturing (Hany Milk Chocolate), and Gracepoint Enterprises (Lala).

Table16. Top Three Chocolate Producers in the Philippines

Company	Description
Universal Robina Corporation.	Market leader in chocolates and the leading branded convenience food and beverage company in the country.

Table16. Top Three Chocolate Producers in the Philippines	
Company	**Description**
	Manufactures enrobed chocolates and panned chocolates. Its popular enrobed chocolate brands are Cloud 9, Big Bang, Chooey, and Monster Munch while its panned chocolate, Nips, is the most popular in its category. Also exports chocolates to Thailand, Malaysia, Singapore, Indonesia and Hong Kong.
Commonwealth Foods, Inc.	Manufacturer of chocolates as well as other products like coffee, cookies, biscuits, milk products, coffee beans, flour, and sugar. Its chocolate brands are Flat Tops, Curly Tops, Choco Mallows, and Chocolate Crunchies.
Delfi Foods, Inc.	Delfi Foods Inc bought the manufacturing plant and sales and distribution assets of Nestle Philippines together with Goya for an aggregate deal of US$5 million in March 2006. Delfi Foods Inc is a wholly owned subsidiary of Petra Foods Inc., a Singapore-based manufacturer of branded consumer confectionery. Popular Goya products are chocolate coins and eggs The company sources cocoa beans from Ivory Coast and Indonesia. Delfi/Petra has a long-term target to source 50% of its cocoa requirements directly from the producers (from about 10% currently). In addition, to ensure long-term uninterrupted supply of quality cocoa, Petra Foods is stepping up efforts to help develop a sustainable cocoa industry.
Source: The Sweet World of Chocolates in the Philippines, Agriculture and Agrifood in Canada	

There are also a few artisan chocolate manufacturers in the country such as Theo and Pilo, The Gift Farm which is based in Davao City, Risa Chocolates, Kablon Farms in SOCCSKSARGEN, and Choclery Artisan Chocolates. These companies source a greater percentage of their cocoa beans from the Philippines. On the average, they consume 1 ton of cocoa beans per month. Many of those engaged in the manufacture of artisan chocolates have their own cacao farms.

The large chocolate manufacturers use imported cocoa powder primarily from Malaysia. Quality constraints and reliability of supply prevent some of the big domestic manufacturers and processors from sourcing from the Philippines. These concerns include coarse grinding because of low quality grinding equipment, inconsistent supply, inadequate drying, lack of fermentation or low quality fermentation and overly bitter beans.[2]

The top five chocolate and confectionery companies in the world are Mars Incorporated, Mondelez International (Kraft), Nestlé, Meiji Holdings, and Ferrero Group. These companies control more than half of the European market for consumer chocolate. Mars Chocolate, which has the largest share in the world market, requires about 300,000 MT of cocoa beans annually.

Table17. Top Ten Global Chocolate and Confectionery Manufacturers, 2013	
Company	**Net Sales 2013 (US$ millions)**

[2]ACDIVOCA Cocoa VCA Report

Table17. Top Ten Global Chocolate and Confectionery Manufacturers, 2013	
Company	Net Sales 2013 (US$ millions)
Mars Inc (USA)	17,640
Mondelēz International Inc (USA)	14,862
Nestlé SA (Switzerland)	11,760
Meiji Holdings Co Ltd (Japan)	11,742*
Ferrero Group (Italy)	10,900
Hershey Foods Corp (USA)	7,043
Arcor (Argentina)	3,700
ChocoladenfabrikenLindt&Sprüngli AG (Switzerland)	3,149
EzakiGlico Co Ltd (Japan)	3,018*
Yildiz Holding (Turkey)	2,500
Source: Candy Industry, January 2014	

C. NATURE OF INTERFIRM RELATIONSHIPS

1. Horizontal Relationship

While there are cooperatives like FEDCO that are relatively strong and appear to be entrepreneurial, majority of the farmer groups lack the internal and external infrastructure and organizational elements needed to achieve the economic and social objectives that underlie the viability of collective enterprises. Among the main difficulties faced by farmer groups are:

a) Lack of capital to grow in scale and for investment in physical assets for value addition and for product quality improvement
b) Lack of management capacity and good organizational governance
c) Lack of entrepreneurial skills and capacity to interact effectively and to undertake collective action, which is necessary to induce lead firms to accept a high level of interdependence.
d) Weak business/market orientation

It was observed that among farmers who are members of the cooperatives, involvement in collective initiatives is very limited. Majority of the farmer groups have not fully made use of their organizations as platforms to collectively address constraints, promote economies of scale, and improve bargaining position.

It has also been observed that cooperatives are better able to ferment beans than individual farmers because of the following reasons:

a) Cooperatives have higher potential to access fermentation facilities by pooling members' resources, assistance from buyers especially if they can deliver a sizeable volume of beans, and financial support from the government.

b) Farmers with potentials to deliver high volume of cocoa beans can link up firectly with higher level traders (e.g., integrators) or, in the case, of FEDCO, with the Asian office of ADM. By selling to higher level traders, they have comparatively better margins and, as such, would have the

incentive to undertake fermentation. Village traders do not provide premium for fermented beans. If they do so, it is very minimal.

c) Cooperatives especially those with sufficient capital can buy in cash the wet beans from farmers and, thus, satisfy their need for immediate cash after harvest. It is important, however, thatcooperatives or blocks implement effective quality control system supported by a pricing scheme that provides incentives for good quality beans.

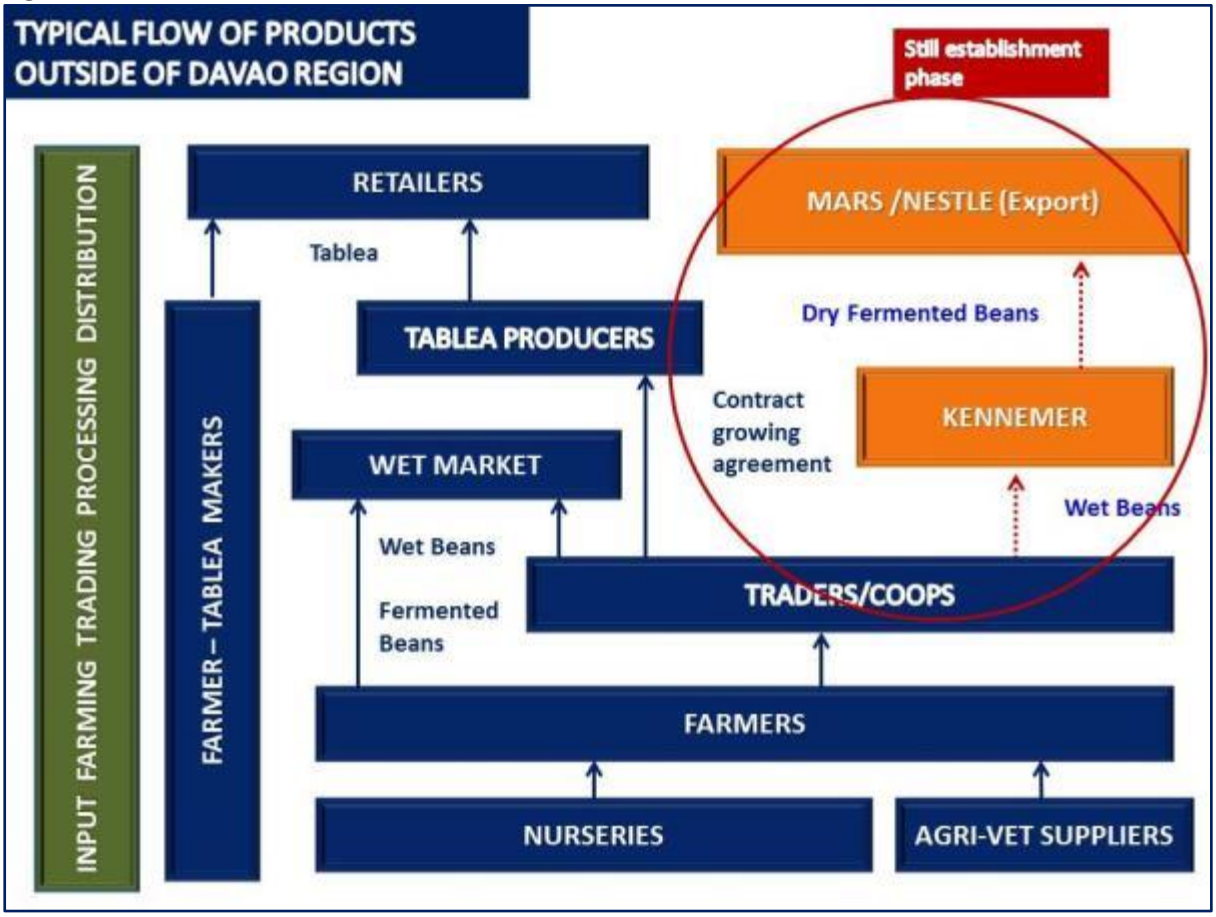
The development of effective horizontal relationships among cocoa farmers has become increasingly important in the light of structural changes in the cocoa bean export supply chain. Exporting companies are generally hesitant to deal with many small farmers due to the high transaction costs involved. The block/cluster farming being promoted by Kennemer and DAR provides an indication of the possible directions that buyers will be increasingly taking in the years to come.

With demand exceeding supply, traders compete on price and on services offered (transportation, credit, etc.). In addition to competing on price, traders compete on different services offered including leniency in quality control. This type of competition is unhealthy and hinders innovation and upgrading.

Cooperation and collaboration among downstream players appear to be strong. CIDAMI provides the platform for industry players to jointly discuss and find solutions to the various threats and opportunities faced by the industry.

2. Vertical Relationship and Supply Chain Governance

Figure 19. TYPICAL FLOW OF PRODUCTS IN AREAS OTHER THAN DAVAO REGION



Transactions between farmers and traders generally consist of spot market sales. Marketing relationships between traders and farmers are informal and characterized by the concept of the "suki" system or personalized economic relations. The "suki" system, which is similar to the preferred supplier-buyer relations, proliferated in efforts to find ways to minimize risks and vulnerabilities to opportunistic behaviour and cheating (both trader and farmer). The depth of the suki relationship differs with each relation but over time, repetitive transactions with the same person develops trust. On both sides, there is reduced search, negotiation, and monitoring costs because the suki lives up to the norms and values of reciprocity and comes close to becoming part of the family mindset. The bonds between people engaged in exchange are determined by informal rules or social institutions and serve to enforce the terms of the exchange.

Suki relationships often are strengthened by the provision of credit by buyer to farmer or by lead trader to village buyer. Local traders are the main sources of loans/'cash advances". Farmers who sell their beans on a regular basis to one particular buyer are able to call on that buyer not only for loans for inputs but also for family emergencies, a "in-kind" (basic food commodities from store owned by traders). The extension of loans is a way for buyers to ensure loyalty of suppliers and, consequently, their supply. Traders also pick-up the beans or set-up their buying stations near the farms which make it convenient for farmers to deliver.

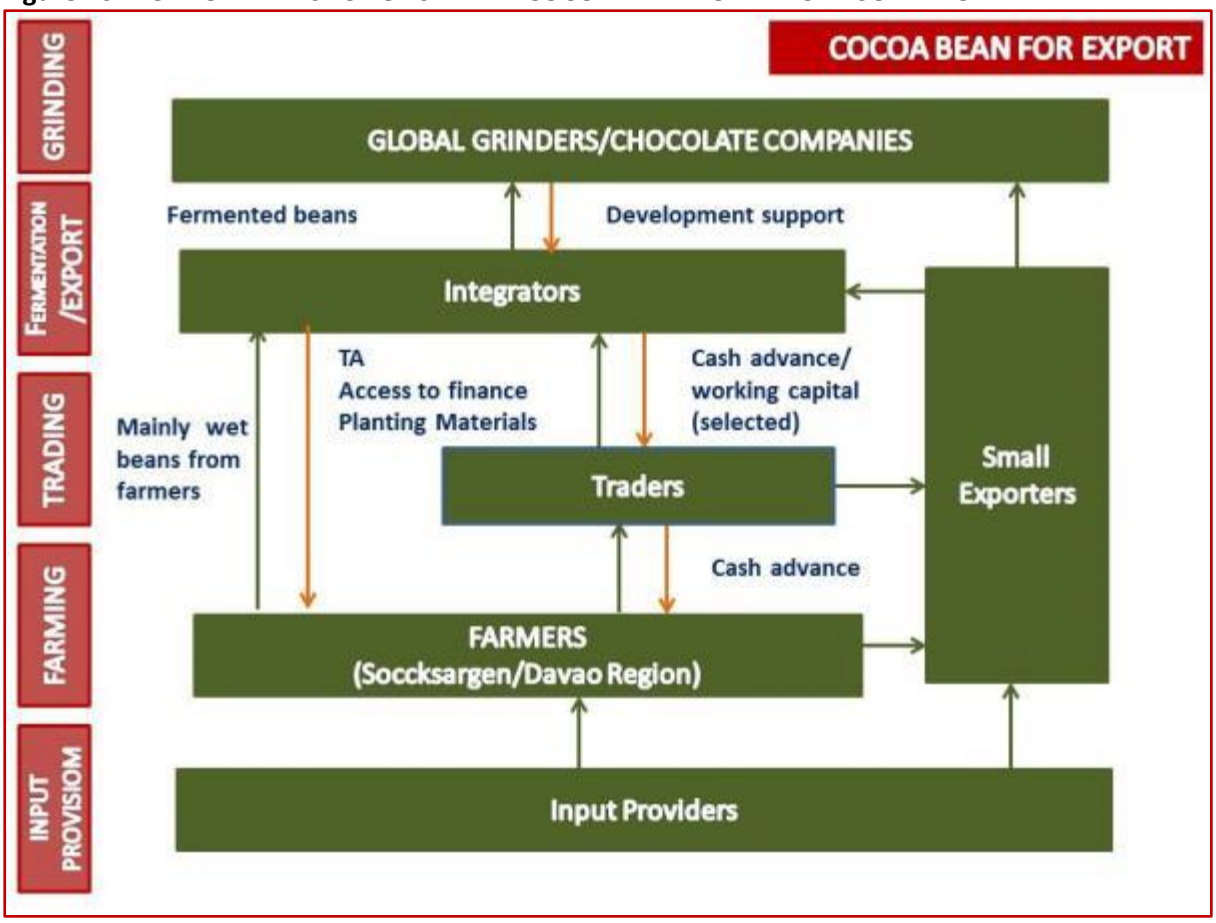
Farmers can have the option of selling their bean "all-in" but at a lower price or to sell these based on quality standards that normally have varying interpretations from one buyer to another. The "all-in" procurement provides little incentive to invest in upgrading. On the other hand, sorting and grading based on locally adopted norms which tend to be subjective result to trust issues. Likewise, many farmers are not aware on how the cocoa bean price is set and, as such, any fluctuation in the price is attributed to the traders. Some traders, on the other hand, tend to manipulate price especially when dealing with farmers in remote areas.

Table18. Snapshot Relationship Assessment

Parameters	Description
Farmer - Trader	
Buyer and Supplier Selection/ Procurement Process	Spot selling/Cash and carry Traders secure supply by providing advances in cash or in kind (e.g., rice and canned goods from sari-sari store owned by trader). With the cash advances, farmer and trader develop a semblance of long term relationship.
Information Sharing/ Transparency	Directive. One-way. Limited. Just focused on current transaction.
Quality Control and Inspection	All-in procurement at a lower price Visual inspection and sorting of beans done by trader and price discounts applied accordingly. A handful of cocoa beans are squeezed to hear if they made a cracking sound. Farmer just accepts trader's assessment.
Value added service/ Collaboration and cooperation	Pick-up of beans at farm or at a place near the farm Traders provide cash advances – informal source of credit
Basis of Competition/ Offer	Volume

Table18. Snapshot Relationship Assessment	
Parameters	**Description**
Farmer/Trader –Exporter	
Buyer and Supplier Selection/ Procurement Process	Some semblance of long term relationships. Informal guarantee of business beyond today.
Information Sharing/ Transparency	Purchasing and pricing decision almost always based on agreed standards. Discussions on prices, markets, and quality conducted on ad-hoc basis.
Quality Control and Inspection	Processor/exporter exercise more stringent quality control. Exporters usually have the bean grading kit.
Value added service/ Collaboration and collaboration	Access to postharvest facilities and seedlings Some learning and skills transfer Ad-hoc discussions on how both parties can mutually exploit cost, quality, technical, or marketing advantages via their collaboration.
Basis of offer	Volume and quality
Source: KII	

Figure 20.FLOW OF TRANSACTIONS IN THE COCOA BEAN FOR EXPORT SUPPLY CHAIN



Many of the tablea processors and artisanal chocolate manufacturers are vertically integrated although they also source beans from traders and farmers. The tablea processors are the more established market channels in regions other than Davao. Generally, thetablea industry is fragmented and atomistic.

In chains in Davao Regions where farmers and traders sell directly to exporters cum processors, the product specifications required by end markets dictate the governance and nature of supplier relationships. In these chains, buyersgenerally offer a price differential on quality. Buyers tend to establish a closer and more directed supplier relationships in order to improve the quality and consistency of cacao beans.

With demand outstripping supply and market standards becoming more stringent, there is an increasing tendency for global grinders and chocolate companies to integrate backwards into origin countries. Such tendency is being jumpstarted by Mars through Kennemer Foods, CSI who is working closely with an international trading company based in Thailand, ADM through a direct marketing agreement with FEDCO, Barry Callebaul via Seed Core enterprises as its main consolidator, and Olam who has forged a strategic partnership with PhilCocoa, a newly established trading company. These developments provide the platform for a market driven upgrading. Aside from buying beans, the global companies through their Philippine based partners implement development programs.. It has been observed though that exporters are having difficulties in competing with exporter-integrators. Many have shifted to supplying these companies rather than exporting on their own. This is in many ways a reflection of the shifts in international markets which is marked by growing levels of concentration and directed supply chain relationships

The international grinding segment is now controlled by three firms (ADM, Cargill, and Barry Callebaut). The concentration in the grinding sector arises as a consequence of the following developments (Losch, 2002):

- Development of new processing technologies (involving considerable research and development and investment) to enable the processing of different qualities of cocoa bean.
- Development of the ability to buy in large volumes and to source from different countries provided an important impetus to the scale of purchasing
- Developments in transport (bulk shipping) and just-in- time provision to chocolate manufacturers undermined the position of smaller and less sophisticated traders and grinders except those who are buying for their own in-house grinding.

High levels of concentration can also be observed in the international chocolate manufacturing sector. The top 6 chocolate manufacturers are estimated to control around 60% to 70% of the world market. Concentration in the chocolate manufacturing industry is attributed mainly to the very heavy costs of branding and marketing.

The marked levels of concentration in the grinding and chocolate manufacturing stages of the cocoa supply chains gave rise to a “bi-polar” governance structure. The market power of grinders appears to be, to some extent, balanced by the “customer power” of downstream branded chocolate manufacturers. As can be seen in the Davao Region and in many cocoa producing countries, the cocoa bean export supply chains entail varying levels of vertical coordination at different nodes in the chains with international trading companies and/or their agents closely involved in facilitating supply chain development. The evolving governance of cocoa bean export chains provides an opportunity for producers to forge direct links with trade networks, and also an opportunity for chain gatekeepers to call for sustainable practices.

The need for greater chain governance is attributed to the increasing concerns to maintain supply flow of cocoa beans and ensure traceability and quality. These structural changes have important implications for the participation of smallholders and the distribution of the benefits. While these changes can provide the catalyst and incentives for the integration and modernization of the cocoa bean supply chain, it also poses challenges on how to overcome high transaction costs and investment constraints usually associated with working with small scale farmers.

A number of initiatives are ongoing aimed at shifting the balances of power in trading relations to ensure that farmers appropriate a greater share of margins from the cocoa value chain parallel to building a sustainable supply chain through the employment of longer term strategies that facilitate access to credit, market information, and guaranteed market (contract beyond one season). Table 20 presents a summary of Sustainable Purchasing Practices from various codes of practices being advocated by different bodies in the aim of promoting inclusive and sustainable supply chains. Increasingly, special attention is made on the relations between producers and buyers in order to direct the chain in a sustainable direction.

Table19. Summary of Sustainable Purchasing Practices

Sustainable Purchasing Practices	Perceived Benefit/s of Adoption
"Fair" share of export price of cocoa to return to shareholders	To cover production costs and provide a sustainable income
Longer term contractual commitments	Assist production planning and reduce volatility of prices
Direct relationships	Build trust and stability in the chain Reduce the number of intermediaries
Improved access to affordable credit and pre-harvest finance	Improve cash flow of farmers to purchase agricultural inputs and cover harvest expenses
Timely payments and communication with mutually agreed payment terms	Greater trust and clarity; reduce uncertainty at end of harvest
Differential pricing and community premium payments	Creation of greater local capacity through small scale investments in appropriate technology, diversification initiatives, and community development projects
Source: Philipps, et. Al 2007	

To some extent, initiatives towards Sustainable Purchasing Practices are now being piloted in Mindanao between FFI and ARBOs, cooperatives, and social enterprises. Key features of kFI contract growing agreements include the following:

a) Agreement is for a period of at least 10 years

b) Contract growers are provided with high-yielding, six-month old, clonal cacao seedlings.

c) Training courses for every stage of the growing process, including field preparation, planting, management of the gestation period, harvesting, pest management, on-going care and maintenance and the rehabilitation of older trees. Regular coaching and monitoring by KFI field-technicians is provided to ensure the implementation of good agricultural practices and the proper application of inputs.

d) Growers may avail of inputs at reasonable price. Financial assistance is available for qualified private farms and cooperatives.

e) Guaranteed buy-back of the harvest at a price linked to the world price.Regular practice of KFI is to buy wet beans from r growers and company takes care of the fermentation, drying and packing. But KFI is also willing to buy fully fermented and dried beans provided these meet their quality standards. Buying prices are always linked to the world price of cacao.

