2017-2022 Philippine Cacao Industry Roadmap

philippine CACAO

K2 BR 25 PBC 123 K9 UF-18

Preface

In the recent years, the Cacao Industry has been gaining recognition in the domestic and export markets as the supply and demand gap of cocoa beans is increasing. The world demand for cacao has nearly tripled since 1970 growing at an annual rate of 3% with China and India growing at 7.9%. One of the primary drivers of this increase is the growing middle class, increasing discretionary household income in developing countries, new and innovative uses of cocoa in the food, cosmetics and pharmaceutical industries, and the positioning of cacao as health food.

With the Philippines' location conducive for cacao production and accessible to domestic and foreign trade, heightened the interest of local farmers and exporters to push for a more dynamic and competitive cacao industry that can compete with other major cacao-growing nations.

But why Cacao? This is the primary question being asked by those who have reservations as to the real potentials of the cacao industry. Basically, cacao may significantly contribute to poverty alleviation and inclusive growth through livelihood and job generation. This is because cacao production only requires small monetary investment or start-up capital. This explains why 90% of the growers are of small farm holdings. The suitability of cacao as an intercrop for coconut and banana, the two-week harvest interval, and the early gestation period of 18 months are some of the most valued advantages of this high value crop. The early return of investments and high profitability of the product also ensure good income augmentation potentials. Above all, the industry is market-driven considering that cacao has no product substitute. Its diversified usage as food and non-food warrants a sustainable marketing opportunity. The Philippines is a net importer of cacao on the other hand, global supply shortfall is expected to be at 1 million metric tons (MMT) by 2020.

Given these opportunities, players across the Industry Value Chain must boost their productivity and competitiveness in order to have a significant impact in the overall economic development of the country. Thus, through the series of consultations with the private and public sectors, this 2016-2022 Philippine Cacao Industry Roadmap, anchored on the Value Chain Approach and aligned with the 2022 Cacao Challenge (specifically to produce 100,000 MT of dried fermented beans by 2022), is being crafted to provide a harmonized direction and strategies that will serve as guide in the development and strengthening of the industry.

The Roadmap hopes to establish a sustainable and competitive cacao industry, that is environmentally sound, economically viable and socially desirable. As such, it is envisioned to spur development through livelihood creation, job generation, and income augmentation thereby contributing to poverty alleviation, inclusive growth, and peace and order attainment particularly in the rural areas.

A Philippine National Cacao Industry Council (Philippine Cacao) will also be created to spearhead the development of the industry. This will be a private sector led council composed of public and private sector representatives. To provide co-leadership, the Department of Agriculture will co-chair the Council.

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I. State of the Industry

a. Product

Theobroma cacao, the scientific name of Cacao, literally translates as "food of the gods" in Greek. The name *Theobroma cacao* was first given to the cocoa tree by Carolus Linnaeus –the Father of Modern Day Taxonomic Plant Classification. Cacao is the Mayan root word to describe the tree and its product. It is grown mainly for its seeds known as the cocoa beans which are used to make cocoa mass, cocoa powder and chocolate.

In the Philippines, there are three major cultivar groups being grown by farmers. These are the Criollo, Forastero, and Trinitario cultivars:

The Criollo is considered as the most prized, rare and expensive variety. It is native to Central and South America. It is believed that the 1st cacao seed planted in the Philippines was the Criollo variety brought via the Acapulco-Manila Galleon Trade in 1670. Only 5% of the world's cacao production is Criollo. This variety is difficult to grow, as extremely susceptible to pests and diseases. The beans are white to pale pink in colour and recognized as a superior quality, less bitter and more aromatic. Considered as the "Prince of Cocoas," Criollo is an ingredient in premium chocolates.

The Forastero**,** a native of the Amazon basin, is the most versatile variety and most commonly grown cocoa. It is mainly grown in Africa, Ecuador and Brazil and accounts for 80% of the world's cocoa supply. It is significantly harder, disease resistant and high yielding. Beans are purple-coloured and mainly used to give chocolate its full-bodied flavor. They have bitter taste, thus, often blended with superior cocoas.

Trinitario, the hybrid of Criollo and Forastero combines the best of the two other main varieties: the hardiness and high yield of Forastero and the refined taste of Criollo. It is the predominant fine flavor cocoa and can be found in all the countries where Criollo cocoa was once grown including Southeast Asia and the Philippines. It is being used in about 10% of the world cacao supply.

Cacao is said to be a non-self-pollinating plant thus, scientists and industry experts are recommending to have at least 3-5 clones in one farm site to facilitate pollination. At present, there are 15 approved varieties/clones registered in the National Seeds Industry Council, to wit: UF18, BR25, K1, K2, PBG123, K4, K7, K8, K9, K10, ICS40, UIT1, TSO1, TSO2 and TSO3. Of these major clones, six (6) are prevalently used, namely: UF18, PBC123, BR25, K1, K2 and K9.

It is the main ingredient in chocolate production and there is no other crop or product that can substitute it in as far as chocolate production is concerned. There are six (6) intermediate products that can be derived from cacao beans: cocoa nibs, cocoa liquor (tablea), cocoa cake, cocoa butter, cocoa powder and chocolate confectionary blocks. Its diversified use, both for food and non-food, provides broader market opportunities. As a health food, cacao is packed with vitamins and antioxidants that make it almost a super food or a natural multivitamin.

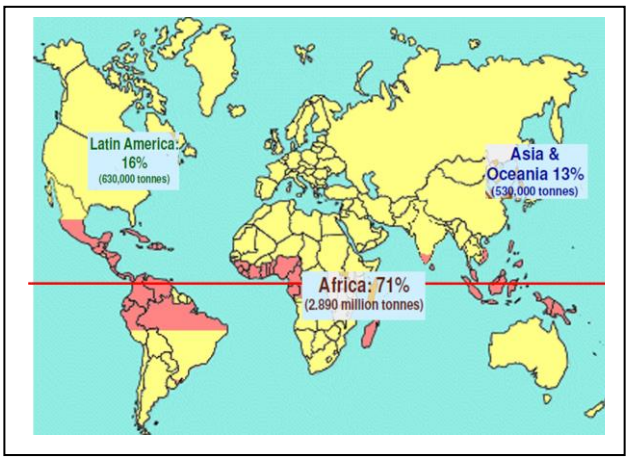
Cocoa-based products traded in the local and international market include:

- Wet cacao beans
- Ready to sow cacao seeds (seedling purposes)
- Cocoa nibs (beans, whole/broken, raw/roast
- Tablea (Cocoa paste or liquor, not defatted)
- Cocoa powder (not containing added sugar / other sweetening matter)
- Cocoa butter, fat/oil
- Chocolates
- Chocolate Confectionery

b. Production

The Cacao tree is grown in the tropics in a band between 10 to 20 degrees north and south of the equator, sometimes called the "Cocoa Belt". It grows most notably in Central and South America, West Africa and Southeast Asia specifically Malaysia, Indonesia and the Philippines. The tree is often grown in the shades of other trees and can be as tall as 40 feet. It bears fruits in 18 months but reaches full bearing capacity in 5 years producing 70 to 100 pods or more per tree per year.

The tree is cultivated in many countries. Africa contributes 71% of the world cacao production, followed by Latin America (16%) while Asia and Oceania at 13%. Today, the leading suppliers of cacao are Ivory Coast, Ghana, Indonesia, Nigeria, Brazil, Cameroon, Ecuador, Dominican Republic and Papua New Guinea.



Ninety percent (90%) of existing cacao farms are small. This ownership profile holds true even in the global scenario where most cacao farms are also small, ranging from 1-3 hectares.