Barry Callebaut, on the hand, prefers to directly work with cooperatives. Firstly, the cooperative is audited, then required to sign a charter, which is signed mutually by Callebaut® and the participating cooperative. Each party then commit itself to a code of conduct that supports sustainable cocoa cultivation. These include mutual commitments to work together and improve the quality of the cocoa, the farms and the living standards of farmers and their families.

D. PRICE AND COST STRUCTURE

1. Income and Profit

The largest cost elements at about 56% in a high input – high yield production system are the fertilizer, insecticide, and fungicide. The use of fertilizer depends on other factors such as the quality of the soil, the level of pests and diseases, and agronomic practices. In the above table, farmers are using both organic and inorganic fertilizer. In many cases, smallholders arbitrarily use fertilizer or cut down on the use of fertilizer to save on costs. Oftentimes, the savings on fertilizer result to overall low profitability in the subsequent harvests.

Table 20. Cost and Returns – 1 Hectare Cacao Farm (800 trees) – First Five Years
High Input High Yield Production System
Grafted Planting Material

Item	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Income						
Average Wet Bean Production (in MT)	-	1.31	3.82	4.91	6.00	16.04
Price of Wet Bean per MT	29,700.00	29,700.00	29,700.00	29,700.00	29,700.00	29,700.00
Gross Income (PhP)	**-**	**38,907.00**	**113,454.00**	**145,827.00**	**178,200.00**	**476,388.00**
Expenses						
Materials						
Tools	5,550.00	-	-	-	-	5,550.00
Seedlings	18,040.00					18,040.00
Dolomite (for soil PH correction)	-	192.00	192.00	192.00	192.00	768.00
Fertilizer 14:14:14	5,400.00	6,264.00	12,960.00	14,256.00	15,682.00	54,562.00
Foliar Fertilizer/Insecticide/Fungicide	4,122.00	8,602.00	6,451.00	6,451.00	6,451.00	32,077.00
Plastic sleeves	-	800.00	2,400.00	3,200.00	3,800.00	10,200.00

Table 20. Cost and Returns – 1 Hectare Cacao Farm (800 trees) – First Five Years High Input High Yield Production System Grafted Planting Material						
Item	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
for CPB control						
Subtotal - Materials	**33,112.00**	**15,858.00**	**22,003.00**	**24,099.00**	**26,125.00**	**121,197.00**
Labor						
Land preparation and planting	9,000.00					9,000.00
Weeding/Farm Maintenance	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00	13,500.00
Fertilizer Application	600.00	600.00	600.00	600.00	600.00	3,000.00
Harvesting		900.00	2,600.00	3,000.00	4,100.00	10,600.00
Subtotal - Labor	**12,300.00**	**4,200.00**	**5,900.00**	**6,300.00**	**7,400.00**	**36,100.00**
Total Costs	**45,412.00**	**20,058.00**	**27,903.00**	**30,399.00**	**33,525.00**	**157,297.00**
Gross Profit						
Gross Profit	**(45,412.00)**	**18,849.00**	**85,551.00**	**115,428.00**	**144,675.00**	**319,091.00**
Gross Profit Margin		**48%**	**75%**	**79%**	**81%**	**67%**
Source: DFI (2014 data)						

Financial success in setting up a cocoa farm requires a quick return on the initial investment and increasing yields to reduce the unit costs. Productivity of grafted seedlings is higher; yield per tree is more or less uniform and are early bearers. On the other hand, ungrafted seedlings have lower productivity because yield per tree is highly variable and 10-20% of trees are shy bearers which means they will not bear fruits at all.

Table 21. Performance Comparison: Grafted and Ungrafted Planting Materials		
Parameters	**Ungrafted Planting Materials**	**Grafted Planting Materials**
Average Yield	0.5 – 0.6 kilos	2-3 kilos
Gestation Period	24 – 36 months	18-24 months
Source: DFI		

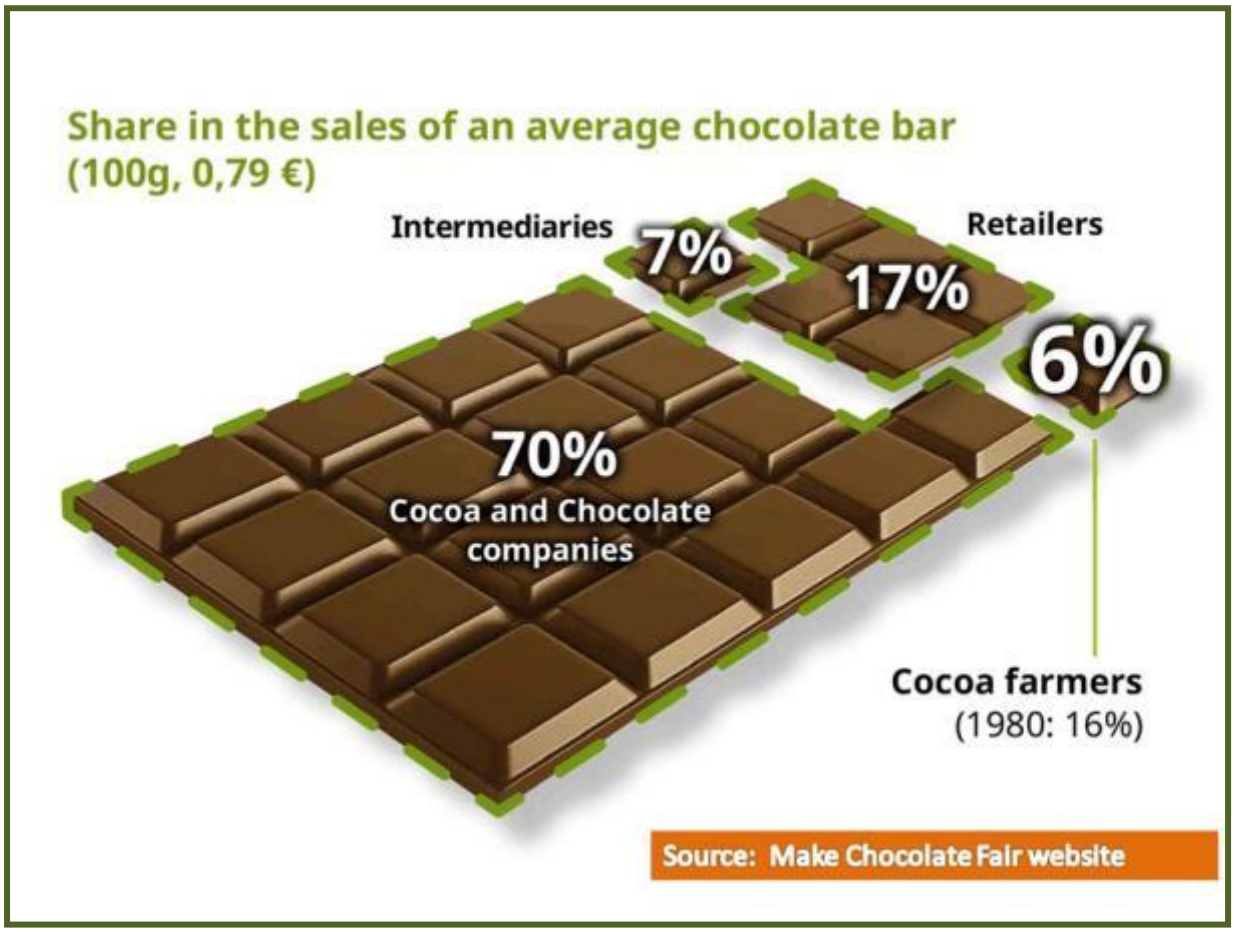
Profitability is most sensitive, as is usually the case in agriculture, to minor changes in market price and marketable yield. Price and yield are the primary sources of risk for the grower. While these risks cannot be eliminated entirely, good agronomic practices, good quality planting materials of high yielding variety, and proper fertilizer management and application enable a cacao grower to avoid what might otherwise be a financially devastating event and to survive a relatively unprofitable year or two.

2. Relative Financial Position of Players

Cocoa Bean for Export

In 2012, the global chocolate confectionery market made net sales of approximately US$ 80 billon, which is estimated to increase to US% 88 billion in 2014. Within the global value chain, most of the money is made after the beans have reached the Global North. At the same time many cocoa farmers and workers in the Global South have to get by on less than 1.25 US dollars a day, below the threshold of absolute poverty. Cocoa growers today receive about 6% of the price that consumers in rich countries pay for chocolate. In the 1980s their share was almost three times as great: 16%.

Figure 21. SHARE OF PLAYERS IN THE SALES OF AN AVERAGE CHOCOLATE BAR



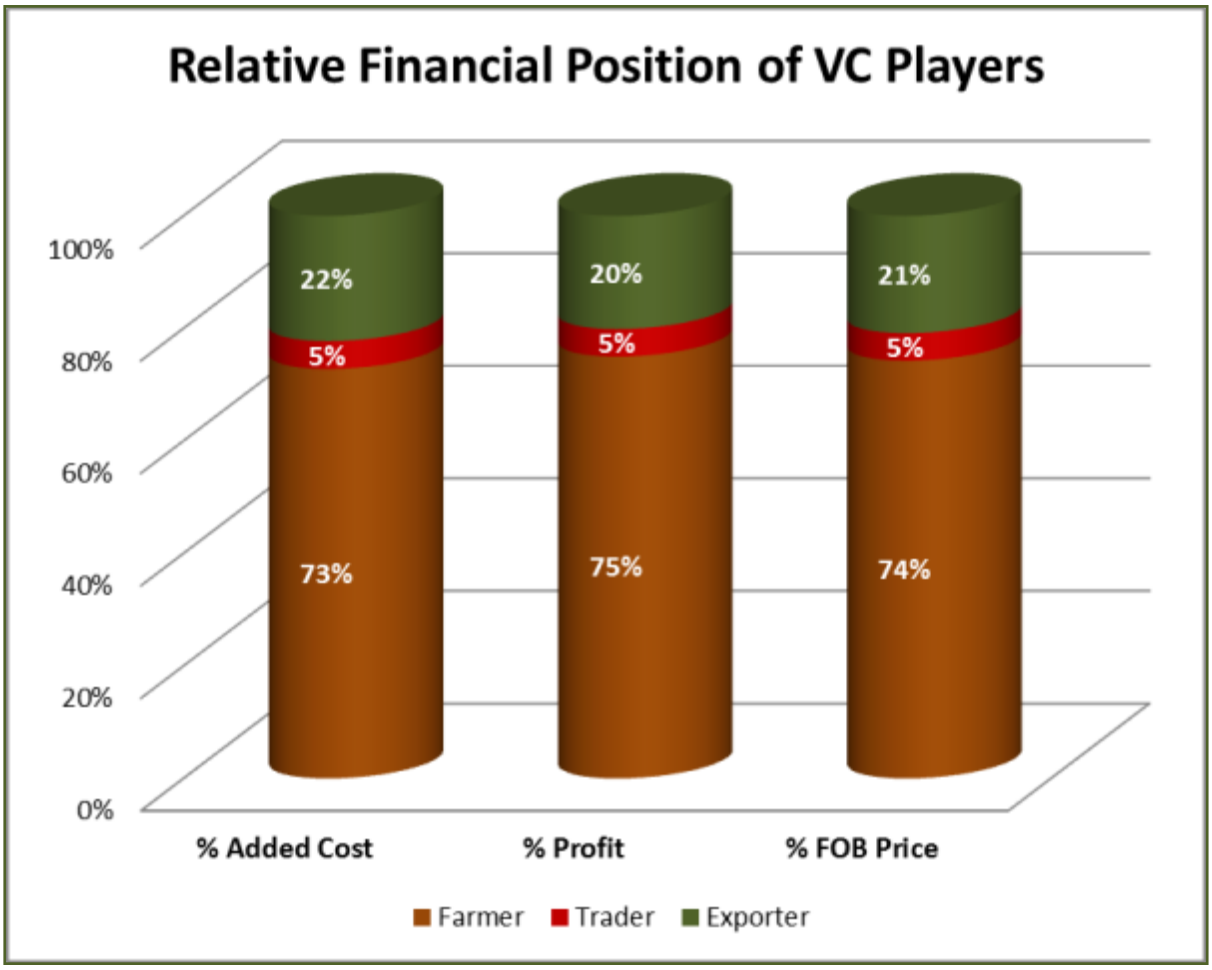
The cost and profit analysis of the cocoa bean for export value chain indicates that cacao farmers get 74% of the FOB price, which is higher than percentage share of farmers in Ivory Coast and Ghana but lower than those received by farmers in Indonesia (about 84%). Similar to the Philippines, Indonesia does not have price controls nor is government involved directly in procurement and logistics services. Likewise, since Indonesia sells primarily unfermented beans, there is very little value addition after the farmer's level. Ghana has a controlled marketing system.The percentage share of cocoa farmers to world market price depends to a significant extent to local trading structures, taxes, infrastructure, and the quality and volume of beans. Over the last ten years, for example,

farmers in Ivory Coast (the largest producer of cocoa beans) attained only between 40 to 50 % of the e market price for their beans. Farmers are not well organized and lack insight into market trends for cocoa prices. They have to sell their cocoa at prices dictated by the intermediaries.

Farmers in Mindanao under the contract growing agreement with KFI are projected to get about70% to 80% of the world market price. Percentage share to world market price can further increase if they undertake the fermentation and drying themselves.

Percentage share to profits depends to a considerable extent on the efficiency and productivity of each of the players. As can be seen from the Figure 21, farmers account for 73% of the cost to produce one kilo of dried beans with a percentage share of 75% of the profit. the margin between the FOB price and the farm gate price in Mindanao can be broken down into marketing and logistical costs, collector/trader margin, and exporter/integrator margin. Traders and integrators generally have slim margins and, thus, need to deal with high volume to make the business viable. The analysis on the relative financial position of players also indicates that price competitiveness of the chain can further be improved through productivity improvement at the farmer's level.

Figure 22. RELATIVE FINANCIAL POSITION OF PLAYERS IN THE CACAO BEAN FOR EXPORT MARKET VALUE CHAIN



Global grinders, chocolate manufacturers, and integrators are confronted with an end-market demanding high quality cocoa. A challenge for these companies is how to secure the supply over longer periods, knowing that there is an increasing demand all over the world and a decreasing cocoa production due to declining soil fertility and neglected genetic resources. Global players in the cocoa industry increasingly recognize that a fair and decent income for farmers is a precondition

to making the chain sustainable and for farmers to invest in upgrading. Long term relationships with farmers and their organizations, and investing in farmer organisations to ensure quality, sustainability claims and sufficient supply in the future, is crucial for their own survival. The 14% gross profit of integrators is partly spent in supporting the development of the cocoa industry in Mindanao. For companies like Mars and Kennemer, sustainability of the cocoa industry is part of the strategy and business practices, with focus on the viability of smallholder farmers and the needs of communities. Lead firms have clear incentives to establish closer, more directed supplier relationships in order to secure their supply of cocoa beans and improve the quality and consistency of their raw materials.

Table 22. Relative Financial Position of Players in the Cocoa Beans for Export Value Chain In Philippine Pesos

Assumptions:
3 kilos of wet beans = 1 kilo dry beans
Costs: Year 5 cost + share of establishment cost (4%)/ Intercropping/Low input farming system
Yield: 672 kilos dried beans or 2016 kilos wet beans
Based on Davao Region scenario

Player	Product	Unit Cost	Added Unit Cost		Selling Price	Profit		Share to FOB Price	
			Value	%		Value	%	Value	%
Farmer	Wet beans	29.43	29.43	73%	89.10	59.67	75%	89.10	74%
Trader	Wet beans	91.10	2.00	5%	95.00	3.90	5%	5.90	5%
Integrator	Fermented Beans	104.00	9.00	22%	120.00	16.00	20%	25.00	21%
Total			40.43			79.57		120.00	

Source: KII/FGD

Tablea

Table 23. Relative Financial Position of Players in the Tablea Value Chain In Philippine Pesos

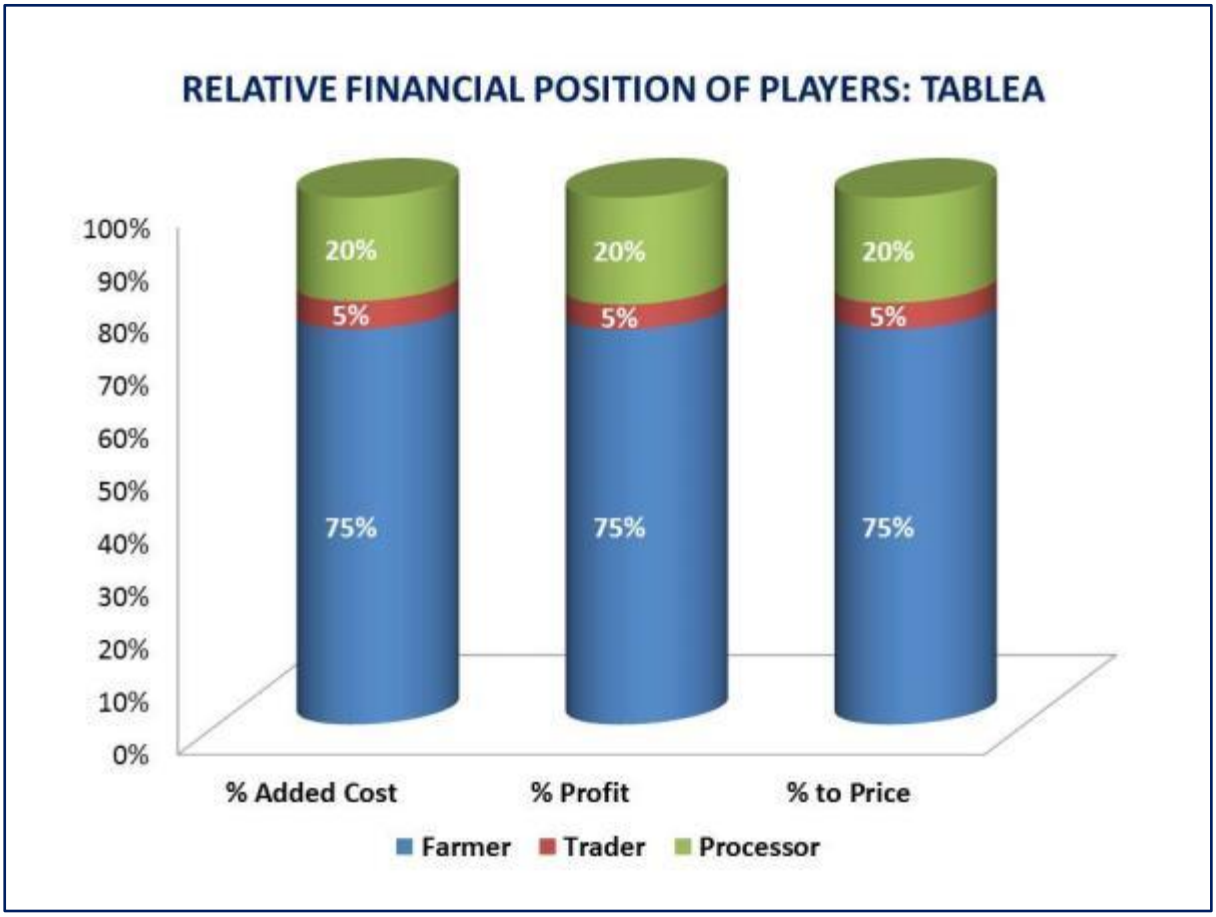
Assumptions:
2 kilos of dry beans= 1 kilo tablea
Cost of production of 1 kilo beans is PhP 14 --- typical cost of regions other than Davao

Player	Product	Unit Cost	Added Unit Cost		Selling Price	Profit		Share to FOB Price	
			Value	%		Value	%	Value	%
Farmer	Wet beans	84	84	75%	180	96	75%	180	75%
Trader	Wet beans	186	6	5%	192	6	5%	12	5%
Processor	Tablea	214	22	20%	240	26	20%	48	20%
Total			112			128		240	

Source: KII/FGD

The distribution of costs and profits in the tablea chain is equitable. In the production of 1 kilo of tablea, farmers account for 75% of the cost and 75% of the profit. Likewise, percentage share of farmers to wholesale price of 1 kilo of tablea is 75%. It should, however, be noted that in many cases, tablea processors are set-up as vertically integrated operators (e.g., a tablea processor sources beans from own farm, coops produce the beans or source the beans from members and then collectively process and sell the tablea).