Cacao production in the West African region is falling since 2012. The Ivory Coast known as the leading cacao supplier has declining volume at 95,000 tonnes in 2013-2014 while the second largest supplier, Ghana, has 150,000 metric tons (MT) reduction in its volume of production in the same period. Our neighbouring country, Indonesia, experienced a 50,000 MT reduction in the same year. The significant decline of the cacao production affects the demand and supply gap since demand for cacao beans increases every year.

Among the production constraints faced by these suppliers are wild weather pattern, pests and diseases, competition with other plantation crops, aging of cacao trees in major

production areas, and low productivity level. Other factors involved are social unrest/civil war, low investments in postharvest and limited production inputs.

The Philippines is among the countries in Asia seen to have a competitive advantage on cacao production given its strategic location and climatic condition. The two (2) million (M) hectares of coconut farms ideal for cacao intercropping supplement the industry's competitive advantage.

The first cacao in Asia was planted in the Philippines in 1670 while commercial farms developed in the 1950s. Production level reached 35,000 MT by 1990. However, production started to decline due to several factors such as weather and climatic condition, pests and diseases infestation, and aging trees. The decline was further aggravated by decreasing world market price and competition with other plantation crops such as banana and palm oil.

Despite its competitive advantage, the Philippine cacao production at present only stands at 10,000–12,000 MT from the 20,000–25,000 hectares (ha) of land planted with cacao per industry estimate. The said estimate is higher as compared with the figures shown by the 2015 Philippine Statistical Authority which was at 13,910 ha only producing 6,020 MT.

During the series of Regional Cacao Convergence sessions, it has been reported that millions of planting materials had been distributed and cultivated in the last two to four years through the Department of Environment and Natural Resources–National Greening Program (DENR-NGP)), Department of Agriculture-High Value Crops Development Program (DA-HVCDP) and the Philippine Coconut Authority-Kaanib Program (PCA-Kaanib Program). However, monitoring was not regularly conducted, resulting to inaccurate and outdated data which need to be addressed immediately.

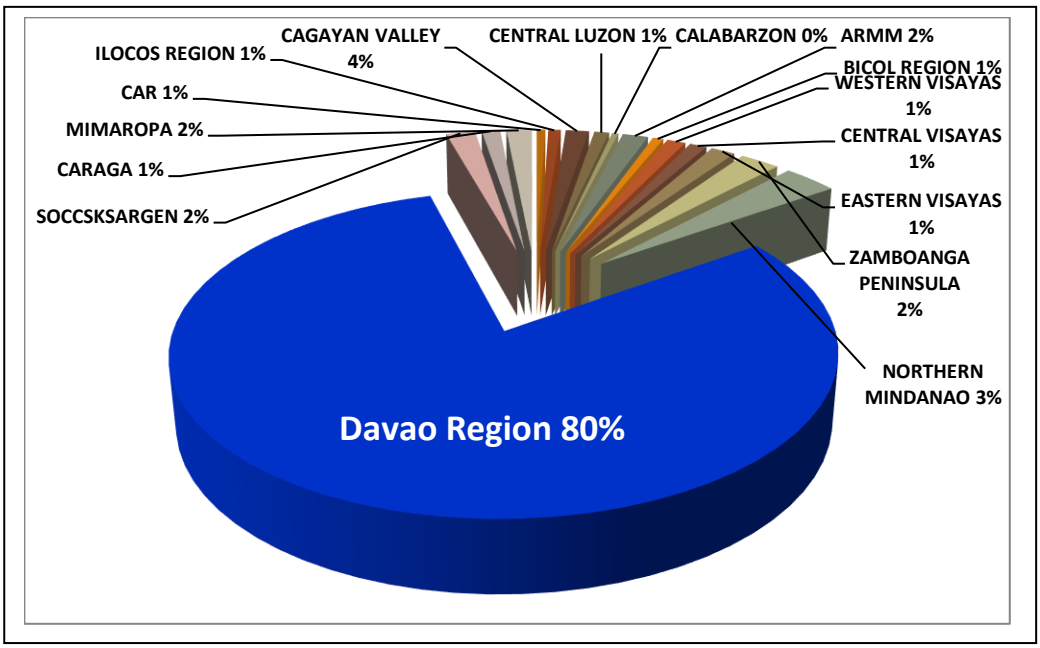
Table 1: Seedlings Dispersal per Government Program

Year	DA-HVCDP	DENR-NGP	PCA-Kaanib
2014	-	13, 299,337*	4, 438,011 (continuing)
2015	4,622,841	8,636,914 (continuing)	
2016	7, 787,992	-	-
2017	13,906,928	-	-

* 2011-2014

By 2016, around 38,785,095 seedlings were distributed and planted. If proper trainings will be provided to beneficiaries and appropriate production protocol will be observed, this will provide a big push for the industry.

Figure 1: Top Producing Regions in the Philippines



As illustrated above, the Davao Region contributes 80% of the national cacao production having 19,769 ha (LGU data) of land planted with cacao in 2015. The rest of Mindanao contributes 10% while the remaining 10% is being shared by Luzon and Visayas.

On account of productivity level, a declining yield from 2005 to 2014 was noted despite of the expansion of the industry in terms of area. Although area expansion was observed yearly, the volume of production at 0.5 kg to 1.0 kg per tree per year is way below the targeted 2 kg per tree per year set by the industry to beat the 2022 Cacao Challenge. Genetic expression of the existing varieties is at 3.5 kg per tree per year.

Aging cacao trees, lack of good agricultural practices, and scarcity of high-yielding planting materials are among the factors affecting the yield and production volume of the industry.

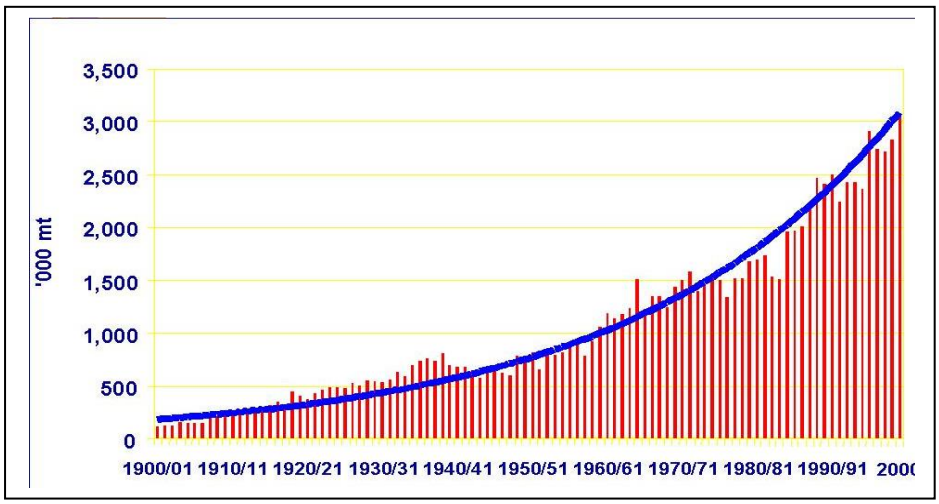
c. Market Situation, Trends and Prospects

World Supply and Demand Situation

The diversified use of cocoa beans in the manufacturing, pharmaceutical, and cosmetics industries generally pushes the global demand of cocoa beans on an upward trend. Global growth rate of demand is noted at 3% while China and India are at 7.9%.

As illustrated in Figure 2, the global demand (blue line) of cocoa beans is consistently increasing since the 1900s. Consequently, global production (red vertical lines) is generally increasing to meet the global demand though slight fluctuations of production is noted in some years. However, as shown in the graph, global cacao production since 1991 is lower compared to the global demand. As a result, projected supply shortfall by 1 million MT by year 2020 has been forecasted by industry experts.

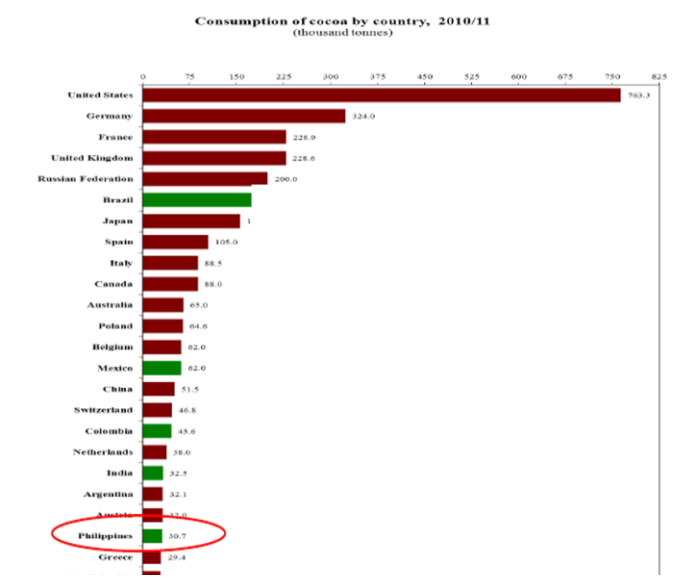
Figure 2: World Cacao Production vs. Demand, 1900 to 2000



The growing demand of cocoa beans is positively correlated with the demand for chocolates given that cocoa is the primary raw material that cannot be substituted by other commodity. In 2011, global sales of chocolate breached the USD 100-Billion (B) mark and is expected to hit USD 147-B by 2017 (Bloomberg).

The 2014-2015 world cacao grinding requirement was forecasted at 4.146 million MT (MMT). However, Asia's grinding requirement alone is already at one MMT, but only 0.5 MMT can be supplied by cacao producers from the ASEAN Region. The high grinding capacity has already exceeded the bean production thus, widening the gap of demand and supply. In the Philippines, current production is not even enough to supply local grinding requirements estimated to be at 40,000 MT.

Figure 3: Consumption of Cocoa by Country, 2010/11



Among the primary drivers of this increase are the big cocoa consumption demand of the United States and Europe, the increasing discretionary household income in developing countries, and the positioning of cocoa as health food, among others.

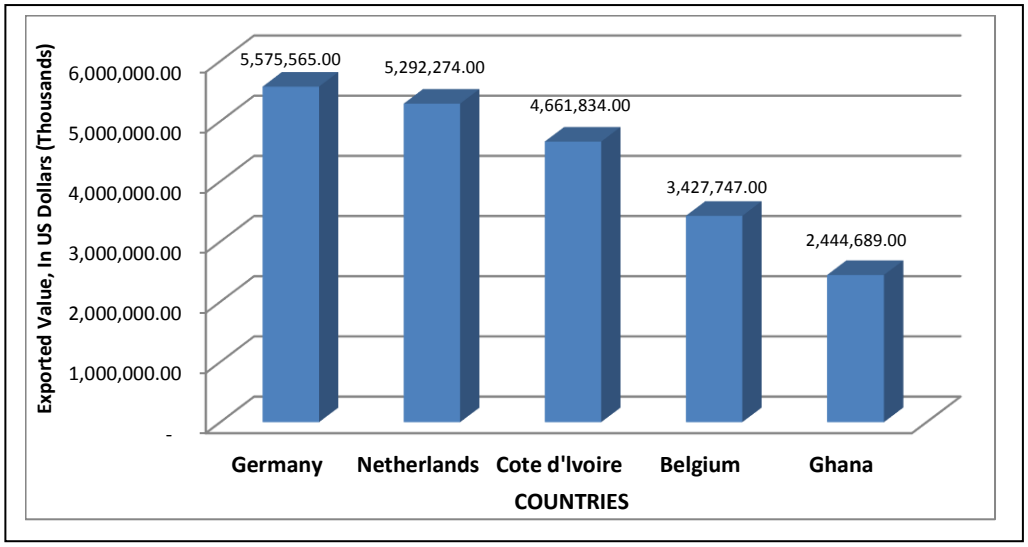
While demand is on an uptrend, supply gap continues to widen due to production constraints brought about by factors such as changing weather condition, pests and diseases, low productivity, aging trees, competing crops and unsustainable cacao farms. The one (1) mmt projected shortfall by 2020 is forecasted by experts to be felt earlier. The scarcity of bean supply also resulted to the closure of grinding facilities.

World Market Trends and Prospects

Cacao is an equatorial plant that grows only within 20 degrees from the equator. Thus, cacao production are commonly seen in tropical regions such as Africa, Latin America, and some parts of Asia.

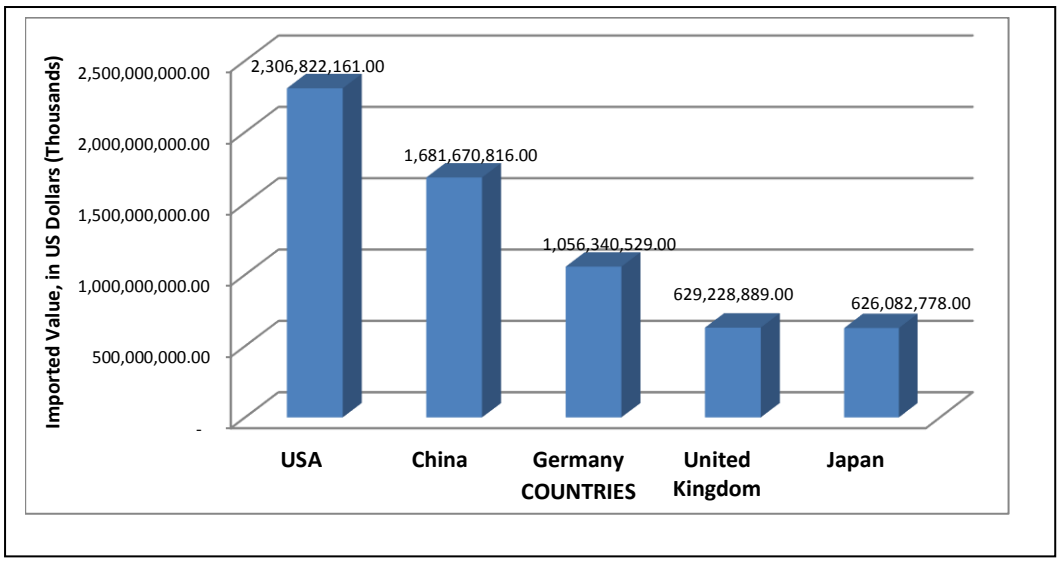
On the other hand, value-added cocoa-based products such as chocolates are being made majorly in non-cacao producing countries such as the United States and European countries. At present, Europe remains the main market for premium quality beans since majority of the grinders are based in the country. Of the 60% world grinding capacity, 39% are from grinders based in Europe, while the remaining 22% are based in America. This elucidates why main exporters of cacao and its preparations in 2015 were from countries in Europe such as Germany and Netherlands. Cacao producing countries such as Cote d'Ivoire and Ghana were the top exporters of cocoa beans in 2015.