Figure 23. RELATIVE FINANCIAL POSITION OF PLAYERS IN THE TABLEA VALUE CHAIN



Section 4:
MARKETS AND MARKET OPPORTUNITIES

A. MARKETS AND MARKET TRENDS

1. Export Market

Philippine Exports

Table 24. Philippine Export Trends of Key Cocoa Products, 2009 – 2013
Notes: Volume - in MT Value – in US Dollar % Share – based on 2013 Volume
Y-on-Y – Year-on-Year GrowthVol - Volume

Export Products and Indicators	2009	2010	2011	2012	2013	Key Destinations	
						Country	%Share
Cocoa Beans (Raw or Roasted)							
Volume	299	196	127	440	553	Malaysia	47%
Value	465,000	504,000	356,000	639,000	1,078,000	Singapore	37%
Cost per MT	1,555	2,571	2,803	1,452	1,949	HongKong	5%
Y-on-Y Vol		-34%	-35%	246%	26%	Indonesia	5%
Y-on-Y Price		65%	9%	-48%	34%	Japan	3%
Cocoa Butter							
Volume	562	747	954	997	458	USA	45%
Value	2,271,000	2,663,000	3,122,000	2,065,000	1,961,000	Netherlands	27%
Cost per MT	4,041	3,565	3,273	2,071	4,282	UK	27%
Y-on-Y Vol		33%	28%	5%	-54%		
Y-on-Y Price		-12%	-8%	-37%	107%		
Cocoa Paste							
Volume	121	41	265	245	138	Indonesia	100%
Value	42,000	107,000	992,000	623,000	517,000		
Cost per MT	347	2,610	3,743	2,543	3,746		
Y-on-Y Vol		-66%	546%	-8%	-44%		
Y-on-Y Price		652%	43%	-32%	47%		
Cocoa Powder							
Volume	313	663	812	21	15	Saudi Arabia	33%
Value	225,000	1,768,000	766,000	15,000	64,000	UAE	27%
Cost per MT	719	2,667	943	714	4,267	Malaysia	20%
Y-on-Y Vol		112%	22%	-97%	-29%		
Y-on-Y Price		271%	-65%	-24%	497%		

Table 24. Philippine Export Trends of Key Cocoa Products, 2009 – 2013
Notes: Volume - in MT Value – in US Dollar % Share – based on 2013 Volume
Y-on-Y – Year-on-Year GrowthVol - Volume

Export Products and Indicators	2009	2010	2011	2012	2013	Key Destinations	
						Country	%Share
Chocolates and other preparations							
Volume	784	863	786	1028	3002	USA	72%
Value	1,831,000	1,922,000	1,812,000	2,484,000	7,554,000	Thailand	11%
Cost per MT	2,335	2,227	2,305	2,416	2,516	Palau	3%
Y-on-Y Vol		10%	-9%	31%	192%		
Y-on-Y Price		-5%	4%	5%	4%		
Source: Intracen							

Between 2009 and 2013, cocoa bean export increased from 299 MT in 2009 to 553 MT in 2013. In 2013, main buyers were Malaysia and Singapore accounting for 47% and 37% respectively. According to integrators and exporters, volume of cacao bean exports is dependent more on domestic supply of beans rather than demand.

Export of cocoa butter was on an increasing trend from 2009 to 2011. Percentage increase in export volume in 2011 though was only at 5% based on 2010 performance. In the past (early 2000s), butter used to be the main export of the Philippines. Main buyers of cocoa butter from the Philippines are the United States, Netherlands, and the United Kingdom. Butter is usually used in the manufacture of luxury chocolate products. During the recent years, there has been a slump in the demand for luxury chocolate due to financial recession. Likewise, the increase in price of cocoa beans also significantly pushed butter prices higher. As such, many chocolate makers especially in Asia have started replacing a bigger proportion of cocoa butterwith cheaper palm oil-based alternatives.

Cocoa powder exports fell from 313 MT in 2009 to 15 MT in 2013. Indonesia was the only buyer of cocoa powder in 2013. It is said that imported cocoa powder is cheaper and of better quality than those produced in the Philippines. Likewise, big grinders have moved their operations to Malaysia and Singapore due to bean supply constraint and lower electricity cost.

Chocolates and other food preparations containing cocoa comprise majority of the country's exports. In 2013, the country exported 3002 MT of chocolate valued at US$ 7,554,000. This category includes cocoa blocks and slabs.

Table 25. Trade Indicators: Philippine Cocoa Exports

	Cocoa Beans	Cocoa Butter	Cocoa Paste	Cocoa Powder	Chocolates/Food Preparation
Annual growth rate in value between 2009 – 2013 (% p.a)	21%	-5%	97%	-52%	36%
Annual Growth Rate in Volume between 2009 – 2013 (% p.a)	23%	-1%	23%	-61%	33%
Annual growth of world imports between 2009-2013 (%, p.a.)	-4%	-7	8%	16%	10%

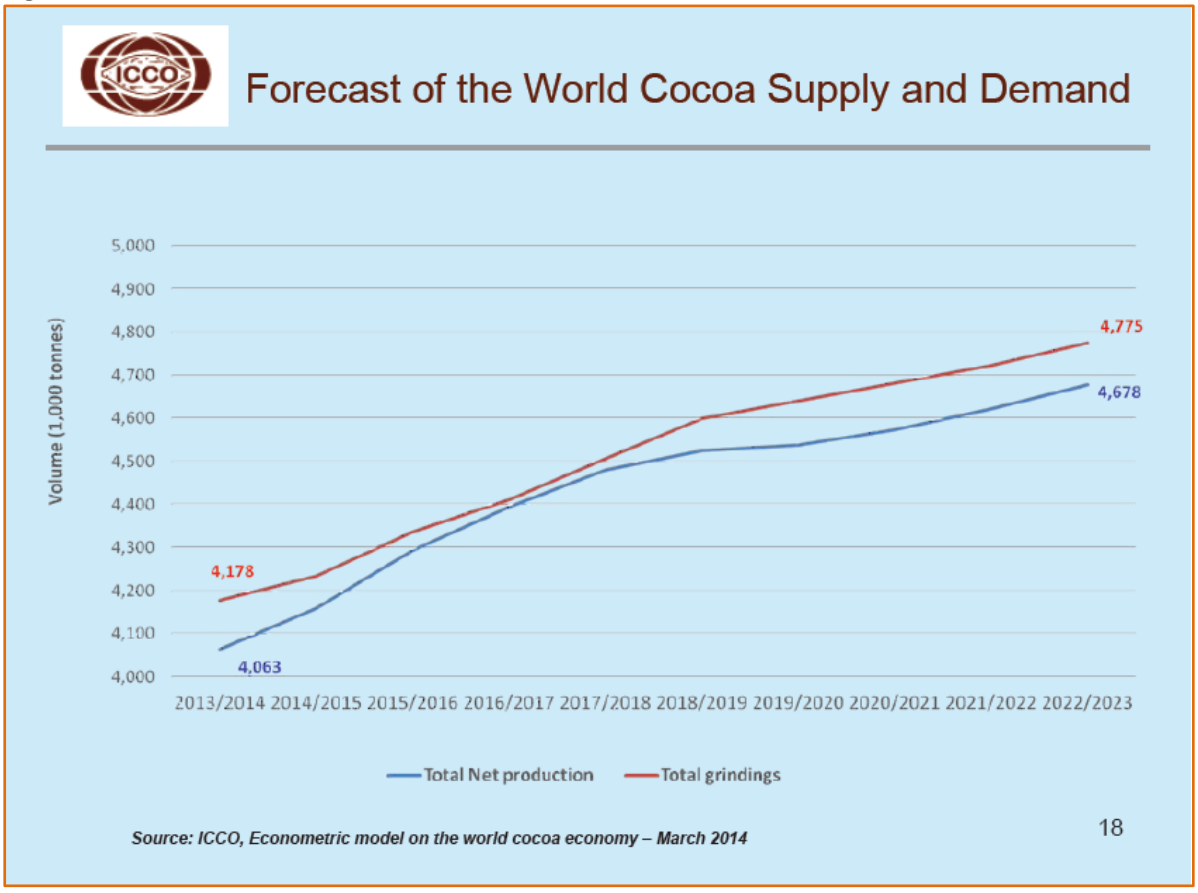
Share in world exports (%)	neglible	0.1%	neglible	neglible	neglible
Ranking in world exports	46	33	36	78	71

Source: Intracen Trade Map/International Trade Center
Note: All calculations taken from Intracen

Although share of Philippines in world exports in 2013 was still very low, trade statistics indicate that annual growth rates of Philippine exports of cocoa beans, paste and chocolate between the period 2009 and 2013 were higher than annual growth of world imports. This, in a way, provides a good indication that beans, paste, and chocolates from the Philippines have good growth potentials in the export market.

World Market Trends

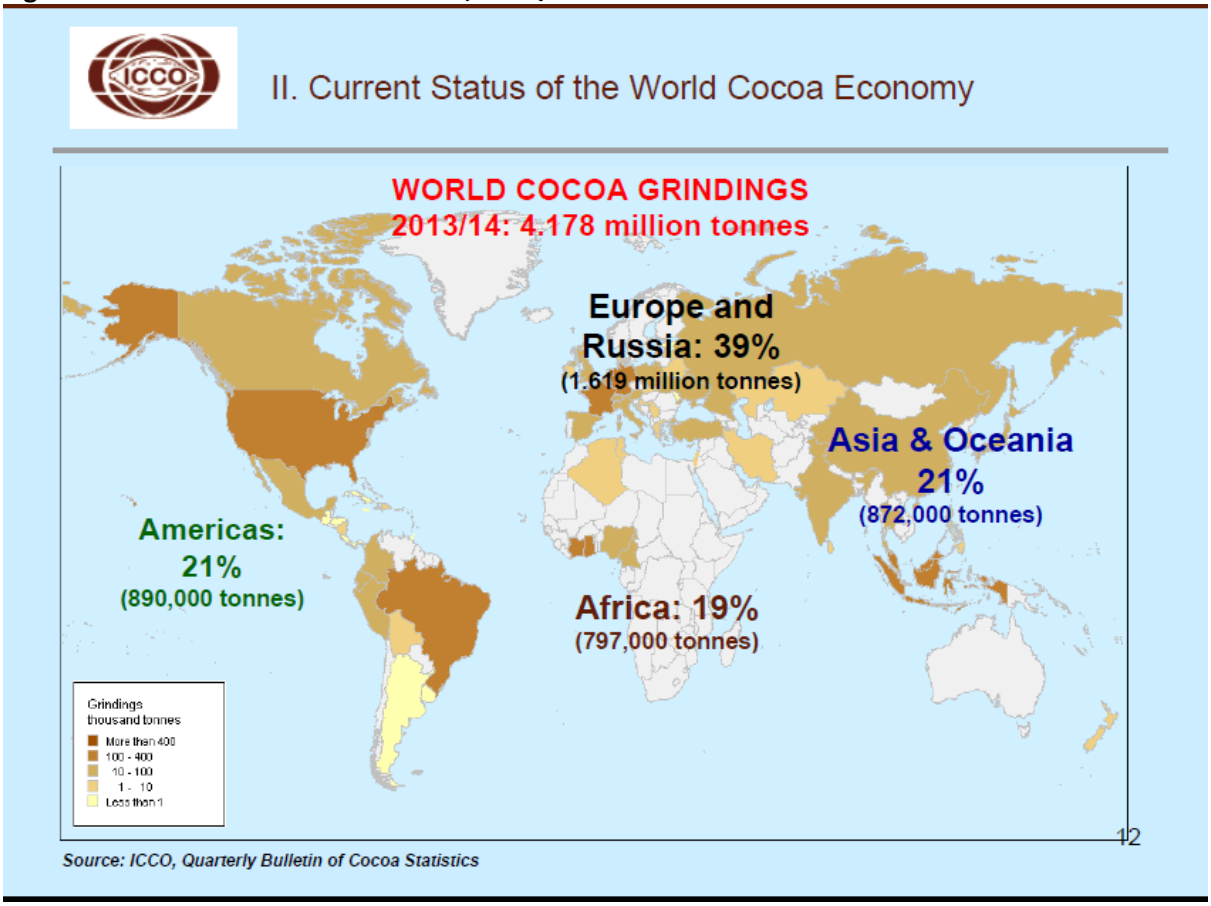
Figure 24. FORECAST OF THE WORLD COCOA SUPPLY AND DEMAND



Cocoa bean global value in 2011/12 was calculated by Euromonitor International and ICCO to be about US$ 10 billion. Retail value of global chocolate sales in 2012 was about US$ 107 billion. Based on revised estimates released by ICCO last May 2014, cocoa bean supply deficit in 2012/13 was about 193,000 metric tons. In 2012/13, world grindings was about 4.083 million representing an increase of 2.4% over the previous seasonwhile cocoa bean production decreased from 4.080 million metric tons to 3.929 million MT. Deficit for 2013/14 is estimated at 75,000 MT. With world consumption of chocolate forecasted to increase from 7.3 million MT in 2012 to 8.2 million MT in 2017 or an 11% increase, the Cocoa Barometer 2012 report projected that the market would require roughly about 5 million MT of cocoa beans by 2020. In ICCO's latest forecast which is presented in a graph above, consumption would increase faster than production and supply gap would be about 97,000 to 100,000 MT even if world production would increase to 4.6 million MT based on historical annual growth rate .

Europe has the largest chocolate industry in the world and accounts for around 39% of global cocoa grindings. The Netherlands is the largest processing country by volume, handling about 13% of global grindings.The remaining 61% is divided between Africa (19%), Asia and Oceania (21%), and the Americas (21%).
While Europe remains the main grinder of cocoa and principal source of demand, growth in consumption in Asia is set to gradually transform patterns of global cocoa demand.While demand in Asia ranked as the world's lowest per capita in 2013, the market will grow at almost twice the global rate over the next four years, according to Euromonitor International Ltd. Barry Callebaut, based in Zurich and the world's largest producer of bulk chocolate, has doubled capacity in Asia since 2009 while Cargill Inc. and ADM added bean-processing plants.

Figure 24. WORLD COCOA GRINDINGS, 2013/14



The rising demand for chocolate and cocoa in Asia has resulted in an expansion of the cocoa processing industry in Indonesia. With the 2014 production of cocoa beans in Indonesia projected to further decrease to 400,000 MT, cocoa bean imports (mainly high quality fermented beans from West Africa) are expected to increase by 300% (to about 150,000 tons) in order to meet the needs of the industry. Last April 2014, the Indonesian Ministry of Agriculture has removed the 5% import duty on cocoa beans in order to provide the processing industry with the beans it needs and thus avoid a shortage.

On the other hand, to respond to the projected demand of cocoa beans, 12 chocolate companies, including Nestle, Mars and Barry Callebaut, have recently signed a joint agreement with the governments of Côte d'Ivoire and Ghana to improve planting and fertilizing methods used by

300,000 farmers. All sides have agreed to safeguard against the use of child labour, which is a black mark on the global chocolate trade.

Netherlands leads in import of beans. As a major producer of cocoa food products, the United States is the top importer of cocoa powder. France, one of the biggest chocolate consumption per capita markets, is the top importer of chocolate preparations.
Table 27 describes the characteristics that global buyers tend to look for in suppliers. The characteristics were drawn from interviews with global buyers during a value chain assessment of the Indonesian cocoa industry conducted by AFE; a US based firm specialized in value chain development. In terms of product quality, the market considers cocoa from Ghana as the "gold standard cocoa" against which others are judged and differentials are paid.

Table 26. Competitiveness Characteristics of the Cocoa Bean in the Global Market

Competitiveness Characteristics	Description
Consistency of Quality	This is based on generally accepted parameters and indicators of cocoa bean quality used in the trade, including bean count (number of beans per 100 grams; <110 beans), moisture content (<7.5 p%), and percentage of waste materials (<10 %).
Fat Content	Percentage of fat content refers to the amount of fat or cocoa butter that can be extracted from the beans during processing. A high fat content is preferable.
Flavor	Flavor can be accentuated with proper fermentation. Flavor also depends on the genetic trait of the cocoa bean itself. Stronger flavor beans are required for higher quality food and pharmaceutical cocoa products.
Price	The price per MT of cocoa beans is a strong determinant of value chain competitiveness (though not one that can be looked at in isolation). Price often reflects other characteristics (i.e., a lower price may reflect inconsistency of quality, low fat content, etc.), and is not considered in isolation by global buyers.
Availability of Supply	This pertains to the volume and reliability of cocoa bean supply
Infrastructure and Logistics	Efficiency and availability of transportation and infrastructure to move beans from producers to the global buyer This also includes the efficiency of port operations, inspection services, and other logistical export services.
Legal/Policy Environment	This includes government and public sector policies and regulations (taxation, support and/or interference, standards, contracts, certification, etc). The legal and policy environment can have a positive or negative influence on competitiveness.

The demand for certified cocoa used to be limited to niche markets under minor confectionery brands. In response to pressures from consumers for cocoa processors and chocolate manufacturers to be transparent about their chain especially with regards to their environmental footprint, to provide product information (traceability), and to pay fair prices to farmers parallel to the need to

increase cocoa bean production to cope with demand, there is an increasing demand for certified cocoa beans. Demand for cocoa that can be traced to a specific origin and in certified production systems that follow certain social and environmental guidelines is expected to reach 50% of total world demand by 2020 (Cocoa Barometer 2012). Early in 2010, Cadbury (which was taken over by Kraft in February the same year) announced that it would use only Fair Trade certified cocoa beans in its best-selling chocolate brand in the UK, Dairy Milk. In 2009, Mars Inc. announced that it would use only Rainforest Alliance-certified cocoa in its popular Galaxy brand, and that by 2020; all cocoa beans would be from sources certified as 'sustainable'. Similarly, Nestle in partnership with cocoa processors such as Cargill and Olam are also increasingly buying only from farms and cooperatives which employ sustainable practices. In Mindanao, only CSI has acquired a Rainforest Alliance certification. The major standard bodies are Rainforest Alliance, FairTrade, UTZ, and Organic Cacao. in order to offer high enough volumes and to make certification - and traceability - feasible, farmers will need to ally themselves in well organized farmer groups.

Table 27. Sustainable Cocoa Sourcing Commitments

Company	Sustainable Cocoa Targets	Latest Known Purchasing Status
Barry Callebaut	No commitment	12% in 2012
Cargill	25% by 2015	8% in 2011
Ecom	19% by 2015	12% in 2011
Ferrero	100% by 2020	25% in 2011/12
Hersheys	100% by 2020	18% in 2013
Mars	100% by 2020	20% in 2012
Mondelez	11% by 2015	8% in 2011
Nestle	Increase sourcing to 15%	11% in 2012
Olam	No commitment	10% in 2011
Source: Cocoa Butter 2012/CSR		

2. Domestic Market

Table 28. Philippine Import Trends of Key Cocoa Products, 2009 – 2013

Notes: Volume - in MT Value – in US Dollar % – Percentage share based on 2013 Volume
Y-on-Y – Year-on-Year Growth Vol - Volume

Imports and Indicators	2009	2010	2011	2012	2013	Key Destinations	
						Country	%
Cocoa Beans (Raw or Roasted)							
Volume	13	738	307	150	223	Uganda	69%
Value	49,000	2,452,000	1,072,000	371,000	583,000	Malaysia	23%
Cost per MT	3,769	3,322	3,492	2,473	2,614	India	5%
						Netherlands	3%
Cocoa Butter							
Volume	860	1031	839	315	389	Malaysia	58%
Value	523,000	866,000	1,531,000	701,000	829,000	Indonesia	36%
Cost per MT	608	840	1,825	2,225	2,131	China	6%

Table 28. Philippine Import Trends of Key Cocoa Products, 2009 – 2013
Notes: Volume - in MT Value – in US Dollar % – Percentage share based on 2013 Volume
Y-on-Y – Year-on-Year Growth Vol - Volume

Imports and Indicators	2009	2010	2011	2012	2013	Key Destinations	
						Country	%
Cocoa Paste							
Volume	6080	5434	4522	640	579	Indonesia	48%
Value	10,122,000	17,250,000	17,904,000	2,418,000	1,939,000	Australia	33%
Cost per MT	1,665	3,174	3,959	3,778	3,349	Singapore	10%
						Malaysia	6%
Cocoa Powder							
Volume	13,284	15,024	13,872	11,120	13,340	Malaysia	41%
Value	21,339,000	42,634,000	54,658,000	42,287,000	40,950,000	Singapore	25%
Cost per MT	1,606	2,838	3,940	3,803	3,070	Indonesia	22%
						Netherlands	6%
						China	3%
Chocolates and other preparations							
Volume	11,645	12,453	12,710	13,939	16,655	China	22%
Value	26,689,000	28,648,000	30,851,000	34,898,000	38,561,000	Australia	16%
Cost per MT	2,292	2,300	2,427	2,504	2,315	USA	16%
						Indonesia	9%
						Singapore	6%
COCOA SHELL, HUSKS, AND WASTE							
Volume	2,151	2,032	1,753	1,969	2633	Malaysia	65%
Value	258,000	331,000	279,000	335,000	407,000	Indonesia	23%
Cost per MT	120	163	159	170	155	Singapore	12%
Source: Data from Intracen							

Philippines is a net importer cocoa products. In 2013, value of Philippines importation of cocoa products reached US$ 80,871,000. Total export earnings from cocoa products of the same year was just about 14% of total value of cocoa importation.

Philippines is the second-largest confectionery market in Asia, next to Indonesia. According to Euromonitor International, the Philippines chocolate market is forecasted to grow 13% by 2017 to US $ 306.3 million. Annual domestic cocoa consumption is estimated to be equivalent to 50,000 MT of cocoa beans. Large users of chocolate and cocoa products source their supply requirements mainly from Malaysia and Indonesia as local cocoa supply is not sufficient and quality of by-products tend to be inconsistent particularlyfermentation and grinding quality.

The domestic chocolate manufacturers in the country generally import cocoa powder rather than beans. Excluding chocolates, cocoa powder comprise about 78% of the country's importation. From 2009 to 2013, Philippines imported an average of 13,282 MT of cocoa powder. The cocoa powder, which is usually imported from Malaysia and Indonesia, is processed using a mix of high quality beans from West Africa and the low quality and cheaper beans from Indonesia. The production of cocoa powder is an opportunity that can be pursued by Mindanao in the medium term. According to

industry players, critical to the viability of a grinding operation is a supply base of at least 30,000 hectares of cacao plantations and good quality fermentation.

Table 29. Trade Indicators: Philippine Cacao Imports, 2009 - 2013			
Cocoa Imports	**Trade Balance 2013 (US$ thousand)**	**Annual Growth in Value: 2009 - 2013 (%, p.a.)**	**Annual Growth in Volume: 2009-2013 (%, p.a.)**
Powder	-40,886	14%	-3
Chocolate	-31,007	10%	9
Paste	-1,422	-41	-50
Butter	1,132	7%	-24
Beans	495	36%	51
Shell/Waste	-407	10%	4

Philippines is a net exporter of beans and butter. However, volume of bean imports increased by an average of 51% annually between 2009 to 2013 and value increased correspondingly by 36%. Volume of powder imported decreased by 3% annually but value increased by an average of 14% per year. Importation of chocolates increased at annual growth rate of 9% in volume and 10% in value. Volume of cacao shells and waste imports increased at an average rate of 4% per year.