Figure 4: World Exporters of Cacao and its Preparation, CY 2015



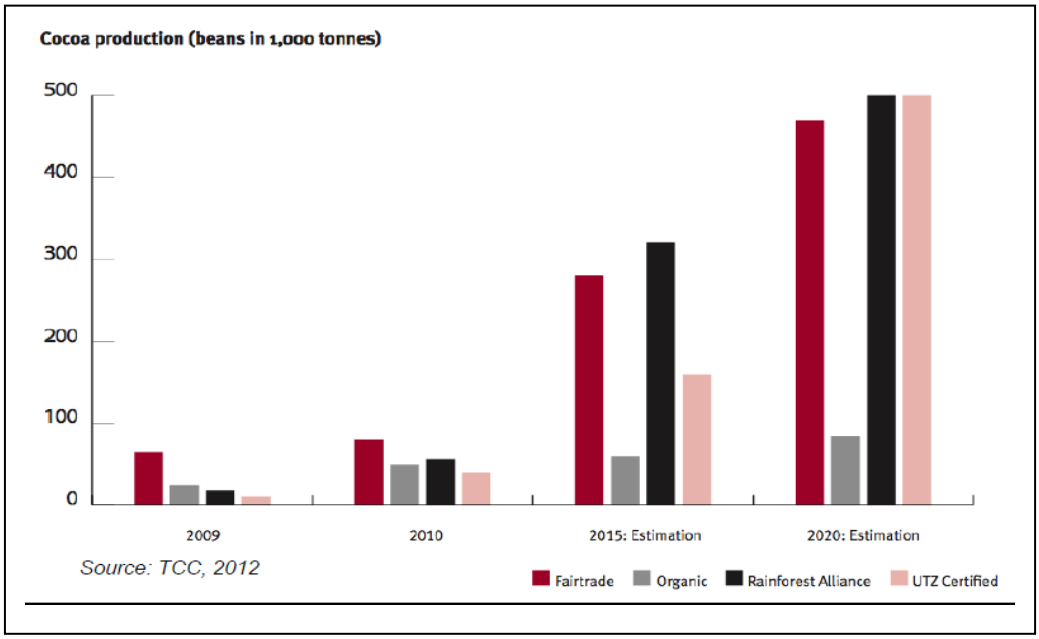
On import trade, countries engaged in cocoa-based products consistently top the world importers of cacao and its preparations. As shown in figures, USA has an imported value of USD 2.3-B in 2015 followed by China and Germany. Most of the cacao beans exported by the cacao-producing regions are marketed to grinders in these countries, being the home of giant confectionery companies such as Mars Inc., Mondelez International Inc., and Hershey Foods Corporation, among others.

Figure 5: World Importers of Cacao and its Preparation, CY 2015



The increasing awareness of consumers to fair trade and health and wellness (consumer preference) shifted the demand not only for value-added products but also in the production side. The demand for sustainably produced cocoa beans that are either UTZ, Rainforest Alliance, Organic or Fair Trade Certified was estimated to increase from the 100,000 tons demand in the year 2010 to 500,000 tons in 2020. This poses a challenge to cacao producing regions as most of the cacao farms are small holdings owned by farmers who have limited investment. On the other hand, the growing demand for sustainably produced cocoa beans entails more profitability to farmers demands higher prices for the premium quality beans they produced.

Figure 6: Demand for Sustainably Produced Cocoa Beans



The market for cocoa beans was very attractive in the recent years. Global growth rate of chocolate consumption is at 3.0% per year with China and India growing at 8%. Dark and pure chocolates with more cocoa content were more saleable in the recent years due to its healthy benefits. The growth in the consumption of the pastry industry and chocolate-coated dried fruits and nuts also contributed to the growing market potentials for cocoa beans and cocoa-based products such as liquor, tablea, etc.

Philippine Market Trends and Prospects

The Philippines is said to be the first country in Asia that planted cacao. However, the country is still an importer of cocoa products such as chocolate, cocoa powder, cocoa beans, and cocoa butter. In 2014, a total of USD 102.3-M worth of import was recorded, while export value was at USD 24.3-M only.

Table 2: Philippine Cacao Trade Performance, CY 2014

Cocoa Products	Import	Export
Chocolate	54.6 M	13.3 M
Cocoa Powder	44.8 M	2.2 M
Cocoa Beans	1.7 M	4.5 M
Cocoa Butter	0.53 M	4.3 M
Total	**102.3 M**	**24.3 M**

Source: NSO

The large import of cocoa powder and export value of chocolate is being credited to major chocolate manufacturers in the country who seldom buy local cocoa beans. Instead, they use imported powder and cocoa butter for their raw materials. This in effect increases the importation of cocoa powder making it the leading cacao product import in 2014. Consequently, some of the finished by-products produced by local manufacturers are being exported to other countries.

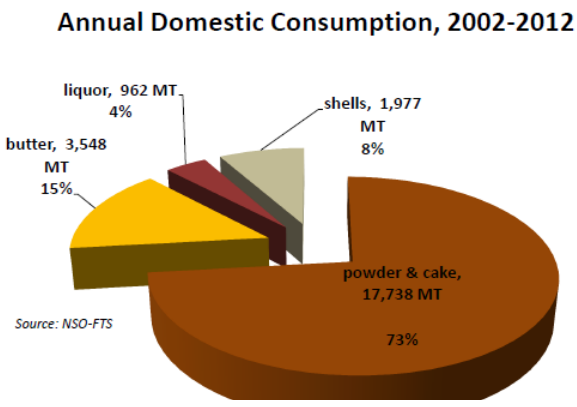
While considered a snack food in developed countries, chocolate in the Philippines is mostly eaten during special occassion or given as gifts. Among the major chocolate manufacturers located in the country are Universal Robina Corporation, Commonwealth Foods, Inc., Goya, Inc., and Columbia International Food Products Inc. Most of these companies are situated in Luzon, with capacity ranging from 20,000 to 36,000 MT of processed cocoa annually. Universal Robina accounts 38% of the chocolate market, with Cloud Nine and Nips as top selling products.

Grinding requirement of local chocolate manufacturers is at 40,000 MT while national production is only at 10,000 MT. A portion of this 10,000 MT is also being exported or processed at source, hence, not all local production is being consumed by the local grinders prompting them to import cocoa beans from other countries. It is reported that the Philippines imports 50,000 MT of cocoa and cocoa preparations to meet the local demand.

The presence of players from all stages in the cacao value chain places the Philippines at a competitive edge. Locally, the discrepancy between the grinding requirements of manufacturers and the existing national production entails more opportunities for production expansion to meet local demand. In addition, local processors offer higher buying price for cocoa beans compared to bean exporters.

According to the National Statistics Office – Foreign Trade Statistics (NSO-FTS), the bulk of the Annual Domestic Consumption of the Philippines from 2002-2012 was on powder and cake, equivalent to 17,738 MT, or 73% of the total annual domestic consumption. In order to address the underutilization of the capacity of local grinders, it is evident that the expansion and strengthening of the production aspect of the industry be given emphasis.

Figure 7: Annual Domestic Consumption, 2002-2012



The growing number of restaurants and coffee shops serving cocoa-based drinks and food items, and the growing industry of medium and small-scale chocolatiers requiring high quality cocoa beans contributed to the attractive price of cacao in the domestic market.

Other than these, changes in consumer preferences such as increasing consumption of "Tsokolate" (Tablea) drinks and chocolates, and increasing purchasing power of middle-aged working class pose opportunities for manufacturers of tablea and chocolates including cocoa beans producers. According to Euromonitor International, the Philippines' Chocolate market is forecasted to grow at 13% by 2017.

For bean exporters, more opportunities are open due to the widening of supply and demand gap in the world market. A 10% market share in the world supply can already provide a profitable income to the country and its producers.

Pricing Trends

Normally, the local price of the country's cocoa beans is correlated with the international commodities pricing. However, when there is an increased volume in local cacao processing on a certain period (i.e. tablea processors) and supply of raw materials is nil, it pushes the local price up considering that 'tablea' does not at all times conform to world market prices.

Dried bean prices had moved up from as low as P30.00/kg in 2007, P70.00 in 2009 to as high as P115 in 2014. Dried fermented cocoa beans get a premium of around P10.00- 15.00 per kilogram for fermented beans.

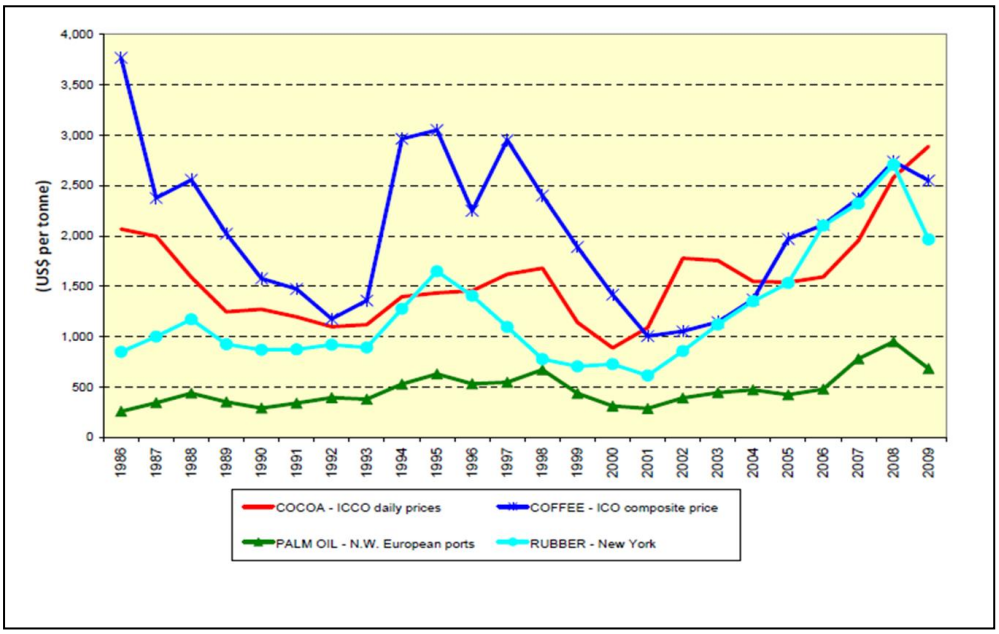
Cacao is the only agricultural commodity that defies the law of Supply and Demand. Unlike other commodities, the price of cocoa beans are generally higher during peak season. Low production is between January to April with the price at its lowest. However, during the peak

production period, i.e. October up to early January, the price is also at its highest. Incidentally, this period is also the peak inventory month for cacao bean for occassions such as Halloween, Christmas and Valentine's Day.

In 2007, prices were controlled by the traditional traders operating mostly in Davao, Cebu and Manila. With the entry of multiple exporters of dried beans in the Davao Region in 2008, competition among buyers resulted to the improvement of farm gate prices. From three exporters in 2008 operating in Davao Region, four exporters in 2014, and with the manifestation of interest from multinational companies and international commodity traders, the industry is expecting an increase in the number of exporters in the next five years.

Unlike other commodities such as palm oil, coffee, and rubber, cacao price (red line) is unaffected to severe fluctuations. As shown in the comparative graph of agricultural commodities in Figure 8, cacao prices slightly fluctuate in some years but generally price trend is going up.

Figure 8: Price Trends of Agricultural Commodities



d. Financial and Profitability Analysis

Production

Consistent with the promising market opportunities of the industry is the promising return on investments (ROI) for those who are or will be engaged in cacao production. As illustrated in the table below, production cost of planting cacao (monocrop or intercrop) is relatively low. For monocrop production, initial production cost for the first year is at PhP67,320.00 per hectare while intercrop planting is estimated to be at PhP47,454.00 per hectare (equivalent to 600 cacao trees).

Table 3: Cost of Production and Return on Investments (ROI)

Particular	Year 1	Year 2	Year 3	Year 4	Year 5
Total Production cost/1100 cacao trees (as monocrop/ha)	67,320	24,530	45,650	52,690	60,610
Net Income	(67,320)	8,470	91,850	167,310	214,390

Particular	Year 1	Year 2	Year 3	Year 4	Year 5
Total Production cost/600 cacao trees (as intercrop/ha)	47,454	17,809	35,167	41,107	49,687
Net Income	(47,454)	6,171	54,813	93,893	130,313

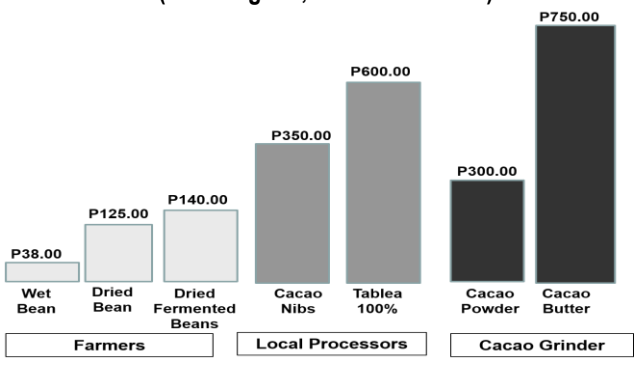
Unlike other crops, ROI of cacao production can be gained within three (3) years both for monocrop and intercrop areas since harvest may be done within 18 months for well-managed farms. Profitability is higher on the third year as net income doubles relative with the production cost.

The promising income the industry can offer accompanied with the numerous employment (being a labour-intensive industry) it can generate through cacao production will ultimately help in the government goal for countryside development and poverty alleviation.

Value-added Products

In the Philippines, there are seven cacao products sold to local and international markets. These are the wet beans, dried beans, dried fermented beans, cacao nibs, tablea, cocoa powder, and cocoa butter. Value of each product generally depends on the value-added inputs and demand in the market.

Figure 9: Cacao Product Value Ladder, as of Year 2016 (Per Kilogram, Midseason Price)



As shown in Figure 9, products that have undergone value-adding processes are more valued. Per industry estimate, the value of beans increases four times when converted to tablea and increases eight times when converted to chocolate. This entails that in order to gain higher profitability, producers must value-add their products instead of settling into wet or dried beans alone.

Among the most valued cacao product is the cocoa butter which is being sold at PhP750.00 per kilogram or higher. This product is a pale-yellow, edible fat extracted from the cocoa

beans. It accounts 45-57% of the bean content and is the most expensive. It is a major ingredient in practically all types of chocolates, and also being used in making ointments, toiletries, and pharmaceuticals.

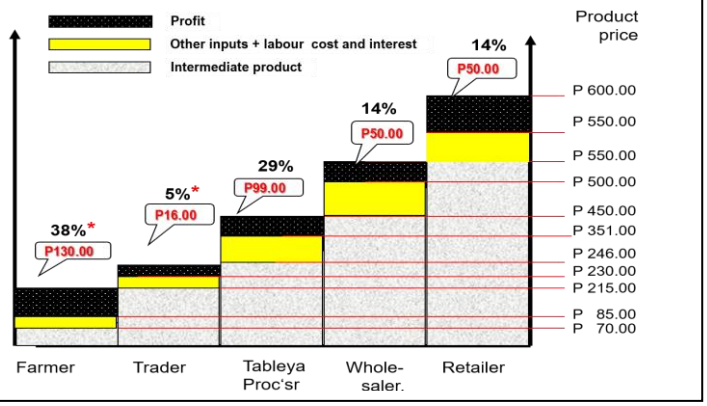
In selling beans, the dried fermented ones are more valued compared to the wet and dried beans. Farmers may have an additional PhP10-15.00 per kilogram in selling dried fermented beans. However, in order to market this type of product, availability and accessibility to postharvest facilities are very important to farmers.