B. PRICE TRENDS

1. Export Market

During the past 20 to 30 years, prices show some evidence of a long-term cyclical trend with relatively brief periods of very high prices, reaching up to US$ 4,000 per metric tons and heavy plantings, followed by prolonged periods of relatively low prices, mainly in the range of $1,000 - $1,500 per metric ton, in which many farmers lose interest. However, this cycle may be changing as analysts predict cocoa production may be flattening out, in part due to the limits of suitable production areas, and compounded by ageing trees and pest problems. Given this scenario and if trend of demand outstripping supply continues, then it is most likely for prices to increase significantly.

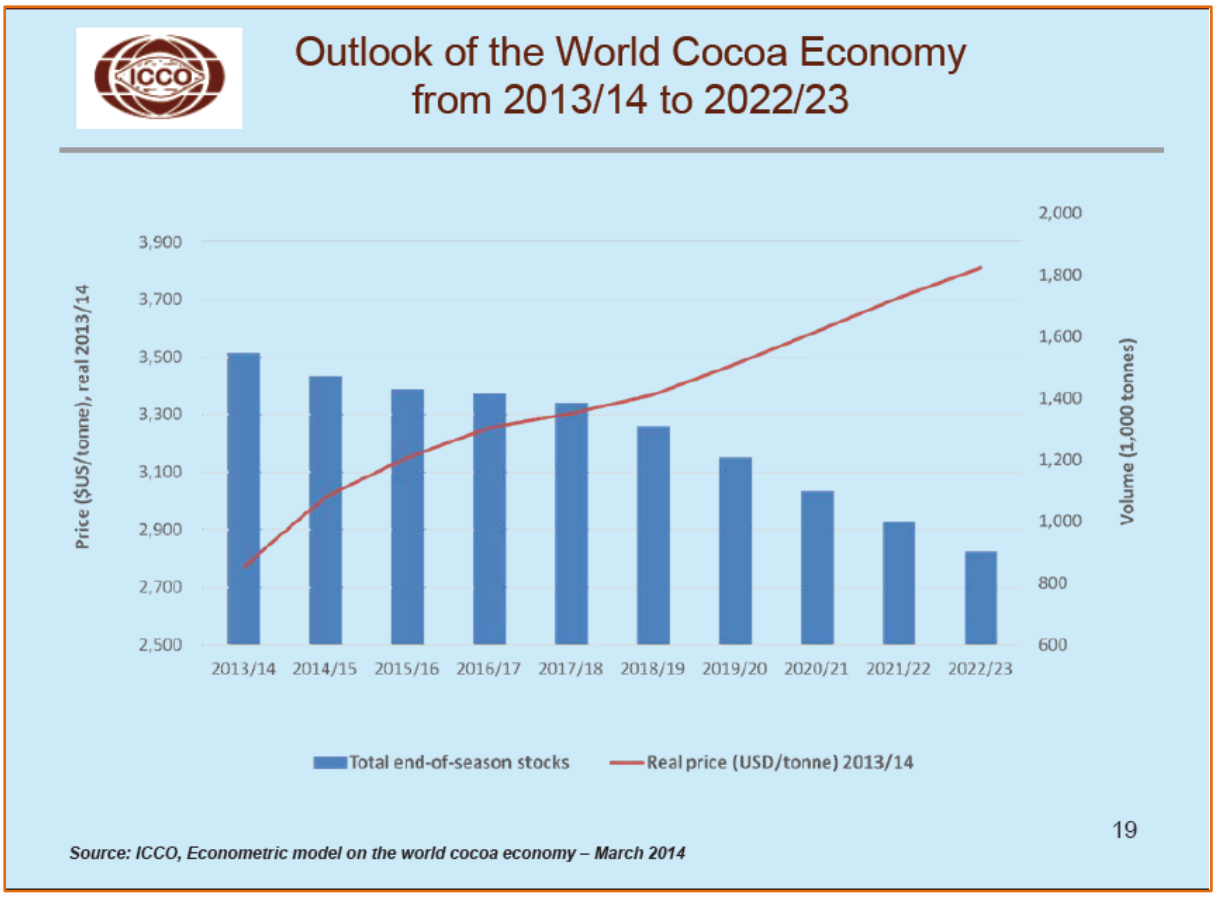
Cocoa prices are affected by various factors including stock/grind ratios, expectations for future production/demand, global food prices, and consolidation/fragmentation in cocoa trade and processing industries. These components generally set the tone for long-term trends in cocoa prices while trading by investment funds tend to drive movement in the short-term. In the medium term, economies of cocoa consuming countries influence the price.

Table 30. Factors Affecting Price of Cocoa Beans	
Longer-term Price Trends	**Shorter-term Price Trends**
Changes in supply and demand	Favorable weather conditions (good crop – price

Table 30. Factors Affecting Price of Cocoa Beans	
Longer-term Price Trends	**Shorter-term Price Trends**
Ratio between stocks and grindings: a falling stocks to grindings ratio pushes prices up and vice versa Corporate acquisition and disinvestment in the cocoa trade and processing industry	will most likely fall) Periods of extreme wet or dry weather, crop diseases, pest infestation, or poor crop maintenance (poor crop – price will most likely increase) Cost and availability/Lack of pesticides and fertilizer Producers withholding stocks in the expectation of higher prices Political instability in key producing countries Speculative trading in futures market
Source: Fairtrade and Cocoa/Fairtrade Foundation	

From 2007 to 2011, there was an overall increase in cocoa price, but it has been prone to volatility from 2008 through 2011, leading to a 30-year high of $3,625/MT in January 2010 and dropping back to $2,200/MT in December 2011. In 2012, cocoa prices were less volatile with fluctuations ranging from 4% to 8% per month. In December 2013, the ICCO daily price averaged US$2,825 per MT, up by 28% over December 2012 average price.

Figure 26. PROJECTED END-OF-SEASON STOCKS AND COCOA BEAN PRICE, 2013/14 TO 2022/23



Growth in Asian demand has contributed to a rally in cocoa prices.Last July 2014, price climbed to US$2,958, the highest level since August 2011. Higher prices could help, by potentially persuading farmers to invest more in their cocoa farms.

Table 31shows the indicative prices paid by importing countries for cacao beans. Although it is quite difficult to compare export prices of cocoa beans between Philippines and top exporting countries because of the difference in volume and lack of information on bean format, it can be gleaned that importing countries generally paid higher price for cacao beans from top producing countries. Likewise, Ghana which is known for its premium quality beans generally fetched the highest price. Price differences may be generally attributed to volume and quality.

Table 31. Indicative Unit Export Price per MT of Cacao Beans, 2013
Volume: In MT
Unit Price: US$/MT

Importing Country	Philippines		Indonesia		Ivory Coast		Ghana	
	Volume	Unit Price	Volume	Unit Price	Volume	Unit Price	Volume	Unit Price
Malaysia	259	2,232	126,402	2,390	49,546	2,890	42,110	2.890
Singapore	206	1,714	32,350	2,247	1170	2,321	27,999	2,690
Netherlands	13	2,538	188	2,989	202,576	2,555	118,020	2,584
Hongkong China	30	800						
China			8320	2,308	7,331	2,423	22238	2,223
Japan	15	1,200	118	4,746	1,614	2,898	33,022	2,560

Table 31. Indicative Unit Export Price per MT of Cacao Beans, 2013 Volume: In MT Unit Price: US$/MT								
Importing Country	**Philippines**		**Indonesia**		**Ivory Coast**		**Ghana**	
	Volume	**Unit Price**	**Volume**	**Unit Price**	**Volume**	**Unit Price**	**Volume**	**Unit Price**
Source: Intracen/International Trade Center								

Approximately 80% of international trade in cocoa beans is based on fat content versus 20% based on flavor content of beans. West Africa produces cocoa beans that have a generally high content of both fat and flavor, which accounts for the global premium paid for cocoa from Ghana and Cote d'Ivoire. Indonesian cocoa beans, on the other hand, are traded at a discount to the standard NY terminal price. Indonesia's primary competitive advantage in global cocoa trade lies in its ability to supply large quantities of unfermented beans. Philippines and Mindanao in particular is aiming to be known as supplier of high quality fermented beans.

2. Domestic Market

Unlike many cocoa farmers in the rest of the world, cocoa farmers in Mindanao receive a high percentage of the international price. The farm-gate price for cocoa beans can range between70% to 80% of the international terminal exchange price. When domestic demand is very high, farm gate price can be higher than the terminal price. In West Africa, cocoa farmers receive from 50 to 63% of the final FOB price (Panliboton/USAID Cocoa Assessment).

The actual price that farmers receive per kilo of cocoa beans is determined to a significant extent by the daily international cocoa market price. That price is negotiated on the futures markets, of which the London International Financial Futures and Options Exchange and the New York Board of Trade are the most important. These markets trade daily the equivalent of 0.2 million tons of cocoa beans through futures contracts. Once an initial price is established, exporters and integrators in Mindanao apply the discounting process to reduce the initial price based on certain quality parameters. Key quality parameters include moisture content, bean count (i.e., number of beans per 100 grams), percentage of waste, moldiness, and clumped or flat beans. Small beans from old varieties, for example, receive a price discount ranging from PhP 3 to 5. Distance from fermentation facilities of buyers is also a factor with remote areas getting an average ofPhP 1 to 2 per kilo discount. To address costs associated with distance, exporters/integrators are setting up satellite offices and hope to set-up fermentation facilities as soon as area achieves a critical supply base.

The discounted price set by exporters/integrators plus the cost of intermediation and margins of intermediaries determines the price paid by local traders. Price in the export market is also the basis for cocoa beans traded for local consumption. The price is then trickled down to traders and local agents. The basic This discounting process (along with a margin that reflects the cost of intermediation) determines the prices paid by market intermediaries.

Price of wet beans fluctuates between PhP 22 to 30 per kilo while price of dried beans ranges from PhP80 to 120 per kilo depending on international price.Dried bean prices have moved up from as low as P30.00/kg in 2007, P70.00 in 2009 to as high as P120 in 2014. Prior to the entry of integrators, price of cacao beans were controlled by local traders. With the entry of multiple exporters of dried beans in the Davao Region in 2008 and in other regions just in the recent months, competition among buyers resulted to the improvement of farm gate prices. Dried fermented cocoa beans get a premium of around P10.00 per kilogram over unfermented beans.There are still local traders who

prefer to buy beans at a flat price regardless of quality. Likewise, there are also cases where there is no difference or very little difference in the price paid for wet beans as against dried fermented beans. The disregard in quality differences usually occurs at the level of local traders.

For chain actors especially farmers, price levels are a very important incentive to produce, but also the predictability of the price during the year is an important issue that influences business decisions. Cocoa is characterized by a volatile world market price, varying between weeks and months. The various factors affecting price are quite difficult to control as these emanate from different points across the globe. To a significant extent, fluctuations in price deter farmers especially those with high risk aversion from making the necessary investments for increasing productivity and production. Some countries have mechanisms to fix and stabilize these prices during specific periods, and some countries have developed institutional arrangements in the value chain to target specific qualities with higher than average prices on the world market. These mechanisms have, to some extent, insulated farmers from the effects of price fluctuations. However, studies have also shown that in cocoa producing countries with marketing boards (usually government managed) and price control mechanisms, farmers' share to export prices is lower compared to those in countries with liberalized markets/ prices.

In the short term, the concern of Mindanao stakeholders may be addressed through improved implementation of price transparency measures. A careful study has to made to determine the most appropriate institutional arrangement and policy instrument that will both mitigate risks from price fluctuations and, at the same time, enable Mindanao farmers and chain players to have a fair share in the export price. The growership agreement offered by KFI and other integrators provide some protection to farmers and an assurance that farmers will at minimum get 70% share of the international market price.

Section 5:
SUPPORT SERVICES

A. FINANCIAL SERVICES

Integrators and exporters are the main parties oiling the market chain. The integrators and, sometimes, the exporters provide pre-financing or working capital to their agents. Marketing and contract growing agreements with integrators can facilitate famers' access to loans from banks for planting materials and inputs. In some cases, integrators extend loans for inputs in partnership with corporations (under the Corporate Social Responsibility program – e.g, LBC Foundation, TVIRD, etc.) and global players in the cocoa industry that they are affiliated with.

Farmers' finances tend to be precarious, which makes it difficult for them to invest in inputs making them vulnerable to crop failure, price drops, etc. The financing needs of cocoa farmers fall into three

categories: finance for inputs, consumptive credit, and finance for investment. In many cases, these are sourced from traders and informal money lenders. Cooperatives and farmer groups also need short and medium term financing for purchases of cocoa beans and investments in nursery operations, organic fertilizer production, and post harvest facilities to support their members and to promote their own sustainability.

Farmers prefer to borrow from traders/intermediaries over other possible sources due to the following reasons: a) traders do not charge outright interest rates although some embed interest rate on price paid for cocoa beans; b) loans are easy available without any collateral and papers; and c) repayment of loans from collectors is easy, as do not generally have any terms and conditions except for a promise to sell the harvest to them. Traders have good knowledge about the cocoa harvest and if there are times when the output of cocoa is not sufficient, collectors do not force repayment of a loan. However, intermediaries are generally prudent in disbursing the loan amount, as they are aware of each farmer's land area and the status of cocoa cultivation. Likewise, loans from intermediaries are also constrained by the funds that they own and are able to access.

Table 32. Providers of Financial Services (Formal)

Agency/Institution	Description
Land Bank of the Philippines	Agricultural Credit Support Project (ACSP) for production loan Interest rates: Prevailing comm. rates of interest, short/long term Loan requirements: Collateral can include produce (deed of assignment) *Cacao 100 Program:* Last December 2013, Land Bank approved the Cacao 100 Program, a loan facility targeted for a high value and long gestating crop such as cacao. The loan has a 5 year term with 2 years grace period and lending can be done through 4 platforms; individual loans, clusters, cooperatives and rural banks. The goal of this program is to be able to provide single digit interest rates for individual farmers. Farmers can borrow up to PhP 75,000 per hectare. *Agrarian Production Credit Program (APCP):* APCP is a joint program of Department of Agrarian Reform, the Department of Agriculture and Land Bank. This credit program provides financing for crop production to existing as well as newly-organized Agrarian Reform Beneficiary Organizations (ARBOs) and farmer organizations that are not qualified to avail of loans under regular windows of banks. An agreement was made September last year to extend credit terms to accommodate medium to long gestating crops such as cacao.
Development Bank of the Philippines	Seed High Value Crops Financing Programs Priority crops includes cacao Interest rates: 10-12% Loan requirements: SEC/CDA registration with land title and other business/project documents
ONB	Farm loans Interest rates: 18% Loan requirements: SEC/CDA registration with land title and other business/project documents

Table 32. Providers of Financial Services (Formal)	
Agency/Institution	**Description**
Green Bank	Credit, Production loans

While commercial banks in Mindanao do offer agricultural loans and rural banks and microfinance institutions have the micro agri-loans, the uptake of these instruments among cacao farmers have been low. Micro agri-loans are based on character and household cash flow rather than traditional agricultural project-based lending approaches that focus on per-unit costs and projected income of agricultural outputs only. To some extent, the financial product addresses the scarcity of collateral among cocoa farmers and cooperatives. However, the microagri-loans are structured to include weekly and monthly loan payments with only a partial lump sum balloon payment (no more than 40 percent) allowed during the harvest or sale of agricultural product. The payment terms pose challenges for cocoa farmers as they can only harvest after three years. The income that they get from crops intercropped with cacao trees are barely enough to cope up with the daily needs of the households.

Players in the cocoa industry find it more difficult to access longer-term financing needed to make investments in plantations, organic fertilizer production facilities, warehouses, scales, cocoa dryers fermenting facilities, and other postharvest facilities. Among the different players, farmers have the least access to financial services. The Cacao 100 Program of the Land Bank of the Philippines is aimed at making long term financing accessible to farmers. It is too early though to assess uptake among farmers.

Generally, microfinance institutions and banks face the following challenges in providing finance to smallholders:

a) High cost of funds to provide rural credit especially as the credits are uncollateralized

b) Challenges of verifying cash-flow records, credit history or financial capacity of smallholders for banks to evaluate and mitigate lending risks

c) Nil or negligible cost benefit appeal to fund fragmented, small-holder and widely dispersed farming businesses instead of other formal, well organized and more profitable businesses.
d) High level of default on loan repayment by previous rural credit beneficiaries as a result of diversion or loss of farm produce

e) Lack of formal marketing contracts to guarantee repayment

f) Limited understanding of the cocoa sector to guide the development of financial products appropriate to the needs and cash flow of players

B. NON-FINANCIAL SERVICES

Davao Region has a wider range of providers and support services compared to other regions in Mindanao. It has also been observed that entry of integrators in an area spurs development of providers and catalyzes upgrading initiatives among players.

The CocoPal Program in partnership with Mars Inc. has made inroads in developing the demand and supply of business development services in the cacao industry in Davao del Norte and the region as a

whole. In line with the Sustainable Cocoa Initiative program that Mars Incorporated is implementing worldwide, three Cacao Development Centers (CDCs) have been established in Mindanao. The main aim of the CDCs is to facilitate access of farmers to good quality planting materials, technology, and training to improve their yield. The CDC is being supported by a pool of Cacao Masters and Cacao Doctors. To date, the model appears to be viable although outreach is limited to areas within the proximity of the CDCs.

Cocoa industry players access business development services through the following means:

1. **Informal:** Information, knowledge and advice are made available to farmers and other VC actors through social relationships. This could include information and advice on price, market and technology trends through social networks or mediation through traditional cultural mechanisms. An example of this is the "informal"on-the-job training provided by parents to their sons and daughters. The weakness though is that "elders" in the community are not generally aware of emerging good practices. On the other hand, they are very much knowledgeable on indigenous practices which are generally low-cost and environment friendly as well as suited to agronomic conditions in the area. Strengthening the capacity of recognized "cacao experts" in the area would enrich the informal learning system.

2. **Embedded:** Services are provided within a buying or selling transaction, whereby the costs of the service provision form part of the overall cost calculation of the supplier, while the service user does not have to pay for service delivery. Embedded services are an added feature to the main business transaction.

   Examples

   Cacao Masters/Doctors: Technical advice and guidance provided to clients (e.g., buyers of planting materials, customers for grafting and pruning services). They also have demonstration farms which help clients in making informed decisions on planting materials, technology, etc.

   Technicians of Integrators: Training and extension services are provided as part of the contract growing agreement.

3. **Commercially sponsored mechanisms:** The KakaoEskwela, a School-on-the-Air radio program, provides useful information about cocoa farming, crop establishment, croP maintenance andharvest and post harvest operations. Farmers and other individuals interested in cacao farming may enrol and ask questions via SMS. Sometime in June 2013, theKakaoEskwela TV was launched. Both of these programs were initiated under the CocoPal Program.

4. **Fee-based services:** Services offered to farmers and enterprises as distinct services for which they pay a fee.

   Examples
   Cacao Masters/Doctors: grafting and pruning services

   CIDAMI Training: PhP 350/training module
   Davao City Chamber of Commerce and Industry, Incorporated (DCCCII): market linkages, trade fairs and expositions

Cacao Foundation Of the Philippines Inc.: Technical Assistance, Market Linkages, Price Trend, organized seminars and conventions, farm demonstration, IEC (multimedia), provides post-harvest facility (combination of fee-based and subsidized services)

5. Stand alone Free Services: These are generally provided by government agencies and non-profit organizations such as CIDAMI. The services are generally provided for free.

Table 33. Services Provided by Government Agencies and NGOs

Organization	Services
DA and Attached Agencies	
Department of Agriculture (DA) units/Programs & agencies: • High Value Commercial Dev't. Program (HVCDP) • Mindanao Rural Development Program (MRDP) • Agr'l. Competitiveness Enhancement Fund (ACEF)	- Provision of funds to the RFUs and farmers groups for cacao planting materials, postharvest facilities, small scale processing equipment, research & development, planting materials certification, training, standards, and stakeholders' forums. - Establishment of Production Facility in Strategic Cacao Production Areas through provision of equipment such as fermentaries, drier, cacao roaster, cacao cracker and cleaner, cacao grinder and tablea maker to farmers' groups - Research and Development are being implemented by DA in partnership with various academe across the country
Philippine Coconut Authority (PCA)	Farm diversification program through promotion of intercropping and provision of planting materials
Bureau of Plant Industry (BPI)	Certification and registration of Cacao planting materials (NSIC-Registered and Recommended Cacao Varieties)
Bureau of Agricultural Research (BAR)	- Commercialization of technologies on the processing and packaging - Sustainable cacao production system through its projects funded under the National Technology Commercialization Program (NTCP). - Supports projects that are in line with the National and Regional Integrated Research and Development and Extension (RDE) Agenda and Program. - Provides funding support to studies that address current needs and problems of the agriculture and fisheries sectors. - Organic Agriculture Program - Facilities development program - Knowledge products and services - Agriculture and Fisheries research policy and advocacy
Bureau of Agriculture and Fisheries Product Standards (BAFPS)	- Formulates and enforces quality standards - Provides assistance in establishing scientific basis for food safety, trade standards and codes of practice, and harmonizes them with internationally-accepted standards and practices
Philippine Center for Post-	- Support programs for research and development of

Table 33. Services Provided by Government Agencies and NGOs	
Organization	**Services**
Harvest and Mechanization (PhilMech)	Drying Systems for Philippine Cocoa Beans - In coordination with DA's regional offices and local government units, provides financial assistance to farmers by providing 85% subsidies in acquiring farm equipment and machineries such as hand tractors, threshers, transplanters and water pumps for rice and high-value crops such as coffee, cacao, cassava and bio-ethanol.
National Agricultural and Fishery Council (NAFC)	- Monitoring and evaluation; IEC/Advocacy materials - Facilitates the conduct of regular consultations and dialogues between government and private sector in agriculture and fisheries, by providing technical and administrative assistance to the members of its nationwide consultative and feedback network leading to the creation of Committee on commercial crops.
Agricultural Training Institute (ATI)	- Conducts training on production technology such as cacao production technology (training of trainers/ training of farmers)
Other Government Agencies	
Department of Agrarian Reform (DAR)/ARP	ARC development support
Department of Science and Technology (DOST)-PCARRD/ SMARDEC through FITS	IEC materials, technical references, design and fabrication of equipment for the production of local cocoa products Technological Support for the Upgrading of Local Cacao and Cocoa Industry a) Improving the quality of solid cocoa liquor including molded cocoa nibs and developing the capability of Small Scale Processors in the Manufacture of Intermediate Cocoa Products b) Microbial Community and Biochemical Profiling for Microbial Augmentation and Development of Quality Indicators for Cacao Fermentation and Processing c) Development and Evaluation of Improved Drying Technologies for Fermented Cacao/Cocoa Beans in the Philippines d) Design and Fabrication of Equipment for the Production of local cocoa products
Department of Trade Industry (DTI), Export Pathways Program	- Industry cluster convener, provision of shared service facilities for cacao fermentation among MSMEs - Served as industry cluster convener to bring together all stakeholders and enablers of the industry - Export Pathways Program wherein business and technical assistance on product development, productivity enhancement, and domestic and international marketing assistance.