In terms of tablea product, the farmers get the highest profitability with 38% or equivalent to PhP130.00.00 based on the PhP 215.00 selling price of 1.5 kg of beans. Production cost is estimated at PhP45.00 - PhP50.00 per kilo of dried fermented beans. The minimal requirement for additional inputs and overhead costs, and the prevailing market price based on supply and demand, contribute to the bigger profitability of the farmers. On the other hand, tablea processors gain the next highest profit as compared to other levels of the value chain. A twenty-nine percent profit, equivalent to PhP99.00 per kilogram, is gained by the processors out of the PhP450.00 selling price per kilogram. Traders, wholesalers, and retailers only acquire 4% and 14% profitability shares.

Under the value chain distribution in the international scenario, 6.6% profit goes to the farmer for every bar of chocolate, while the chocolate producer and retailer take 35% and 44% of the shares, respectively.

As illustrated in Figure 10, farmers with value-adding activities gained more economically. Thus, the cocoa sector can contribute much in terms of inclusive economic growth. This is very important in spurring up rural economic development. This is on top of the jobs created and other related livelihood opportunities that will be created.

Figure 10: Profitability Calculation (2016), per Kilogram of Tablea



e. Government Support

The potential and significant contributions of the cacao industry to employment and income generation led various government agencies to initiate interventions that will support the development of the industry. Among the programs designed to provide support are as follows:

- High Value Crops Development Program of the Department of Agriculture (DA);
- Philippine Rural Development Program of DA;
- National Greening Program of the Department of Environment and Natural Resources;
- Coconut-Cacao Enterprise Development Project of Philippine Coconut Authority;
- Industry Clustering, Market Assistance, Trade Promotion and Shared Service Facility Programs of the Department of Trade and Industry (DTI);
- Market Resurgence Program (MRP) of DTI;
- Agrarian Production Credit Program of the Department of Agrarian Reform;
- Mindanao Sustainable Agrarian and Agriculture Development (MinSAAD) Project
- Credit Program of the DA-Agricultural Credit Policy Council;
- SETUP, MPEX, and CAPE Programs of DOST; and,
- Research and Development Projects of the DA-Bureau of Plant Industry and academe.

The convergence of government support programs and projects touches various levels of the cacao industry value chain and is expected to transform and empower cacao farmers into thriving cocoa communities which are the essential foundation for sustainable cocoa farming. To reach this goal of transformation and empowerment, collaborative and harmonized interventions among government agencies including private and non-government organizations are being considered by the industry stakeholders.

f. Infrastructure Support and Logistics

Postharvest Facilities

Availability of efficient postharvest facilities are necessary for the development of the Philippine Cacao Industry given its important effects on the characteristics and quality of cocoa and taking into account the Philippine market position of producing and exporting Fine Flavour Beans.

However, similar to other cacao-growing regions in the Philippines, majority of the cacao farmers still do the fermentation and drying at their farms or homes using makeshift equipment. Cacao beans are dried on the ground or makeshift platforms which may expose the beans to surface contamination and infestation. The absence of appropriate solar dryers or mechanical dryers slows down the drying of cocoa beans during rainy season, allowing moulds to develop. On the other hand, rapid drying prevents the oxidation of acetic acid which leads to excess acid trapped within the beans. These can cause serious problems for the industry as it affects the beans flavour and quality.

To attain these quality requirements, appropriate postharvest facilities must be available in all cacao-growing communities. These facilities include cacao bean grading kits, fermentary facility, solar dryer with UV cover, mechanical dryer, multipurpose dryer pavement, and warehouse.

Nursery and Budwood Garden

Given the competitive advantage and marketing potentials of cacao in the local and world market, many farmers have ventured in the industry in the recent years. The increasing number of cacao growers posted a problem in terms of supply of quality planting materials as nursery and budwood gardens are limited especially in Luzon and Visayas.

In Davao Region, there are over 150 nursery operators with combined production of more than five (5) million seedlings per year. These nursery operators supply not only the Davao Region and Mindanao areas but also Luzon and Visayas. Likewise, ready to sow seeds and bud sticks which are the primary inputs to nursery operation are sourced out from Davao.

The existing supply gap is a major concern that hampers the expansion and development of the industry. The availability of quality planting materials including expansion and establishment of community-based nurseries and budwood gardens are critical in meeting the 2022 Cacao Challenge and ensuring the availability of high-yielding and pest and disease resistant planting materials.

The proliferation of non-accredited nurseries is also evident and pose additional concern to the industry in its aim of maintaining a high-yielding and disease-resistant planting materials. After all, quality beans come from quality seedlings.

Farm to Market Road

Accessibility to farm-to-market road (FMR) plays a vital role in the production and marketing aspects of the industry.

In the production side, the lack of FMR affects the farmers' capacity to transport farm inputs and farm products thus increasing their production costs. The delay of movement in the harvested cacao to postharvest facilities and/or marketing channels also affects the quality of beans thus, resulting to low farm gate prices.

As for the marketing aspect, poor road networks limit the farmers' opportunities to gain access to larger commercial channels and choose buyers whop can provide higher prices. Oftentimes, farmers rely on middlemen who often buy their beans at a much lower price.

Since most cacao farms are located in the rural areas, issues on product consolidation, delays in the movements of crops, farm inputs, and finished product which affect production costs and farm gate prices are very evident.

g. Research and Development

Improvement and innovation across the different areas of the value chain (input provision to production and processing) are necessary in gaining competitive and comparative advantage. Accordingly, both the private and public sectors including the academe have

been doing their own research and development on cacao production and management and product development and enhancement in order to attain these advantages.

On cacao production and management, the agriculture-based academic institution such as the University of Southern Mindanao (USM) undertakes various researches that aim to develop new generation of superior clones that are high-yielding, high fat content, and resisitant to Cocoa Pod Borer (CPB), Phytophthora pod rot, and Vascular Streak Dieback (VSD). Together with the DA-BPI, new cacao hybrids were developed, and studies on varietal appropriateness to local conditions were made.

To complement the research and development (R&D), the DA-BPI and the DOST in partnership with the private sector undertook research and development interventions to develop new technologies in nursery operation, farm production protocols and postharvest processing. Ultimately, this seeks to increase farm productivity and enhance product quality.

Although product development and enhancement are commonly initiated by the private sector engaged in processing/manufacturing, the government sector such as the DOST is also conducting researches for quality improvement of various cocoa-based products such as tablea, liquor, etc.

While there are numbers of researches conducted, the industry still sees the need to conduct further research and development activities. The need for an effective system to promote research products and ensure firm-level technological absorption or facilitate technology transfer must also be taken into consideration. The establishment of a Cacao Research Center is being pushed by industry players in order to have a focal center for R&D and depository of all cacao researches.

h. Human Resource Development

Majority of the cacao farms in the country are small holdings and are being owned and managed by farmers. These farmers are generally undergraduates who have gained knowledge in farming from their descendants or from experience. Consequently, majority of them have limited technical skills and knowledge on the production, marketing, and entrepreneurial aspects of agribusiness. Further, farmers have limited access to relevant and updated data, information, and knowledge which they can use.

This human resource gap often becomes a hindrance in attaining the desired productivity and competitiveness of the industry. For instance, the lack of knowledge on Good Agricultural Practices (GAP) led to improper cacao farm management thus resulting to low yield and vulnerability of the plant to pests and diseases. Lack of knowledge on the use and establishments of postharvest facilities affect the quality of the beans thus ultimately affecting the farmers' income. Addressing these gaps are relevant to the industry given that cacao production is labour-intensive rather than capital-intensive.

At present, the private sector and non-government organizations such as the Kennemer Foods International (KFI), CSI Trade Ventures., Cacao Industry Development Association of Mindanao (CIDAMI), ACDI/VOCA, and the Cocoa Foundation of the Philippines, Inc. (CocoaPhil) are also providing technical interventions to cacao farmers across the country. Public sector initiatives to enhance human capability within the industry is also evident as DA, DAR, DENR, and DTI in partnership with Cacao Industry Development Association of Mindanao Inc. (CIDAMI) provide human resource trainings not only in the field of production but also on entrepreneurship.

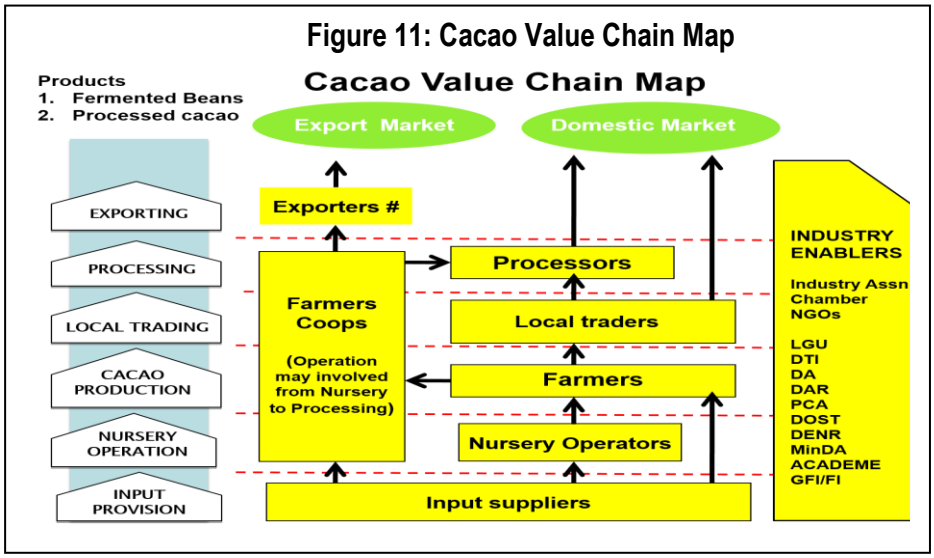
This shows that efforts for human resource development are being prioritized both by the public and private sectors. However, given that most of the training centers are located in Region XI, other regions such as those from Luzon and Visayas have limited access to these types of intervention. This is one area that has to be looked into.

II. The Cacao Industry Value Chain

Value Chain Analysis

The Value Chain Analysis (VCA) is a concept from business management popularized by Michael Porter in 1985 with the objective of identifying the behaviour of costs and the areas for differentiation. It is an approach for breaking down the sequence (chain) of business functions into strategically relevant activities through which value is added by the business. The industry value chain is composed of all the value-adding activities within the industry, beginning with raw materials, and ending with the completed product delivered to the customer. In the Philippines, various government agencies complement the Industry Clustering Approach with VCA in order to diagnose industry performance and illustrate the interdependence and relationship among industry players.

Figure 11: Cacao Value Chain Map

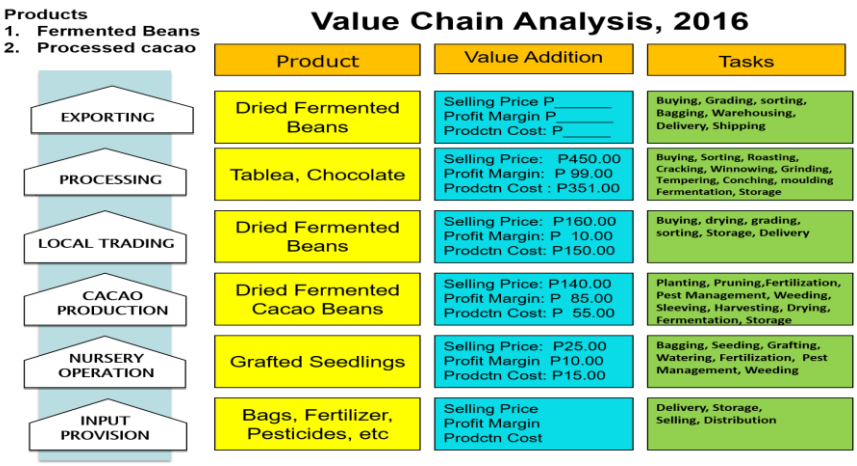


For the Cacao Industry, there are six (6) types of activities involved in the chain namely input provision, nursery operation, cacao production, local trading, processing, and exporting. Each level of activity has corresponding businesses/players who guarantee the availability of products required in their level.

Fertilizers, pesticides, packaging, and other input requirements of the upper level functions are being supplied by input suppliers. Farmer cooperatives in the cacao-growing communities serve as operators from nursery operation to processing of cocoa beans. Aside from these cooperatives, there are nursery operators, farmers, local traders and processors operating at the various level of industry activities.

As shown in Figure 10, the cacao industry is packed with industry enablers from the government sector, private sector, and non-government organizations. These enablers provide support services in the form of technical and financial interventions including provision of postharvest facilities and support infrastructures as indicated in their respective mandates. These generally enable the development and strengthening of the industry.

Figure 12: Value Chain Analysis, 2016



In the 2016 VCA conducted by the industry players and enablers, no data on the provision and export of value added inputs were generated. However, other activities in the chain show that the greater value addition being done in each activity, profit margins are. As illustrated in Figure 12, activities in the processing of tablea and chocolate have a higher profit margin as compared to the activities at the lower level of the value chain.

Industry Constraints and Opportunities

The series of consultative meetings and national convergence allowed the stakeholders to discuss industry constraints and opportunities that are prevalent in the industry. These constraints and opportunities are as follows:

Table 4: Constraints and Opportunities

Value Chain Activities	Constraints	Opportunities
Exporting	▪ High transport cost	▪ The domestic market is vastly undersupplied;

		▪ Impending global supply shortfall, demand on upward trend;
Processing	▪ Limited beans production ▪ Limited value adding activities	▪ Underutilized capacity, presence of support facilities; ▪ Increase demand for cacao processed products, i.e chocolate ▪ Availability of support services;
Local Trading	▪ Low level of consciousness on product quality and standards	▪ Presence of consolidators/exporters ▪ Entry of new players, encourage competition & pushes prices;
Cacao Production	▪ Inadequate fermentation facilities and skills on fermentation ▪ Low farm productivity level ▪ Low level of skills on Good Agricultural Practices (GAP) ▪ Inadequate postharvest facilities and infrastructure	▪ Premium price for fermented and certified cacao ▪ Large coconut and banana areas available for intercropping; ▪ Availability of gov't support programs
Nursery Operation	▪ Inadequate supply of good quality seedling materials ▪ Limited access to high-yielding scion/clone materials ▪ Proliferation of non-accredited nurseries	▪ Extensive R&D on varietal improvement ▪ Good germplasm
Input Provision	▪ High cost of farm inputs	▪ Presence of input suppliers

Together with the information from the industry situation, the identification of constraints and opportunities became the benchmark of industry stakeholders in setting the 2016-2022 Cacao Industry Roadmap.

III. The Cacao Industry Roadmap

This 2016-2022 Harmonized Cacao Industry Roadmap is the integration of three (3) existing roadmaps and is anchored on sustainability triumvirate, particularly on the context of coming up with environmentally sound, socially desirable, and economically viable sectoral development direction.