Table 33. Services Provided by Government Agencies and NGOs	
Organization	**Services**
Department of Labor and Employment (DOLE)	Farmer's organizational strengthening, postharvest facilities, processing equipment
Cooperative Development Authority (CDA)	Support to cooperative formation and organizational strengthening
TESDA	Vocational skills development
Local Government Units (LGUs)	Extension services, production support
University of Southern Mindanao (USM)	Research on varietal/clone improvement

As can be seen above, most of the government agencies are now actively supporting the cocoa industry. However, despite the increasing number of support services, it was estimated during the FGDs that about 40% to 50% of the players have very limited access to improved inputs, technology, extension services, and resources. In many instances, government agencies take a lead role in the delivery of services on the basis that there is a wider "public good" character to these (e.g., the poor in particular will be excluded if government does not provide directly). However, some caution has to be made with this rationale. Historical experiences indicate that many of the publicly-funded support services experience pronounced financial constraints and inability to increase depth and breadth of outreach. It is common for service delivery to become dependent on external aid or government funding and to collapse when funding dries up. This has increased rather than reduced the dependency of marginalized communities.

Aside from the need to scale up access to extension services and resources needed to facilitate chainwide upgrading to all cacao producing municipalities, it is equally important to facilitate the greater adoption of improved production and post-harvest practices among all players in the chain. Majority of the farmers and small enterprises generally do not think they need business development services and thus demand does not exist in a form ready to be tapped. This implies the need to stimulate demand and acquisition of business development services and the subsequent application of new knowledge and skills gained in their day-to-day operations.

Objectives of sustainability and increased depth and breadth of outreach of services may be achieved by facilitating the development of markets for support services. Functioning markets can offer services through a range of formal and informal sources, as separate services or embedded within other products. This shifts the focus of public intervention away from direct provision and subsidies at the level of support services transaction towards the facilitation of a sustained increase in the demand and supply of services. This will entail the following complementary strategic directions:

- Development of a range of intermediary organizations and individuals that can provide services to enterprises in transactional, business-like relationship and without the need for long-term subsidy
- Increase effective demand for business development services by enhancing enterprises' understanding and valuation of the benefits of services ;
- Facilitate the development and delivery of a wide variety of services that are profitable to both the enterprises and the providers.

Section 6:
ENABLING ENVIRONMENT

A. FORMAL RULES, REGULATIONS, AND POLICIES

The following are the key policy issues that affect the economic playing field for sustainability in the cocoa industry:

1. For more than a decade, most government efforts to expand access to agricultural credit have been channelled through the Agricultural Competitiveness Enhancement Fund (ACEF) and Agro-Industry Modernization Credit Finance Program (AMCFP). Outreach, todate; of the two programs have been limited. The Agri-Agra Reform Credit Act of 2009 (Republic Act 10000) signed in February 2010 has not also been effective in facilitating smallholders' access to financial services.

   There is a need for government to put in place a sound risk management framework to address the issues that are at the core of private sector reluctance to lend and farmers' hesitation to avail of formal financial services. . Likewise, most of the policies that govern agricultural credit facilities for farmers are biased towards short-term crops. The cocoa sector needs long-term financial services. Parallel to this, there is a need for a tree crop insurance program and safety net arrangements given the growing vulnerability of Mindanao to natural disasters brought about by climate change.

2. The imperative of moving towards more sustainable agriculture practices that respect local ecosystems within broader landscapes is gaining momentum. Regulation may force buyers to be more accountable for social and environmental responsibilities, especially in the light of ever toughening EU regulation. For example, the ICCO predicts that the EU is likely to increasingly focus Maximum Residue Level (MRL) legislation on cocoa. More than just striving for firms and farming enterprises to be certified (Rainforest Alliance, Fairtrade, UTZ, etc), there is a need to institutionalize the conditions for sustainable production at a national level. As Mars Incorporated puts it: "If certification continues to reach only farmers working in cooperatives, it will not achieve the target of mainstream sustainability. Certification needs a critical mass to make it the new norm, to set a new benchmark. So far only cooperatives trained personnel manage ICS system; therefore it is very difficult for a trader to engage in certification. In order to reach unorganised farmers it is important to outsource ICS system management. This would allow about 30/40 per cent of traders interested in engaging in certification to hire ICS trained managers and in turn to reach a much higher number of unorganised farmers".

   Many of the compliance points in the various codes of conducts are also prescribed in standards and legislations promulgated by the Philippine government. The problem though is the lack of implementation and promotion of its widespread adoption. To ensure that certification does not exclude smallholders and micro businesses, reform in the delivery of extension services to facilitate compliance will require the adoption of a multi-provider model and market-based delivery mechanisms including partnerships with lead firms. Access to financial services and improved infrastructure are also important in achieving certification status and sustainable production as a whole.

3. There is a perception among stakeholders that government policies have not given so much attention to infrastructure needs of the cocoa sector in Mindanao. Infrastructure influences the cost structure as well as the quality and traceability of cocoa beans and by-products.

4. The Association of Southeast Asian Nations (ASEAN) and its six trading partners are targeting to sign by 2015 the Regional Comprehensive Economic Partnership (RCEP), a free trade agreement that is expected to further open up new and bigger markets for local businesses.The end-goal of ASEAN economic integration is the full realization of an ASEAN Economic Community (AEC), wherein the region will be transformed "into a single market and production base, a highly competitive region, a region of equitable economic development, and a region fully integrated into the global economy." As such, when the AEC commences in 2015, it can be expected that the economies will aggressively open up given that barriers to trade – both tariff and non-tariff will be eliminated. Economies will be liberalized to achieve the goal of ASEAN becoming a single market and production base.On the other hand, this will increase competition among cocoa producing countries in the ASEAN region. This implies more than ever the need to improve competitiveness both in terms of quality and volume.

B. INFORMAL RULES AND SOCIO-CULTURAL NORMS

1. Informal rules can contribute to the effectiveness of formal rules. If the norm is to abide by formal rules (e.g., adherence to grading standards even if the buyer does not always check), then it becomes less costly to enforce the regulations. If this is not the case (e.g., "all in" procurement as the norm in cocoa bean trading) then the standards set by government agencies become a "paper tiger" or a substantial amount of resources is needed to enforce the regulations (e.g., buyers have to send their own people to check on quality right at the point of purchase). Norms of civic cooperation reduce enforcement costs by leading individuals to internalize the value of standards and regulations even when the probability of detection for violation is negligible.

2. The major sources of social capital among Filipino farmers are kin networks, home neighborhood, farm neighborhood, and membership in a farmer's association. Filipinos particularly in rural areas give premium to interpersonal relations. Kinship reigns above all the social relations of Filipino farmers followed by farm neigbor relationship. It is characterized by strong ties, mutual trust, and norms, which promote coordination and cooperation for mutual benefit. Harnessing the kinship/interpersonal relations factor can reduce transaction cost in the sharing and diffusion of farming technology

3. Another value related to loyalty is utangnaloob or debt of gratitude. It is expected that those who are helped in their time of need will return the favor when the opportunity comes. So, a trader or a lead farmer or buyer sharing technology with kins and peers can also be regarded a form of repayment from utangnaloob or depositing a help to be withdrawn later when need arises (e.g., trader expects that farmer will give him some priority when cocoa bean supply is tight).

4. Buying in tingi or piecemeal is the norm rather than an exception in the Philippines. Long before multinationals and large local companies began producing product sachets, sari-sari stores (neighbourhood stores) would buy household items such as sugar, vinegar, shampoo, cooking oil, cigarettes, etc. in bulk and sell these to the customers in piecemeal: by the stick, by the piece, by the tablespoon or cup. The "tingi" system has spread into various industries such as telecommunications where it became possible for users to buy phone credit or load for as low as PhP 5.00.

The “tingi” or piecemeal mentality influences much of what the Filipinos do. The tingi mentality is also reinforced with Filipino’s relatively low propensity to save, and preference for immediate gratification. This is manifested even in little things, such as their preference for “instant prize” promotions rather than loyalty programs which might require them to accumulate points toward a larger prize (De Veyra 2004). Spending more to purchase sachets today instead of saving up to buy in bulk would be consistent with this tendency. Likewise, the dominance of the “tingi” mentality can also be correlated to general aversion of Filipinos to risks.

As such, in the conduct of training and capacity building activities as well as introduction of new technology and innovations, the program can build the design around this “tingi” mentality to have higher chances of success and adoption.

Section 7:
CONSTRAINTS AND OPPORTUNITIES

Table 34. Constraints and Opportunities

Opportunities	Constraints	Province
INPUT PROVISION		
Use of good quality grafted seedlings of high yielding varieties can result to uniform and increased yield and shorter gestation period. Existing nurseries and budwood gardens interested to upgrade and scale up operations Farmer groups and LGUs interested to engage in bud wood garden and nursery operations	Lack of supply of grafted seedlings of high yielding varietiesdue to: - Lack of budwood garden producing good quality scions - Limited skills and capacity of existing nurseries and budwood gardens - Lack of nurseries Limited number of accredited nurseries resulting to inconsistent quality of planting materials available in the market Limited utilization of grafted seedlings due to: - inadequate knowledge among farmers on the benefits of investing in improved seeds, - lack of capacity among smallholders to pay upfront for seeds - Grafted planting materials not being readily available within proximity of farms and at the times when the farmers need them.	Zamboanga Peninsula All provinces Northern Mindanao All provinces SOCCSKSARGEN All provinces Davao Region All provinces Caraga Region All provinces ARMM Lanao del Sur Basilan
Aside from weak adoption of good agronomic practices, old age of cocoa trees, poor access to improved planting materials are among the most prominent causes of low yield and crop productivity in farmers' farms. Choice of planting materials and rootstocks should be based on characteristics such as high productivity, quality of the bean, consumer acceptability, resistance to pests and diseases, ease of establishment and drought tolerance etc. In many cases, this choice is naturally constrained by the diversity and characteristics of the cocoa varieties available to farmers, affordability issues, spatial gaps and far distances between farmers and nurseries, low cost benefit appreciation among farmers aggravated by high risk aversion , and the lack of trust on available planting materials due to past not-so-good experiences on survival/bearing rate. *The quality of planting materials is important not only in terms of variety but also propagation technique used. Good quality grafted seedlings are generally twice as productive and are more resistant to diseases and pests when compared with non-grafted planting materials. Despite these advantages, the use of grafted planting materials is not yet the preferred commercial option for many of the smallholder farmers due to the higher costs (vis-à-vis ungrafted and seedlings from*		

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
ownfarm) and the limited availability of good quality grafting materials. *Despite the growing number of nurseries in Mindanao, there is a lack of supply of good quality planting materials and scions. To date, there are only 11 accredited nurseries in the whole Mindanao. Likewise, many of the nurseries do not have their own budwood gardens or have limited access to budwood gardens with good quality scions, which are critical to sustaining competitiveness of both nurseries and the farmers. The current production capacity of nurseries and budwood gardens will not be sufficient to meet the 2020 target of 100,000 MT beans which would require 52,206,033.25 pieces of seedlings assuming that Mindanao retains 90% share of the total Philippine production.*		
Proper application and management of fertilizer and pesticides together with use of quality planting materials and good agronomic practices can potentially result to yield of 2 MT/ha. Cocoa pods and other agri-waste can be used in the production of organic fertilizer. There are also existing enterprises engaged in production of organic fertilizer but not specifically for cacao	High cost of chemical inputs both to farmers and environment Limited availability and commercial distribution of organic fertilizer and inputs specific for cacao Low use of fertilizer among smallholders due to lack of understanding among farmers on cost benefits of proper and efficient use of fertilizer, risk aversion, and limited purchasing capacity Lack of access to soil analysis services/ Lack of technical know-how on proper fertilizer management and application	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> Misamis Oriental Lanao del Norte Bukidnon <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> South Cotabato Sarangani North Cotabato <u>CaragaRegion</u> Agusan del Sur Surigao del Sur <u>ARMM</u> Lanao del Sur Basilan
The nutrient supplying capacity of the soil runs down over time and long-term sustainability of cocoa production requires that depleted nutrients be replaced. Just like any crop, cacao needs to be "fed" with nutrients. In the short to medium term, non-application of fertilizer and/or improper application of fertilizer result to low yield, poor quality beans (especially in terms of weight), and shorter productive life of cacao trees. *Increasing cost of chemical fertilizer was identified by farmers as the primary reasons for reduced application or abandonment of fertilizer use altogether. In areas like ARMM, poor infrastructure resulting to distribution inefficiencies added significantly to the already high cost of fertilizer. The use of organic fertilizer is also limited due to availability and quality issues. Limited access to fertilizer severely hamper farmers' efforts at improving productivity* *Use of fertilizer has a clear impact on production but its effect can vary significantly depending on agronomic practices, the amount of rainfall, soil conditions, etc. In many cases, price signal influences decision to use fertilizer and the amount of fertilizer to be used rather than soil analysis. Similarly, when farmers lack money or when there are emergencies that we require cash outlay,*		

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
fertilizer purchase is usually the first one that is sacrificed. Risk aversion also plays an important role in the cocoa farmers' decision to adopt fertilizer. Generally, while risk aversion increases farmers' reluctance to adopt a new technology, it can also increase the intensity of use for farmers who have adopted the technology. In either ways, farm productivity and profitability are compromised.		
FARMING		
Good agronomic practices and sustainable farming practices can reduce incidence of pests and diseases and improve resilience to climate change resulting to overall increase in productivity and better market access. Technical assistance provided by integrators to cacao farmers can complement extension services from government. Global buyers are increasingly sourcing only from suppliers certified to be sustainable. This can potential provide incentives to adopt good practices.	Limited outreach of existing extension services and providers Low uptake and adoption of good agricultural practices and sustainable production practices Lack of skilled laborers/caretakers Lack of capacity to comply with certification requirements	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur Basilan
Poor farm practices have adverse impacts on farm productivity. Productivity levels of cocoa farms in most regions of Mindanao are still generally low and would require agronomic, production and technological measures to achieve the potential per unit of land. *Interventions into the cocoa production sector by government, non-government organizations (NGOs) and private sector (e.g., integrators/exporters) have contributed to significant improvement in production and productivity. However, the reach has not been extensive enough, leaving a large segment of cocoa farmers out of the benefits of those interventions.* *Farmers are generally knowledgeable on the basic rudiments of cocoa farming and traditional pest and disease control. However, farmers lack the resources to comply with GAP and sustainable farming practices which are paramount to disease prevention and control in cocoa production and increasingly becoming important to ensure access to markets. It is important to deepen their appreciation of good agronomic practices. There is also the need to promote the adoption of biological control measures which can reduce the use of chemicals thereby preventing environmental pollution and reducing greenhouse emissions.* *Poor roads to farms also influence the work quality of farmers and laborers. Long walks due to non-accessibility by motorized vehicles result to shoddy works leading to low productivity.* *Cocoa farming tends to be labour intensive. Farmers and family members work in their own farms assisted by hired labor, Some landowners also depend on caretakers and laborers to tend their farm.*		

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
Many of the laborers available for hiring though lack the necessary technical know-how and skills in cocoa farming.		
FERMENTATION AND DRYING		
Growing deficit of quality fermented beans in the Asia and Oceania Region. Fermentation in bulk improves quality and efficiency	Lack of access to facilities to consistently produce high quality fermented dry beans. Limited know-how and skills on Good Manufacturing Practices (GMP) and Sustainable Production Practices	Zamboanga Peninsula All provinces Northern Mindanao Misamis Oriental Bukidnon Lanao del Norte Davao Region All provinces SOCCSKSARGEN South Cotabato CaragaRegion Agusan del Sur Surigao del Sur ARMM Lanao del Sur
Fermentation and drying are important stages of the cocoa production. The price differential between under-fermented and well fermented cocoa is around US$ 200 to 250 per MT.. Even if beans are well fermented, they will develop 'musty' flavours if they are not properly dried or if they are smoke contaminated. *Fermentation and drying process are still rudimentary. The traditional fermentation and drying method being practiced by many farmers in Mindanao yield dried cocoa beans of inferior quality, compared to those processed using the appropriate fermentary facilities. Moreover, smallholders have difficulties in drying the beans properly particularly during the rainy season, thereby selling cocoa with high humidity levels which affects the price the quality and the price they are paid.* Likewise, f*armers often take a shortcut by reducing the time spent on postharvest activities in order to sell the beans quickly, which also results in an adverse effect on quality. As such, agents or buyers of global cocoa traders generally prefer to buy wet beans from farmers.* *Without access to adequate facilities and skills and behavioural change interventions, farmers are left with few opportunities for value addition.*		
PROCESSING		
Increasing per capita consumption of chocolate in the Philippines and Asia Implementation and adoption of standards such as GMP and HACCP can play a positive role in	Limited product lines Non-GMP compliant manufacturing facilities and processes	Zamboanga Peninsula Zamboanga City Northern Mindanao Camiguin Misamis Oriental Bukidnon

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
providing the catalyst and incentives for the modernization of the industry and in facilitating access to markets		Lanao del Norte <u>Davao Region</u> Davao del Norte Davao City <u>SOCCSKSARGEN</u> South Cotabato <u>Caraga Region</u> Butuan City
The processing of cocoa into finished products provides an opportunity for small producers and farmer groups to increase the value added to primary productionAlthough artisanal food processing is growing and there are many enterprises involved in tablea processing, many of the local products are yet to benefit from commercial scale processing according to international and food safety standards. Thus the movement of processed products is often limited within the local markets.Facilities of many of the processors are not compliant with Good Manufacturing Practices which is a prerequisite for BFAD certification and in acquiring a License to Operate. Without the license to operate, these enterprises are not able to sell to institutional buyers. *The lack of initiatives among processors especially the micro enterprises and collective/coop-based enterprises to develop and diversify products can be attributed to the following: a) lack of knowledge of potential market segments and its requirements and product standards are based on locally accepted norms; b) weak product development skills since in many cases recipes and skills were passed on from one generation to another; c) lack of technical know-how on the inherent characteristics of cacao and how these can be optimized in the development of differentiated premium products; d) smallness of operations and current markets including limited individual capacity to invest in product development.*		
MARKETING		
World market demand exceeds supply with supply deficit projected to be at 1 million MT by 2020. Domestic chocolate manufacturers import most of their cocoa requirements. Annual domestic consumption is about 30,000 to 40,000 MT. Mindanao has the land resources and climate suitable for cacao cultivation. There are also significant numbers of banana and coconut farms that can be planted with cacao (intercropping/mixed farming	Current cocoa bean production is very low. Banana and coconut farmers are not aware of opportunities and viability of cacao –coconut and cacao – banana intercropping. Majority do not have the upfront resources to establish cacao farms.	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur Basilan

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
system). Contract growing agreements offered by integrators can facilitate access to resources needed to start cacao growing.		
Philippines is a net importer of cocoa products. Domestic market has an estimated demand of about 50,000 MT of cocoa beans. It is projected to increase to 100,000 MT by 2020. *In the international market, it is projected that an additional 100,000 to 120,000 MT of cocoa beans will be needed each year to meet 2020 global demand.* *Farmers, especially banana farmers, hesitant to expand into cacao growing. Many banana industry players especially those in areas without demo farms or existing banana-cacao farms still believe that cacao cannot be intercropped with banana. Many have not considered cacao intercropping as an option to make judicious use of their existing land.*		
Longer term contractual arrangements such as contract growing agreements can to a significant extent insulate farmers from price fluctuations in the world market.	Dominance of spot transactions makes farmers more vulnerable to price fluctuation. Volatility of prices makes farmers wary to invest in cacao cultivation and upgrading.	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur Basilan
Farmers act on price fluctuations by changing the intensity of their farm management which in the end compromises their own farm productivity and income generation potential. Arm's length transaction as opposed to longer term contractual arrangements increases risks of farmers to price fluctuations. There is a need to strengthen risk management capacity of and for farmers.		
Good roads to cacao production areas (existing and potential) can contribute to reducing cost of transactions and facilitate improved access to product, support, and inputs markets. MLGUs are willing to cost share in the upgrading and maintenance of roads.	Poor farm to market roads	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u>

Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
		All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur
Poor infrastructure results to inefficiencies, deterioration of quality, and limited access to markets. Infrastructure influences the cost structure as well as the quality of cocoa beans and by-products.		
INTERFIRM RELATIONSHIPS AND SUPPLY CHAIN GOVERNANCE		
The Philippines has formulated the standards for cocoa beans which could be the basis for the development of a pricing scheme that rewards production of quality beans. . Improved cooperation and flow of flow of information along the different links + traceability systemwill allow flexibility; spur innovation, and faster response to market requirements and trends. Forward and backward coordination will minimize the risk over the trends and changes in the market and facilitate consistent production of quality beans.	Lack of market-based /price incentives for farmers to produce quality beans Unhealthy competition among and between traders stifles upgrading and provides disincentives to consistent production of good quality beans. Poor flow of information on standards, prices, and market opportunities Varying interpretation, understanding, and implementation of standards Weak supply chain collaboration Poor quality assurance system and absence of traceability system	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur Basilan
Cocoa farmers are not generally aware of the end user of their cocoa beans, signifying a lack of clear market intent at the time of production. Farmers see the market in terms of the next actor in the chain—the person who bought their produce. Minimal information about end buyers' requirements is being communicated down the supply chain. *Often, VC players are not conscious of how their actions and behavior affect the competitiveness of the whole chain and, ultimately, impact their livelihood. Many of the cocoa value chain actors see the implications of their actions only from their own perspective and that of their immediate links. The focus is on maximizing profit per transaction rather than long term planning to upgrade efficiency of chain. There is little cooperation to ensure a reliable supply of high quality beans.* *Standards and its rationale are not widely understood resulting to lack transparency, suspicion, and inconsistent quality.*		
Cooperation and collaboration among individual smallholders	Weak capacity among farmers to organize themselves into structured	<u>Zamboanga Peninsula</u> All provinces

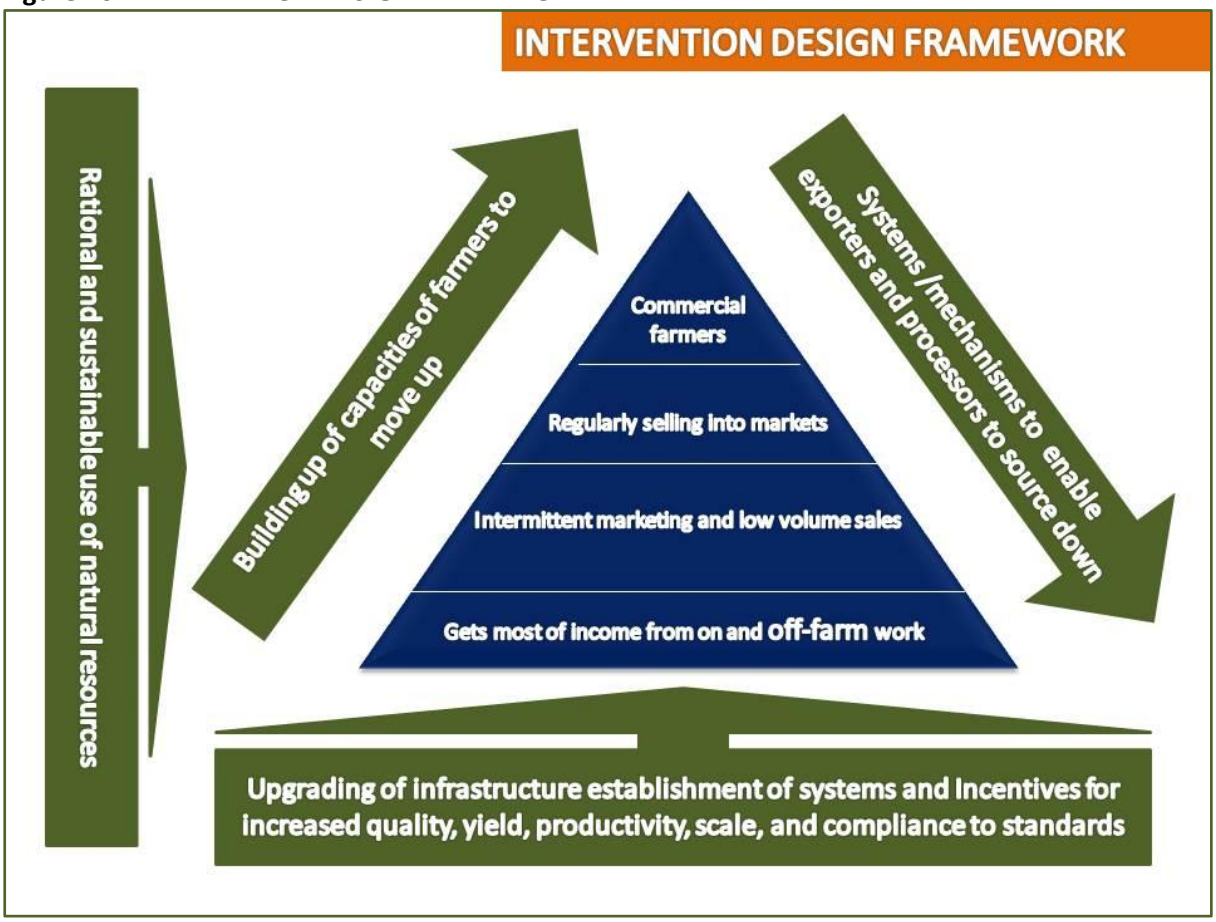
Table 34. Constraints and Opportunities		
Opportunities	**Constraints**	**Province**
can position farmers better to negotiate in marketing their cocoa beans and procurement of inputs and other services Large buyers are willing to source from smallholders if they can work effectively together Farmers in the same village know each other quite well and have had experiences of working together. Such 'natural–social constituents' can be harnessed to get them to work together	groups Lack of trust and cooperation between and among farmers Lack of entrepreneurial skills Lack of experiences in formal organizational setting	<u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u> All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur Basilan
A key factor that hinders upgrading and market access is the smallness of most farms and enterprises and the tendency to operate in isolation, thus, unable to take advantage of economies of scale. Strong inter-firm coordination is important to buffer key investments aimed at upgrading infrastructure, technology, and knowledge-based assets. Loosely integrated internal structures are less capable of creating production systems that work efficiently and to uphold a process of upgrading,		

Section 8:
COMPETITIVENESS DIRECTIONS

A. COMPETITIVENESS VISION

The main challenge in the cocoa industry in the short term is to evolve to intensive yetsustainable production that will: (i) increase exports and improve the balance of trade; (ii) supply the domestic processing industry especially the large companies to create a strong internal market; and (iii) reduce vulnerability to economic liberalization and globalization. In 2020 and beyond, the Mindanao cacao industry plans to incrementally transition from supplier of high quality dried fermented beans to exporter of processed cocoa products by strengthening its processing capacity during the next 5 years.

Figure 26. INTERVENTION DESIGN FRAMEWORK



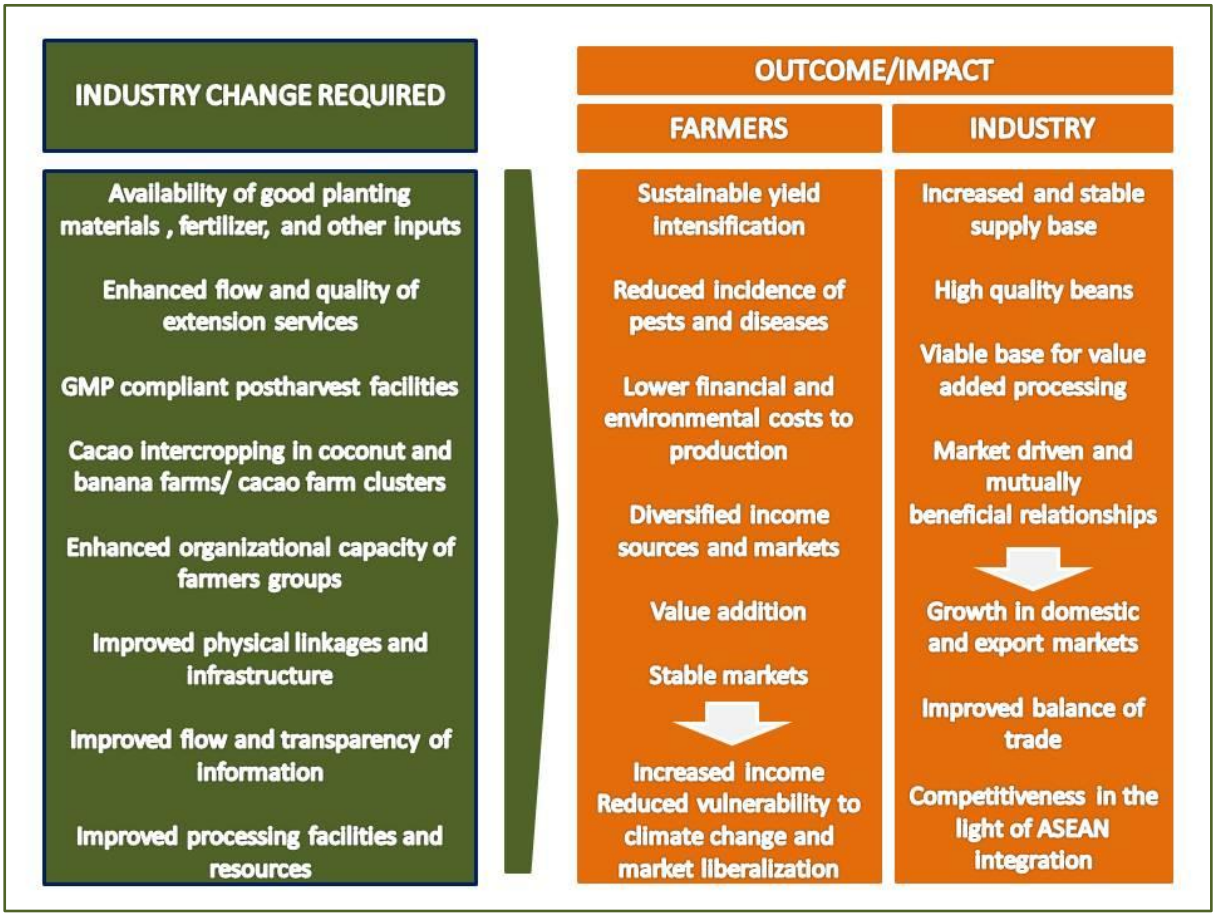
With the above competitiveness vision in mind, the overarching intervention framework is shaped by the following broad and mutually reinforcing needs:

a) The development of inclusive value chains which would entail strengthening of capacities and capabilities of farmers and smallholders in particular to move up the commercial and market integration ladder and the establishment of enabling mechanisms that will enable exporters and integrators to source from small scale farmers.

b) Upgrading of infrastructure and establishment of systems to lower cost of transactions, facilitatechainwide compliance to quality and food safety standards, and ensure that Incentives are available for increased quality, yield and scale.

c) Promotion of rational and sustainable use of natural resources while ensuring compatibility between social, economic, technical, and environmental objectives.

Figure 27. SYNTHESIS OF COMPETITIVENESS VISION, 2014 - 2020



To address the above needs as platform for the achievement of industry's competitiveness vision will require the following systemic changes:

a) Increased access, availability, and use of good quality clean planting materials of the high yielding varieties

b) Improved access to, availability, and use of fertilizer and other inputs appropriate for cacao smallholders while reducing environmental costs

c) Enhanced flow and quality of extension services for cacao farming to facilitate adoption of GAP and Sustainable Farming Practices

d) Improved access to GMP compliant postharvest facilities and extension services necessary for the consistent production of high quality fermented beans

e) Judicious utilization of existing coconut and banana farms through cacao intercropping to increase areas planted to cacao with priority given to contiguous areas to facilitate establishment of cocoa hubs

f) Improved physical/infrastructure linkages to input, support, and product markets

g) Enhanced organizational capacity of farmer groups to become effective economic players

h) Improved flow and transparency of information at all nodes of the chain including basic traceability system

i) improved access to facilities and resources to catalyze value addition and lay the groundwork for commercial scale processing of cocoa by-products

B. PRIORITY CONSTRAINTS/OPPORTUNITIES AND INTERVENTIONS

Drawing on findings from the end markets and value chain analysis and the focal points of action identified by VC actors and stakeholders, below are the proposed intervention strategies and approaches to improve market competitiveness of the Mindanao cocoa industry while promoting broad based growth and climate change resilience. Prioritization of interventions for each of the regions in Mindanao is presented in Annexes 1 to 6 while specific approaches for each province are indicated in Table 36.

INPUT PROVISION

1. Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.

The genetic potential of planting materials largely dictates crop yields and the productivity of other agricultural inputs and cultural practices as well as the flavour and fat content of beans. The proposed strategy is focused towards significantly scaling up effective supply and delivery models of improved planting material to farmers to allow farm rehabilitation and productivity increases. The set of suggested intervention approaches consists of two basic components, namely: a) strengthening the supply of scions and grafted planting materials; and b) stimulating the demand for these planting materials.

Farmers demand for planting materials of improved varieties can potentially be elicited with availability of varieties that meet production challenges (high yields, affordability) and market needs (buyer preferences). Towards this end, the following supply side interventions are proposed:

c) Upgrading and scaling up of existing certified budwood gardens and nurseries. This is to promote optimization of existing skills and capabilities.

d) Assistance to non-certified nurseries to comply with BPI certification requirements. This will ensure that non-certified nurseries are not excluded in the market and their investments do not go into waste. It will also reduce risks of further proliferation of poor quality planting materials.

e) Set-up of nurseries and budwood gardens that comply with BPI accreditation requirements and principles of sustainable farming practices. This will allow farmer groups to gain more autonomy

and be able to produce better if they develop the capacity to produce their own planting materials.

f) Work with financial services providers in the development of loan packages to facilitate establishment of certified nurseries including crop insurance products. This will address constraints faced by interested operators in accessing the necessary capital.

g) Support to R and D on appropriate planting materials and inputs will help sustain the development of locally adjusted and optimised clones

Development of a sustainable supply of planting materials requires the creation of an effective demand. To stimulate smallholders to buy and use good quality planting materials without creating high dependency on government and project support, a voucher program, plant now – pay later scheme, and similar market-based mechanisms may be implemented during the first year. A voucher program or similar mechanism will also provide PRDP supported nurseries a captive client base which is critical during the start-up phase while respecting market development principles. Given the "to see is to believe" attitude of many farmers, establishment of a demo farm within the proximity of the nursery can serve as showcase and learning venue where clients can visually validate results to make informed decision. An information campaign on planting material selection and dissemination of success stories would help in promoting chain wide learning and in catalyzing effective demand for good quality planting materials.

2. Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management

Good soil maintenance is the cornerstone of a productive cocoa farm, since cocoa needs a fertile soil rich in nutrients. Without nutrients and healthy soil, the growth and production of the trees will decline, which will result in decreasing yields and smaller beans. The proposed strategy, therefore, entails the development of a competitive supply of quality fertilizer to cocoa farmers at affordable prices parallel to helping ensure that farmers correctly use the fertilizer. It involves four key components, namely:

a) Establishment of community-based organic fertilizer plant and/or upgrading and scaling up of existing fertilizer enterprises including assistance to get the necessary certification/ accreditation.

The set-up or strengthening of organic fertilizer enterprises has three main objectives, namely: i)To produce premium quality organic fertilizer specifically for cacao using waste materials and at a cost affordable to smallholder; ii) To contribute to solid waste management and reduction of greenhouse gases from landfills through composting of farm wastes including cocoa pods; and iii)To provide income generation opportunities for farming households through participation in the venture as co-owners of the business, waste collectors, workers, and retailers.

b) Development of distribution network/ retail network to ensure proximity of supply to farmers including the development of payment schemes aligned to cash flow of farmers

PRDP may want to explore the viability of a farmer group based distribution of both chemical and organic fertilizer and the utilization of sari-sari stores as among the retail outlets. Likewise, instalment payments of inputs based on harvest schedules may also be a viable option among smallholders. Organic fertilizer producers may want to explore the viability of distributing these in

small affordable packs in line with the “sachet” or “tingi” mentality of smallholders and their cash flow. The “small pack approach” is intended to enable smallholders to achieve incremental gains in yield and income over a few seasons and ultimately graduate to using the required fertilizer application.

c) Promotion of effective and efficient use of fertilizer including use of soil analysis as basis for fertilizer application through embedded services

Promotion of fertilizer use must be complemented with extension services to ensure that fertilizers have the correct formulation to meet local soil needs, are applied in the correct amount and at the optimal point in the planting cycle, and are used alongside complementary inputs such as improved planting materials. Without proper application, fertilizer use can actually decrease profitability by creating a significant added cost without a corresponding increase in crop yields. As such, in addition to assisting fertilizer producers to scale up their production capacities, they must also be capacitated to deliver advisory services to their farmer clients. It may also be possible to integrate soil testing services with fertilizer distribution.

d) Stimulation of effective demand for fertilizer

Fertilizer is often considered a risky investment especially among resource poor farmers who have continuously experienced low yields and declining income. To minimize risk aversion among farmers and encourage the use of organic fertilizer, the following interventions are proposed:

- Implementation of voucher program or the plant now – pay later scheme as a risk sharing mechanism for smallholder farmers to cover part of the cost for improving agricultural productivity and to provide the platform for fertilizer enterprises to launch their products to a wider market which will help them buffer upgrading investments

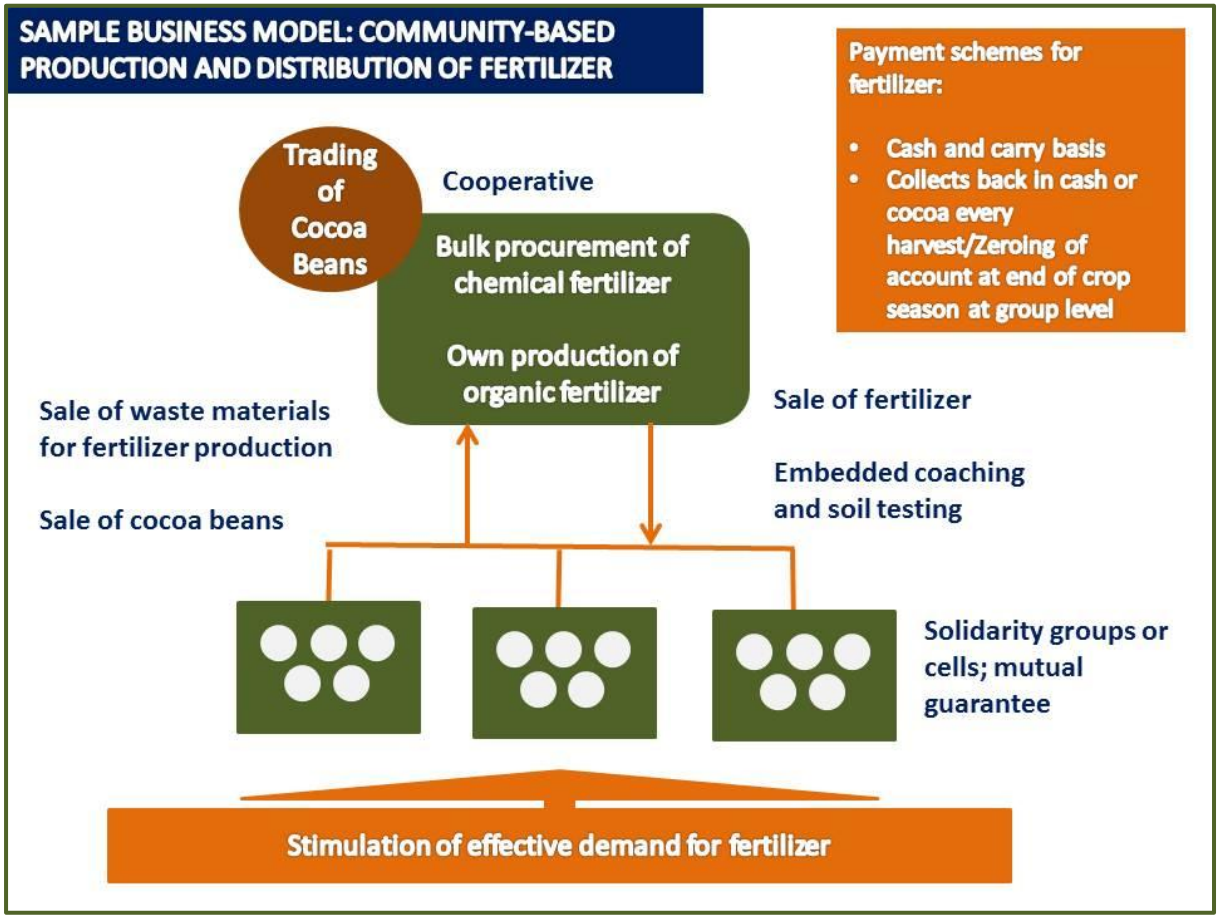
- Set-up of model farms to showcase benefits of organic fertilizer and as venues for training

- Assistance to fertilizer enterprises in the development of promotional tools that will support point-of-purchase knowledge transfer and reinforce organic farming advocacy of the government

- Dissemination of emerging good practices and success stories

- Harmonization of procurement and fertilizer distribution policies of government to minimize market distortion and support the development of a vibrant market for fertilizer

Figure 28. SAMPLE BUSINESS MODEL: COMMUNITY-BASED PRODUCTION AND DISTRIBUTION OF FERTILIZER



FARMING

3. Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity

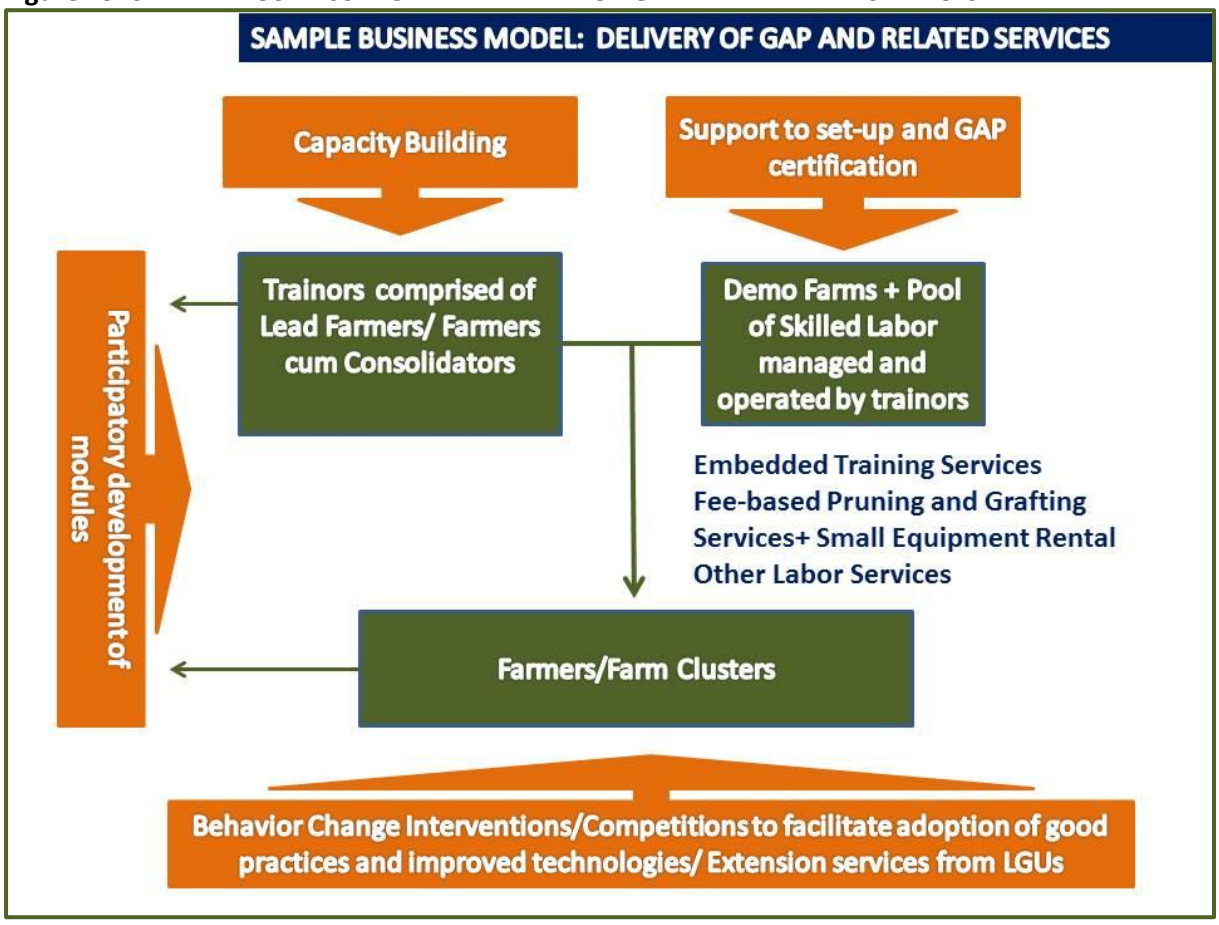
Many farmers cannot maximise their potential cocoa production because they lack basic knowledge of GAP. The prevalence of pests and diseases is the leading factor contributing to farmers' inability to achieve optimal yields. This intervention strategy is aimed at complementing the extension services provided by the LGUs and input suppliers. Diversity of extension provision, from government extension officers to community-based and value chain-based providers, will give farmers greater choice of sources of information, knowledge, and skills to support the long-term sustainability of their farm enterprise,

With majority of the farms located in remote areas and in recognition of the fact that buyers/integrators are more inclined to work with groups that have already reached a certain performance level of capacity and capability to enter vertical relationships., it is recommended that PRDP pursues the build-up of an indigenous community-based capacity to deliver and provide services that would enable farms to comply with GAP and Sustainable Farming Practices. This may involve the establishment and/or scaling up of Farmer Field Schools or the replication of cacao doctors and masters initiated in Davao Region under the Mars Development Center and ACDIVOCA

program. PRDP can encourage and support the lead farmers to establish demonstration plots that subsequently would become learning centers for other surrounding farmers. These demonstration farms can also serve as pilots for GAP certification.

Farmers are generally not enthusiastic about upgrading or applying GAP. On the other hand, they are open to information on issues that significantly affect their income. As such, it is proposed that upgrading be carried out by promoting feasible upgrades and incremental improvements in agricultural practices that will result in the largest possible increases in yields and profits. The incremental approach to upgrading means: a) seeing issues such as sustainable farming as a continuum, rather than an either/or condition; b) promoting small, incremental improvements rather than large leaps; c) focusing on small, doable aspects of good agricultural practices, rather than on outright certification; d) collectively defining good practices by using input from all players, rather than using outside criteria; and e) identifying the motives of value chain actors to improve practices, rather than promoting GAP for its own sake.

Figure 29. SAMPLE BUSINESS MODEL: DELIVERY OF GAP AND RELATED SERVICES



Upgrading demands a commitment of financial resources. Promoting compliance with GAP carries a risk because it involves behavioural changes and financial commitments. Furthermore, since the positive outcomes of agricultural improvements often take a long time to be realized, there is often a high level of abandonment. As such, it is important to have "quick wins". To the extent possible, the delivery of GAP related services should follow the "Learning/ Training – Application/Mentoring – Income/Sales – Feedback/Coaching" cycle. The objective is to allow smallholders to immediately apply new skills and experience tangible benefits of training. Likewise, immediate feedback particularly during the early phases of implementation will aid the project team in the further development of the services. It will also be helpful if PRDP solicits the involvement of buyers and

various market players during the development phase of training modules so as to ensure that these are aligned to market standards and requirements and, thus, accelerate the build-up of capacity of farmers to gainfully participate in more lucrative and bigger markets.

People learn about their abilities and attitudes by comparing themselves with other people and their opinions. Mostly, people seek to compare themselves with someone against whom they believe they should have reasonable similarity. In our experiences, giving the target groups opportunities to compare their performance with others similar to themselves pushes them to action or provides them with greater motivation to perform target behavior. Somehow, it builds the general feeling of "if they can do it, we can do it." As such, friendly competition can be a major way to make learning and upgrading fun. These events can begin with easier-to-implement elements of GAP, such as "Best in Farm Layout" and incrementally move on to more complicated topics, such as "Best in Farm Sanitation." The competitions can provide incentives to farmers to become aligned with GAP, while simultaneously demonstrating the effects of good practices. Good practices and innovative solutions that would emerge from the competitions can be incorporated into the GAP manual and training modules, helping capture and further disseminate new learning.

Benchmarking activities are also effective means of initiating action. One though has to be careful that in such activities the role models are very much similar to the target groups and to avoid to the extent possible that they are faced against people whose standards they cannot reasonably attain as it can have a demoralizing effect (e.g., I can never be like him/her). Likewise, these events should be thoughtfully constructed as 'change spaces' and the emphasis is not on experts interacting with players but about players interacting with each other. It is also helpful to show the involvement of appropriate "opinion leaders" - respected people in the community that others will emulate.

Based also on the fact that people often decide what attitudes and behaviors are appropriate from observing those around them, another way to get farmers to adopt new/improved social norms is by using norm appeals through conformity. A norm appeal campaign is aimed at informing the target groups that other people similar to them are adopting the behavior that the project is trying to promote. Using messages that convey the popularity or growing appeal of the behavior is a way to get people to change over to a new social norm. A norm appeal campaign makes it more likely that people will observe others doing the behavior that the project is promoting and this facilitates scaling up. People tend to do the right thing when they observe others doing it first.

Given that labor plays a central role in production risk management, there is a need to establish a pool of caretakers and laborers who are knowledgeable on cacao farming and GAP. Availability of skilled labor and caretakers can also entice landowners who are not fulltime farmers to invest in cacao farming. The delivery of pruning and grafting services by a pool of skilled laborers can be a potential source of revenue streams for trainors/Farmer Field Schools so as to avoid volunteerism fatigue and dependence on public funds.

FERMENTATION AND DRYING

4. Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations

Inadequate post-harvest practices result in substandard quality of cocoa beans and lower prices for farmers. To build capacity of intermediary cooperatives to undertake drying and fermentation functions, it is proposed that the latter be assisted in the establishment of a GMP compliant drying and fermentation facilities supported with extension services on good postharvest practices and food safety compliance. For fermentation, drying, and storage facilities to be economically viable, it is

important that the cooperative has thevolume of cocoa beans to cover operations and overhead costs. The postharvest facilities may also be operated under a toll processing scheme where farmers or neighboring coops retain ownership of their beans and pay for the use of the facilities and the services.

Appropriate post-harvest handling is paramount to produce cocoa beans of high quality and consistency. This involves 3 primary phases: fermentation, drying and sorting. Access to GMP compliant postharvest facilities and technology is a critical and important component of the infrastructural base to support value adding and quality and safety management in the cocoa bean supply chain. Presence of postharvest facilities within the proximity of cocoa production areas will also reduce hauling and transport costs of farmers and buyers.

5. Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales

Production of semi-processed products, such as cacao butter, liquor, and/or powder, and elaborated products, such asartisanal chocolate represents a viable value adding option for the Mindanao cocoa industry. The strategy aims to lay the groundwork for the revitalization of cocoa grinding in the Philippines to reduce imports of cocoa products especially cocoa powder and development of high development of differentiated high value cocoa products given that beans in Mindanao have generally high fat content. Adding value allows for better margins to be made
at local level, which contributes to improving the economic situation of local players, which in turncontributes to the development of the country.

Main intervention approaches include product development support, introduction of appropriate technologies for commercial scale processing, and brand and market development. Establishment of GMP compliant common service facilities or toll processing facilities can be an option for areas where there is adequate supply of cocoa beans to support year-round production of tablea and related products. The establishment of a training center on chocolate processing similar to Barry Callebaut's "Chocolate Academy" will support processors in their process and product upgrading initiatives as well as ensure the availability of a skilled workforce.

MARKETING

6. Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume

Aside from yield improvement, supply base of cocoa beans can be increased through cacao-banana and cacao-coconut intercropping. To entice coconut and banana farmers to diversify into cacao farming, PRDP and the LGUs have to conduct promotional campaigns on the commercial and technical viability of intercropping as well as market opportunities for cocoa beans. Likewise, there may be a need to facilitate access to start-up capital via value chain financing or targeted input voucher program especially for smallholders.

7. Facilitate shift from arm's length transactions to directed relationships

With commodity products such as cocoa beans that have high demand from different market channels, competition can be used as a positive force to motivate lead firms to invest in collaborative and directed relationships and in the capacity building of suppliers as a means of securing loyalty and trust as well as a strategy to lower cost of production and transaction. Business

models such as forward contracting can insulate farmers from price fluctuations in the world market as well as promote a more equitable relationship between and among players. For directed relationships to prosper, it is necessary to build capacity of cooperatives on supply chain management and chain governance.

There is a need for a social infrastructure that would provide opportunities for players to meet and interact as a first step to building trust which is essential in formation of collaborative relationships. Rather than forming new coordination structures, PRDP may want to build on local socio-cultural events and festivals as venues for players to socialize in informal settings and on existing social networks such as informally organized supply chains (traders and his/her preferred suppliers), community associations, local development councils, etc. to make use of their existing governance structures and built-in constituency. In some cases, though, it may be necessary for the project to form a new network when existing groups are besieged with problems and orientation is difficult to align with the value chain development approach.

8. Cost contribution to road construction and/or rehabilitation

Improvements of rural infrastructure can reduce transport costs and, more generally, the cost of transaction. Public investments in road infrastructure would stimulate agribusiness investment, vertical coordination with buyers, and inclusion of small farmers in remote areas.

INTERFIRM RELATIONSHIPS AND SUPPLY CHAIN GOVERNANCE

9. Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system

Disinformation or the lack of information has been the cause of many of the trust issues and the main barrier which distorts or blocks horizontal and vertical collaboration. Harmonization of interpretation of standards will help build a common language between and among buyers and farmers enabling the latter to gain more control over pricing. Improved flow of information is needed especially among farmers. Likewise, by being aware of what is happening in the market, rural communities have better bargaining position as well as improved understanding of the price system (which reduces feeling of being taken advantage of. Lack of info also hinders contract agreements since everybody is wary that they miss out the opportunity to get a better price. As transparency between parties increases, willingness to invest for mutual upgrading is also most likely to increase.

A market transparency system in Mindanao can potentially use text messaging, newspapers, Radio and TV to disseminate up-to-date price and market information. It can be anchored on DTI's price monitoring system.

Supply chain visibility in Mindanao can be improved through the establishment of a traceability system. Traceability is a critical requirement for any certification scheme, and necessary for achieving a sustainable cocoa supply chain. It is, therefore, suggested that PRDP supports the development and piloting of a traceability system in Mindanao with Davao Region as the pilot.

10. Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers.

The promotion of collective action is an important strategy for increased smallholder participation in the cocoa bean value chain. In view of lower transaction costs and more effective capacities, lead firms often prefer to work with organized farmers rather than individuals, despite the increased bargaining power that groups enjoy. Thrust of PRDP's support may be directed to assisting farmer groups to engage in communal business oriented activities that would allow them to take on additional functions in the chain such as nursery operations, cluster or block farming, collective marketing, and operations of common service facilities. These collective activities will also enable communities to strengthen relationships with lead firms.

In areas where cooperation among and between farmers is weak, PRDP can pursue the incremental promotion of horizontal collaboration initiatives starting with relationship-building cum learning events such as organizational development sessions, festivals and competitions, and village level training to strengthen structures geared towards collective ventures with a focus on setting basic parameters/standards for participation. It is also important to facilitate the development of shared leadership in the communities. Likewise, it is best to start with low-risk low-cost collective initiatives so as not to overwhelm farmers especially if they are not used to working in formal organizational structure. Focus should be placed on building the ability and capacity of cooperatives to deliver economic services to the members.

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
INPUT PROVISION				
Lack of supply of grafted seedlings of high yielding varieties Limited number of accredited nurseries resulting to inconsistent quality of planting materials available in the market Limited utilization of grafted seedlings <u>Opportunities</u> Use of good quality grafted seedlings of high yielding varieties can result to uniform and increased yield and shorter gestation period. Existing nurseries and budwood gardens interested to upgrade and scale up operations	<u>Zamboanga Peninsula</u> All provinces *(2, 5, 6, 7, 8*) <u>Northern Mindanao</u> Mis Oriental *(3, 4, 5 5to 8)* Bukidnon*(1, 5, to 8)* Lanao del Norte *(3 to 8)* Mis Occidental *(6)* Camiguin*(6)* <u>Davao Region</u> All provinces (*all interventions 1 to 8)* <u>SOCCSKSARGEN</u> South Cotabato*(3 to 8)* Sarangani*(6)* North Cotabato*(1, 5 to 8)* Sultan Kudarat(6) <u>CaragaRegion</u> Agusan del Sur*(3 to 8*) Surigao del Sur*(3 to 8)* Surigao del Norte (*6)* Agusan del Norte *(6)* Butuan City *(6)* <u>ARMM</u> Lanao del Sur*(3 to 8)* Basilan*(2, 4, 5 to 8)*	Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials. (1) Upgrading and scaling up of existing certified budwood gardens and nurseries (2) Assistance to non-certified nurseries to comply with BPI certification requirements (3) Set-up of nurseries and budwood gardens that comply with BPI accreditation requirements and principles of sustainable farming practices (4) Work with financial services providers in the development of loan packages to facilitate establishment of certified nurseries including crop insurance products (5) Support R and D on appropriate planting materials and inputs (6) Implementation of voucher program, Plant Now, Pay Later scheme or similar market-	DA/PRDP: - Technical and financial support BPI - Technical assistance - R and D on planting materials DAR/DENR/NCI: - Promotion of accredited nurseries - Patronage of accredited nurseries PLGU/MLGU: - Land/Equity contribution - Promotion of accredited nurseries - Patronage of	Large scale budwood gardens: Source of scions Cooperatives: - Equity - Operators of nurseries and budwood garden Private Investors: - Operators of nursery and budwood garden Banks/MFI: - Financial services Media - Promotion Integrators/Exporters - Campaign on use of good quality seedling

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
Farmer groups and LGUs interested to engage in bud wood garden and nursery operations		based mechanisms to stimulate farmers to acquire and use planting materials (7) Set up of demo farm to showcase benefits and as venue for learning (8) Develop capacity of nursery operators to provide technical advice to farmer clients	accredited nurseries - In areas where there are no cooperatives, operators of nurseries and bud wood garden (public enterprise) - Managers of voucher program or similar mechanism - Monitoring SUCs: - R and D on planting materials	
High cost of chemical inputs both to farmers and environment Limited availability and commercial distribution of	<u>ZamboangaPeninsula</u> Zamboanga del Norte *(1 to 9)* Zamboanga del Sur *(1, 3 to 9)* ZamboangaSibugay*(1, 3 to 9)* Zamboanga City *(1, 3 to 9)* <u>Northern Mindanao</u> Mis Oriental *(1 to 9))*	Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	DA/PRDP: - Technical and financial support FPA:	Integrators/Exporters: - Promotion - Technical support - Patronize program supported providers (inputs

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
organic fertilizer and inputs Low use of fertilizer among smallholders due to lack of understanding among farmers on cost benefits of proper and efficient use of fertilizer, risk aversion, and limited purchasing capacity Lack of access to soil analysis services/ Lack of technical know-how on proper fertilizer management and application <u>Opportunities</u> Proper application and management of fertilizer and pesticides together with use of quality planting materials and good agronomic practices can potentially result to yield of 2 MT/ha. Cocoa pods and other agri-waste can be used in the	Bukidnon*(1, 3 to 9)* Lanao del Norte *(1, 3 to 9)* Mis Occidental *(3 to 9)* Camiguin*(3 to 9)* <u>Davao Region</u> All provinces (*all interventions 1 to 9)* <u>SOCCSKSARGEN</u> South Cotabato*(1 to 9)* Sarangani*(3 to 9)* North Cotabato*(1, 3 to 9)* Sultan Kudarat*(3 to 9)* <u>CaragaRegion</u> Agusan del Sur *(1, 3 to 9)* Surigao del Sur *(1 to 9)* Surigao del Norte (*3 to 9)* Agusan del Norte *(3 to 9)* Butuan City *(3 to 9)* <u>ARMM</u> Lanao del Sur *(1, 3 to 9)* Basilan *(1, 3 to 9)*	(1) Upgrading and scaling up of existing fertilizer enterprises including assistance to get the necessary certification/accreditation (2) Set-up of community-based organic fertilizer plant (3) Implementation of voucher program or similar tool to stimulate purchase and use of organic fertilizer/inputs and reduce risk averseness among farmers (4) Set-up of demo farms to showcase benefits and venue for learning (5) Development of distribution network/ retail network to ensure proximity of supply to farmers (6) Develop capacity of organic inputs providers and retailers to deliver technical advice to farmer clients and basic soil test analysis or via partnership with providers of soil analysis (7) Support providers in the development of payment scheme aligned to cash flow of farmers	- Capacity building and guidance in accreditation process DA-ATI/BSWM: - Capacity building - Soil test (BSWM) DAR/DENR/NCI: - Promotion of organic fertilizer - Patronise program supported providers MLGU/PLGU: - Site/Equity - Can be operators of fertilizer enterprise if there are no qualified coops	for outgrowers) Traders - Promotion to suki - Patronize program supported providers Media - Promotion MFIs/Bank: - Financial services Coops/Private Investors - Equity - Operators of organic fertilizer plant Sari-sari stores/Coop stores - Retailers of organic fertilizer

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
production of organic fertilizer. There are also existing enterprises engaged in production of organic fertilizer but not specifically for cacao		(8) Support to MFIs/banks in the development of appropriate financial product (e.g., value chain financing) for input procurement (9) Dissemination of success stories and emerging good practices	- Managers of voucher program or similar tool - Integration of agri-waste collection in garbage collection system - Monitoring	
FARMING				
Limited outreach of existing extension services and providers Low uptake and adoption of good agricultural practices and sustainable production practices Lack of skilled laborers/caretakers	<u>ZamboangaPeninsula</u> Zamboanga del Norte *(1 to 5)* Zamboanga del Sur *(1 to 4)* ZamboangaSibugay*(1 to 4)* Zamboanga City *(1 to 4)* <u>Northern Mindanao</u> Misamis Oriental *(1 to 5)* Bukidnon*(1 to 4)* Lanao del Norte *(1 to 4)* Mis Occidental*(1 to 4)* Camiguin(*1 to 4)* <u>Davao Region</u> All provinces *(1 to 6)*	Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity (1) Establishment and/or scaling-up of Farmer Field Schools or Cacao doctor/masters including assistance in the development of commercially viable services to ensure	DA/PRDP: - Technical and financial support DA-ATI/HVCDP - Capacity building DAR/DENR/NCI: - Promotion of services	Integrators/Exporters: - Technical support to program supported providers - Tap program supported providers in delivery of training to outgrowers - Consider possibility of

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
Lack of capacity to comply with certification requirements <u>Opportunities</u> Good agronomic practices and sustainable farming practices can reduce incidence of pests and diseases and improve resilience to climate change resulting to overall increase in productivity and better market access. Technical assistance provided by integrators to cacao farmers can complement extension services from government. Global buyers are increasingly sourcing only from suppliers certified to be sustainable. This can potential provide incentives to adopt good practices.	<u>SOCCSKSARGEN</u> South Cotabato*(1 to 4)* Sarangani*(1 to 4)* North Cotabato*(1 to 4)* Sultan Kudarat*(1 to 4)* <u>CaragaRegion</u> Agusan del Sur *(1 to 4)* Surigao del Sur *(1 to 5)* Surigao del Norte *(1 to 4)* Agusan del Norte *(1 to 4)* Butuan City*(1 to 4)* <u>ARMM</u> Lanao del Sur *(1 to 5)* Basilan *(1 to 5)*	financial sustainability of FFS/Cacao Doctors. (2) Capacity building support to intermediaries especially coops and progressive farmer leaders to deliver basic training and extension services to farmers (3) Participatory development (with farmers, multinational/ agents, traders) of modules on sustainable cacao farming practices to ensure buy-in and ownership of stakeholders and conformance to market requirements including technical assistance in the development of training approaches that allow quick wins to motivate and sustain adoption (4) Conduct of competitions to motivate adoption, stimulate innovation, and facilitate identification of emerging good practices as basis for regular updating of modules/Dissemination of emerging good practices (5) Establishment of a pool of skilled caretakers and laborers which may be a stand-alone enterprise (manpower services) or among	- Tap program supported providers in delivery of training PLGU/MLGU - Coordination and organization of training and capacity building activities - Organizational dev support to labor pool - Monitoring - Promotion of services	providers to become assemblers/quality control point persons - Support to competitions and capacity building events CIDAMI - Training of providers Media - Dissemination of emerging good practices

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
		the services to be provided by a FFS (6) Support to progressive cooperatives in complying with certification requirements (e.g., Rainforest Alliance certification)		
FERMENTATION AND DRYING				
Lack of access to facilities to consistently produce high quality fermented dry beans. Limited know-how and skills on Good Manufacturing Practices (GMP) and Sustainable Production Practices <u>Opportunities</u> Growing deficit of quality fermented beans in the Asia and Oceania Region. Fermentation in bulk improves quality and efficiency	<u>Zamboanga Peninsula</u> All provinces (1 and 2) <u>Northern Mindanao</u> Misamis Oriental (1 and 2) Bukidnon (1 and 2) Lanao del Norte (1 and 2) <u>Davao Region</u> All provinces (1 and 2) <u>SOCCSKSARGEN</u> South Cotabato (1 and 2) <u>Caraga Region</u> Surigao del Sur (1 and 2) Agusan del Sur (1 and 2) <u>ARMM</u> Lanao del Sur (1 and 2)	Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations (1) Establishment of GMP compliant common service facilities for fermentation, drying, packing, storage, and transport services. (2) Development of a core group of local experts to provide hands-on training and mentoring to users of postharvest facilities as embedded service of CSF	DA/PRDP - Technical and financial support DAR/DENR/NCI - Promote use of CSF among groups being supported PLGU/MLGU - Equity/land - Organizational development support - Monitoring DOST/BFAD - GMP training - Technical	Integrators/Exporters - Capacity building support Cooperatives - Equity - Operators of CSF

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
			assistance to ensure compliance to GMP and sustainable production principles	
PROCESSING (TABLEA)				
Limited product lines Non-GMP compliant manufacturing facilities and processes <u>Opportunities</u> Increasing per capita consumption of chocolate in the Philippines and Asia Implementation and adoption of standards such as GMP and HACCP can play a positive role in providing the catalyst and incentives for the modernization of the industry and in facilitating	<u>Zamboanga Peninsula</u> Zamboanga City*(1 to 4)* <u>Northern Mindanao</u> Camiguin (1 to 4) Misamis Oriental (1 to 4) Bukidnon (1 to 4) Lanao del Norte (1 to 4) <u>Davao Region</u> Davao del Norte (1 to 4) Davao City (1 to 5) <u>SOCCSKSARGEN</u> South Cotabato (1 to 4) <u>Caraga Region</u> Agusan del Sur (1 to 4) Surigao del Sur (1 to 4) Butuan City (1 to 4)	Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales (1) Process and product upgrading support (2) Development of new tablea-based products (3) Brand development and market development campaign (4) Establishment of GMP compliant common service facilities/toll processing facilities for production of tablea and tablea-based products (5) Set-up of a training center similar toBarry	DA/PRDP - Technical and financial assistance DAR/DENR/NCI - Promotion of CSF among target groups PLGU/MLGU - Land/equity - Market development campaign - Monitoring DTI - Technical	CIDAMI - Promote use of CSF - Promotion of Chocolate Academy Restaurants/Hotels/ Supermarkets - Promotion campaign

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
access to markets		Callebaut'sChocolate Academy	assistance: branding and market development DEPED/DOH - Promotion of tablea products DOST/BFAD - GMP Training - Technical assistance: process upgrading	
MARKETING				
Current cocoa bean production is very low. Banana and coconut farmers not aware of opportunities and viability of cacao – coconut and cacao – banana intercropping. Majority do not have the upfront resources to establish cacao farms.	All regions/ All provinces *(1 to 3)*	Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume (1) Dissemination of information on cacao farming opportunities including success stories in a variety of ways—print materials, in-person events, videos, and main-stream media—to ensure that as many farmers as possible can hear and	DA/PRDP - Technical and financial assistance DAR/DENR/DA-ATI/HVCP/PCA - Promotion of cacao production among target	CIDAMI - Promotion of cacao farming Integrators/Exporters - Expansion of areas of operations - Value chain financing in partnership with banks (e.g., Land

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
Opportunities World market demand exceeds supply with supply deficit projected to be at 1 million MT by 2020. Domestic chocolate manufacturers import most of their cocoa requirements. Annual domestic consumption is about 30,000 to 40,000 MT. There are also significant numbers of banana and coconut farms that can be planted with cacao (intercropping/ mixed farming system). Contract growing agreements offered by integrators can facilitate access to resources needed to start cacao growing.		understand the messages (2) Implementation of a targeted input voucher program or similar mechanism to encourage establishment and/or rehabilitation of cocoa farmers (3) Promotion of forward contract agreements to ensure markets/prices and facilitate access to financial resources. Work with MFIs/banks in development of value chain financing.	groups - Seedling distribution	Bank)
Dominance of spot transactions makes farmers	Zamboanga Peninsula All provinces*(1 to 3)*	Facilitate shift from arm's length transactions to directed relationships	DA/PDRP - Technical and	CIDAMI - Advocacy

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
more vulnerable to price fluctuation. Volatility of prices makes farmers wary to invest in cacao cultivation and upgrading. <u>Opportunity</u> Longer term contractual arrangements such as contract growing agreements can to a significant extent insulate farmers from price fluctuations..	<u>Northern Mindanao</u> All provinces*(1 to 4)* <u>Davao Region</u> All provinces*(1 to 4)* <u>SOCCSKSARGEN</u> All provinces*(1 to 4)* <u>Caraga Region</u> All provinces*(1 to 4)* <u>ARMM</u> Lanao del Sur*(1 to 4)* Basilan*(1 to 4)*	(1) Development of database of cooperatives interested to go into contract growing agreement and corresponding areas (2) Support the development of social infrastructure (festivals, dialogues, Kapihansa barangay, etc.) that would give farmers and integrators the opportunities to meet and interact with each other. (3) Promotion of long term contractual commitment under an ethical and responsible trading relationship (4) Capacity building (coops) on supply chain management and chain governance	financial assistance DAR/DENR/DA-AMAD: - Database of coops - Promotion of contract growing PLGU/MLGU - Organization of events - Market matching - Database of coops and areas - Monitoring	campaign directed to integrators and exporters
Poor farm to market roads Opportunities Good roads to cacao production areas (existing and potential) can contribute to reducing cost	<u>Zamboanga Peninsula</u> All provinces <u>Northern Mindanao</u> All provinces <u>Davao Region</u> All provinces <u>SOCCSKSARGEN</u>	Cost contribution to road construction and/or rehabilitation	DA/PRDP - Financial support DPWH - Technical support	

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
of transactions and facilitate improved access to product, support, and inputs markets. MLGUs are willing to cost share in the upgrading and maintenance of roads.	All provinces <u>Caraga Region</u> All provinces <u>ARMM</u> Lanao del Sur		PLGU/MLGU - Cost Contribution - Road maintenance	
INTERFIRM RELATIONSHIPS AND SUPPLY CHAIN GOVERNANCE				
Lack of market-based /price incentives for farmers to produce quality beans Unhealthy competition among and between traders stifles upgrading and provides disincentives to consistent production of good quality beans. <u>Opportunities</u> The Philippines has formulated the standards for cocoa beans which could be the basis for the development of a pricing scheme that rewards	<u>Zamboanga Peninsula</u> All provinces*(1 and 2)* <u>Northern Mindanao</u> All provinces*(1 and 2)* <u>Davao Region</u> All provinces*(1 to 3)* <u>SOCCSKSARGEN</u> All provinces*(1 and 2)* <u>Caraga Region</u> All provinces*(1 and 2)* <u>ARMM</u> Lanao del Sur*(1 and 2)* Basilan*(1 and 2)*	Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system (1) Technical assistance in the harmonization of interpretation of standards and the development of pricing structure based on standards and enforcement mechanism (2) Strengthen capacity of existing formal and informal information systems to disseminate accurate price and market information (3) Establishment of quality assurance and traceability system	DA/PRDP - Technical and financial assistance DAR/DENR/DTI/DA-AMAD/HVCDP: - Support to info dissemination and establishment of pricing structure, quality assurance, and traceability system MLGU/PLGU	CIDAMI - Support to info dissemination and establishment of pricing structure, quality assurance, and traceability system

Table 35. Summary of Priority Opportunities/Constraints and interventions
Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach

Constraints/Opportunities	Province	Intervention Strategy and Approach	Who Can Do It?	
			Public	Private
production of quality beans. . SMS and radio programs can potentially be used as mediums for widespread dissemination of information on prices and quality standards.			- Support to info dissemination and establishment of pricing structure, quality assurance, and traceability system - Enforcement and monitoring	
Weak capacity among farmers to organize themselves into structured groups Lack of trust and cooperation between and among farmers Lack of entrepreneurial skills Lack of experiences in formal organizational setting <u>Opportunities</u>	<u>Zamboanga Peninsula</u> All provinces*(1 to 3)* <u>Northern Mindanao</u> All provinces*(1 to 3)* <u>Davao Region</u> All provinces*(1 to 3)* <u>SOCCSKSARGEN</u> All provinces*(1 to 3)* <u>Caraga Region</u> All provinces*(1 to 3)* <u>ARMM</u> Lanao del Sur*(1 to 3)* Basilan*(1 to 3)*	Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers (1) Organizational development support to farmers complemented with behaviour change interventions and entrepreneurial skills development (2) Support to groups to start low risk collective activities that provide quick wins and tangible benefits (self and group) - e.g., set-up of collective marketing	DA/PRDP Technical and financial assistance DAR/DENR/DA-ATI Organizational development support Promotion of block farming PLGU/MLGU Organizational development support	

Table 35. Summary of Priority Opportunities/Constraints and interventions Note: Proposed intervention per province is indicated by the number that corresponds to intervention approach				
Constraints/Opportunities	**Province**	**Intervention Strategy and Approach**	**Who Can Do It?**	
			Public	**Private**
Cooperation and collaboration among individual smallholders can position farmers better to negotiate in marketing their cocoa beans and procurement of inputs and other services Large buyers are willing to source from smallholders if they can work effectively together Farmers in the same village know each other quite well and have had experiences of working together.		enterprises (3) Support to promotion and operationalization of farm clusters including mapping of cacao zones	Promotion of cluster farming Mapping of cacao zones	

Section 9:
CONCLUSIONS AND RECOMMENDATIONS

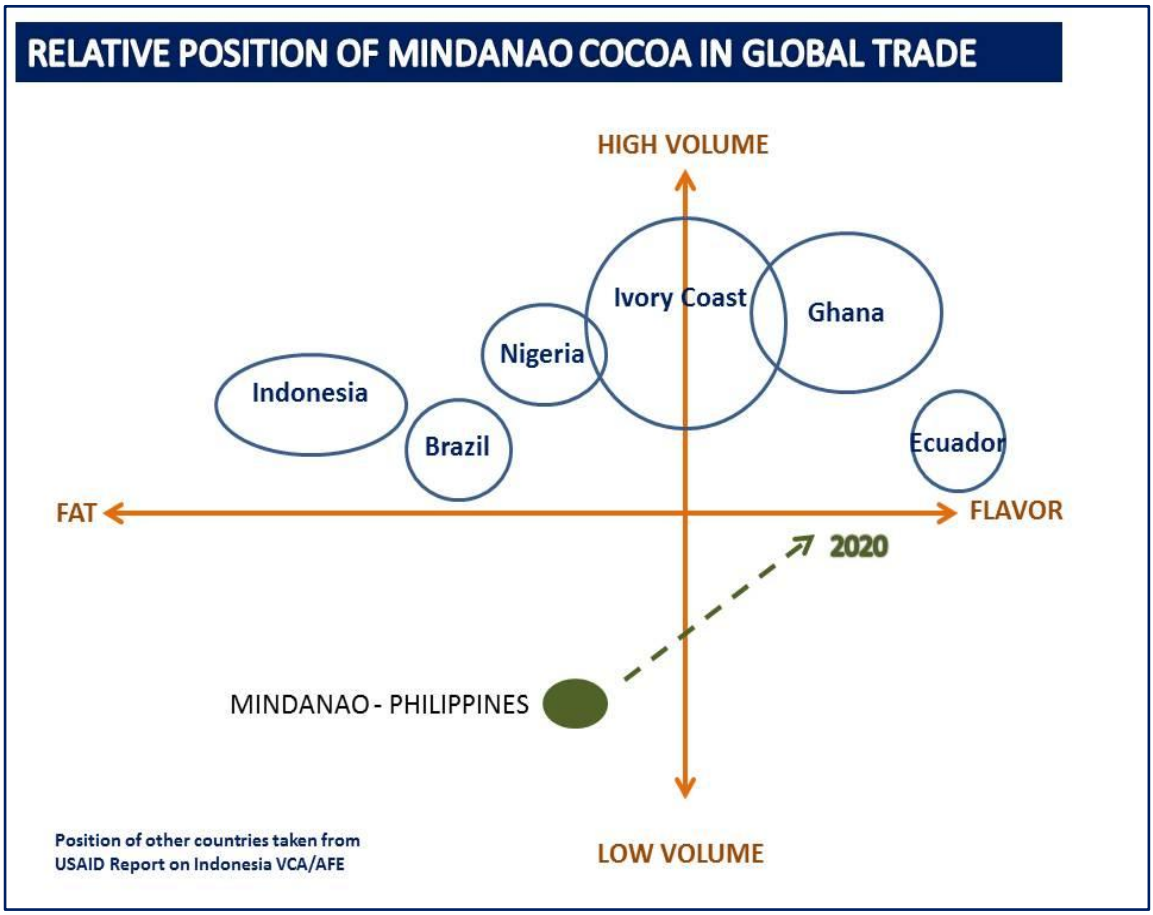
The following are the key conclusions and recommendations:

1. The biggest competitive advantage of Mindanao is the availability of land resources and the favourable agronomic conditions for cacao farming. Mindanao's biggest competitive gap is the lack of supply of cocoa beans, the inconsistency of quality, and the small size of the beans still being produced in many of its cacao producing areas. However, Mindanao has also proven that it can produce high quality fermented beans.

   In the Asia Pacific region, only about 25% to 30% of cocoa beans produced in the Asia Pacific Region are fermented beans. Hence, there is a supply deficit of well fermented beans in the Asia Pacific region. A focus on the production of high quality fermented beans can strengthen Mindanao's position in the cocoa market in the short to medium term.

   In the light of the ASEAN integration in 2015, Indonesia and Mindanao's cocoa beans can be complementary in the international market. Indonesia mostly export in the form of unfermented beans meanwhile Mindanao can further develop its capacity to produce high quality fermented beans and be the "Ghana" in Asia. In making the processed cocoa product, this two forms of beans is mixed to cater to buyers' requirements.

Figure 30. RELATIVE POSITION OF MINDANAO COCOA IN GLOBAL TRADE



2. For Mindanao to increase its presence in the world market, it has to increase its volume of production and ensure consistent production of high quality fermented beans.

Increase in production volume can be brought about through sustainable yield intensificationand promotion of cacao intercropping in banana and coconut farms trees/farms. There are opportunities to at least triple yields with the use of good quality grafted planting materials, good agronomic practices especially pest control, and proper fertilizer management and application. The table below shows possible yield gains based on the Kennemer's/Mars, productivity improvement model.

Table 36. Projected Outcomes of Productivity Improvement Measures

	Baseline Yield (Kg/Ha)	Possible Yield Gain (Kg/Ha)			New Productivity (Kg/Ha)
		Pest Control/ GAP	Grafted Planting Material	Proper Fertilizer Application	
Mindanao	589	177	766	459	1,991
Region 9	297	89	387	232	1,005
Region 10	290	87	376	226	979
Region 11	740	222	962	577	2,502
Region 12	447	134	581	349	1,510
Caraga	101	30	132	79	343
ARMM	191	57	249	149	646
Adapted from Mars/KFI model of increasing productivity; Baseline data – BAS					

India has the highest average yield at 2.74 MT per hectare with Thailand as a close second at 2.67 MT/hectare. Santa Lucia ranked third with its average yield of 1.80 MT/hectare.

The first stage towards export of quality cocoa beans is the farm, where varietal selection and agronomic practices are key factors that impact quality. The second stage involves the crucial postharvest practices necessary to produce good quality cocoa, especially fermentation and drying. Quality improvement at the postharvest operations would require access to GMP compliant fermentary, drying, and storage facilities and training on food safety, sensory practices, the importance of flavour quality, and good postharvest practices.

Sustainable improvement in yield, volume, and quality of cocoa beans would require systemic changes starting with the flow and availability of extension services, inputs, and price and market information to improving physical linkages to input and produce markets. To bring about systemic upgrading, there is also a need to foster win-win horizontal and vertical linkages and well-functioning supply chain governance complemented with behaviour change interventions.

3. It is recommended that PRDP focuses its interventions in areas where farms are contiguous or less fragmented so as to have the economies of scale. Likewise, it is suggested that community-based enterprises should be linked closely to exporters and integrators. These lead firms can bring in commercial expertise on the quality and quantities that the market demands. They can also be active co-investors in the chains together with farmers. Generally, farmers are more likely to adopt new practices and make greater investments in their farms when they are closely connected to buyers who give them the economic incentives and market access they need to succeed.

ANNEXES

Annex 1: Zamboanga Peninsula

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 7.

Ranking and Prioritization: Zamboanga Peninsula				
Intervention Strategy	**ZDN**	**ZDS**	**Sibugay**	**ZC**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	2	2	2	2
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	5	4	3	3
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	4	3	4	4
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	6	6	6	6
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	7	7	7	7
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	1	1	1	1
Facilitate shift from arm's length transactions to directed relationships	10	10	10	10
Cost contribution to road construction and/or rehabilitation	3	5	5	5
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	8	8	8	8
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	9	9	9	9

Annex 2: Northern Mindanao

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 8.

Ranking and Prioritization: Northern Mindanao					
Intervention Strategy	**Mis Or**	**Lanao**	**Bukidnon**	**MisOcc**	**Camiguin**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	1	1	1	1	1
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	4	4	4	4	3
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	7	5	5	3	4
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	6	9	7	6	6
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	5	10	6	7	5
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	8	6	8	5	7
Facilitate shift from arm's length transactions to directed relationships	3	3	3	9	9
Cost contribution to road construction and/or rehabilitation	9	8	10	10	10
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	2	2	2	2	2
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	10	7	9	8	8

Annex 3: Davao Region

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 9.

Ranking and Prioritization: Davao Region					
Intervention Strategy	**Davao del Norte**	**Davao del Sur**	**Davao City**	**Davao Oriental**	**Compostela**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	1	1	1	1	1
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	2	2	2	2	2
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	5	3	3	3	3
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	3	4	5	5	5
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	10	10	10	10	10
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	9	7	7	7	7
Facilitate shift from arm's length transactions to directed relationships	7	9	9	9	9
Cost contribution to road construction and/or rehabilitation	4	5	4	4	4
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	6	6	6	6	6
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	8	8	8	8	8

Annex 4: SOCCSKSARGEN

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 10.

Ranking and Prioritization: SOCCSKSARGEN				
Intervention Strategy	**South Cotabato**	**North Cotabato**	**Sarangani**	**Sultan Kudarat**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	2	3	3	3
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	7	7	7	4
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	1	2	2	2
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	3	8	8	9
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	10	10	10	10
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	8	1	1	1
Facilitate shift from arm's length transactions to directed relationships	5	5	5	6
Cost contribution to road construction and/or rehabilitation	6	6	6	7
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	9	9	9	8
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	4	4	4	5

Annex 5: Caraga

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 11.

Ranking and Prioritization: Caraga				
Intervention Strategy	**Agusan del Norte**	**Agusan del Sur**	**Surigao del Norte**	**Surigao del Sur**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	1	1	3	2
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	6	6	7	3
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	2	2	2	1
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	3	3	8	5
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	10	10	10	10
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	4	5	1	6
Facilitate shift from arm's length transactions to directed relationships	8	8	6	8
Cost contribution to road construction and/or rehabilitation	5	4	4	4
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	9	9	9	9
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	7	7	5	7

Annex 6: ARMM

Ranking and Prioritization of intervention Strategy per Province
Specific intervention approaches per province are indicated in Table 12.

Ranking and Prioritization: ARMM		
Intervention Strategy	**Lanao del Sur**	**Basilan**
Development and/or strengthening of local capacity to commercially produce and distribute certified grafted planting materials of high yielding materials.	2	2
Reduce cost of fertilizer use through local production and increased usage of certified good quality organic fertilizer specific for cacao as well as adoption of proper fertilizer application and management	3	3
Strengthening of capacity of existing providers and development of alternative/embedded and complementary models to transfer the needed skills, know-how, and information including establishment of pool of skilled laborers to enable farmers to adopt sustainable production practices and improve productivity	1	1
Build-up of capacity of cooperatives engaged in cacao production and trading to undertake fermentation, drying, and other postharvest operations	5	6
Upgrading of tablea products and development of related products that Mindanao can sustain as a marketing proposal in the domestic market with a view of laying the groundwork for export sales	10	10
Promotion of intercropping of cacao (coconut and banana farms) in identified expansion areas parallel to securing markets for additional volume	6	5
Facilitate shift from arm's length transactions to directed relationships	8	8
Cost contribution to road construction and/or rehabilitation	4	9
Harmonization of interpretation of standards and corresponding price differentials including development of chainwide quality assurance and traceability system	9	4
Development of capacity of farmers to incrementally associate, collaborate, and coordinate to achieve economies of scale in their transactions and to become attractive partners to large buyers	7	7