On the environmental context, this roadmap seeks to achieve production with special consideration for the environment. Thus, Programs, Activities, and Projects (PAPs) that will be undertaken to spur development will be in consonance with environmental preservation and protection.

Socially desirable PAPs for the development of cocoa-growing communities are also laid down to ensure human resource development especially in cocoa-growing communities. This is being accompanied with economically viable practices that encourage fair and profitable supply chain with the goal of attaining inclusive business growth with much emphasis on the economic well-being of the cocoa farmers.

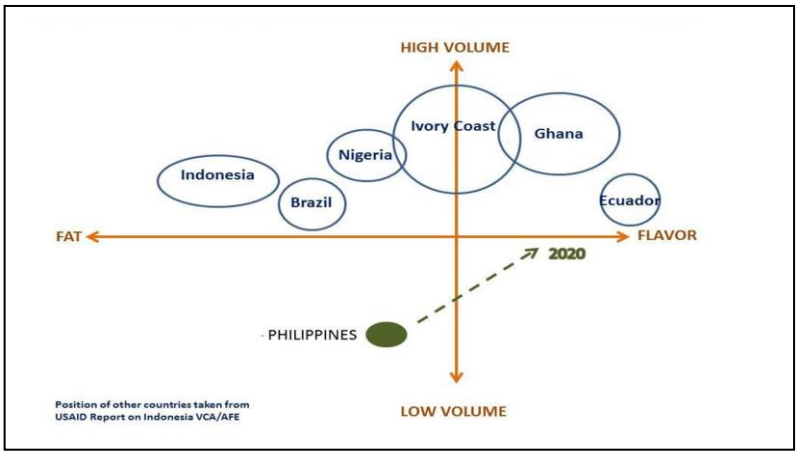
Philippine cocoa production is less than 0.1% of the global production and shares with Thailand and Vietnam the 1% out of the 13% production of Asia. Indonesia and Malaysia share the

remaining 12%. With this scenario, the production and market position of the Philippine cocoa bean should be geared towards the Fine Flavour Bean (FFB) and not to compete in the Bulk Bean (BB) market which accounts for 95% of the world production. FFB accounts 5% only but of much higher price.

In addition, production of FFB will also provide the right quality of beans needed to support the development of the Philippine Chocolate Industry. This is also one way of de-commoditizing the products so as not to be affected much by the price fluctuations in the global market, thus, bringing more income to the farmers.

This will require a concerted effort among the industry enablers and the private sector as well as a more focused delivery of services particularly the postharvest facilities, among others. Given this aspiration, stakeholders have set their vision, mission, and goal which will set the basis and direction of the industry.

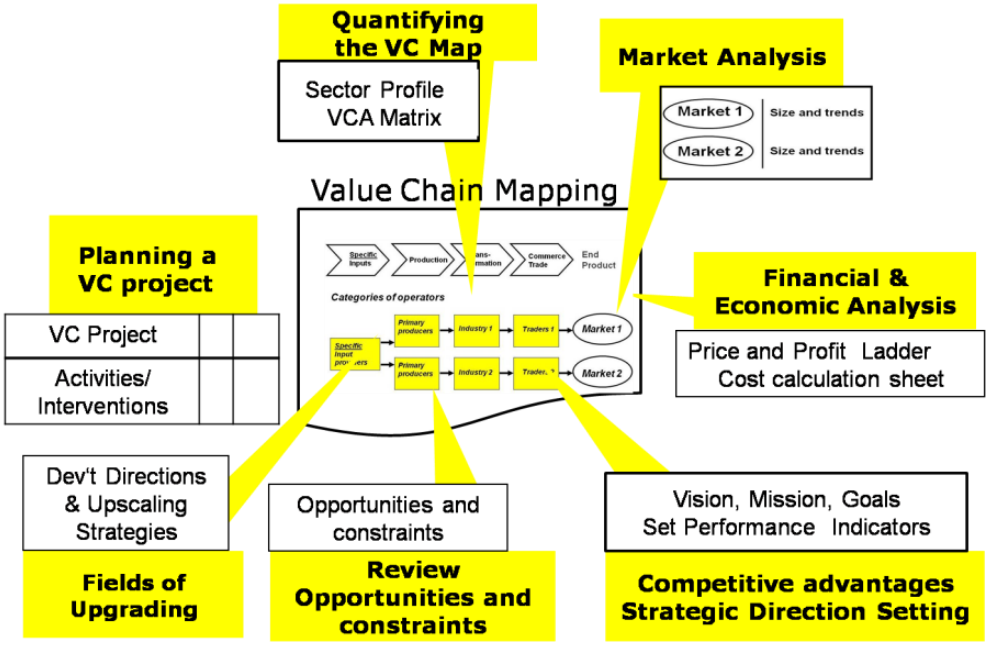
Figure 13: Market Positioning of Philippine Cacao



a. Vision, Mission, Goals and Objectives

The 2016-2022 Philippine Cacao Industry Roadmap was formulated, drafted and finalized after a series of industry consultations and regional convergence sessions. This Value Chain-based Roadmap was formulated based on the processes indicated below:

Figure 14: Cacao Industry Road Mapping Process



Vision

The Philippine cacao stakeholders envision a competitive and sustainable Philippine Cacao Industry by 2022.

Mission

To achieve this vision, the Philippine cacao stakeholders are committed to:

- Use commodity development to pursue poverty alleviation, job generation and environmental protection while advancing to economic development and inclusive growth;
- Mobilize all stakeholders for concerted industry-wide development efforts; and,
- Participate in the global cacao value chain

Goal and Objectives

The vision is expected to be achieved through the realization of the 2022 Cacao Challenge. Under this challenge, the goal is to produce 100,000 MT of fermented beans by 2022 for the export and domestic markets through a 40% annual increase in production.

To achieve this goal, the following objectives of the 2016-2022 road map are deemed to be attained, to wit:

- To increase production of cacao by 40% per year;
- To increase production productivity to 2 kg/tree/year;
- To ensure availability of cocoa beans to support and sustain value-adding activities; and,
- To contribute to the goal of attaining inclusive growth and poverty alleviation through:
    a. Increase in farmers' income to at least PhP130,000 per hectare per year;
    b. Increase export sales by at least USD 250-M per year; and,

c. Generate at least 150,000 jobs by 2022

b. Bottomlines and Regional Commitments

The identification of PAPs that will be implemented from 2016 to 2022 are expected to contribute in the attainment of the following bottomlines:

- At least 50M cacao trees producing 2.0 kilogram (kg) dried beans equivalent per tree
- At least 100,000MT production volume of quality cacao beans;
- At least 100,000 farmers getting additional income of Php130,000.00 per hectare/year; and,
- Additional export earnings of at least USD 250-M

With these targets, seventeen (17) regions in the country signified their commitment to participate in the attainment of the industry goal and objectives by taking a percentage share from the national target. The table below enumerates the regional commitment set by their respective industry stakeholders.

Table 5: Regional Commitment to the 2022 Cacao Challenge

Region	Percent	Production Volume (MT)
Cordillera Administrative Region	1	1,000
National Capital Region, NCR		
Region 1 - Ilocos Region	1	1,000
Region 2 - Cagayan Region	2	2,000
Region 3- Central Luzon	2	2,000
Region 4A- CALABARZON	2	2,000
Region 4B- MIMAROPA	3	3,000
Region 5 - Bicol Region	3	3,000
Region 6 - Western Visayas	1	1,000
Region 7 - Central Visayas	2	2,000
Region 8 - Eastern Visayas	5	5,000
Region 9 - Zamboanga Peninsula	5	5,000
Region 10 - Northern Mindanao	4	4,000
Region 11 - Davao Region	60	60,000
Region 12 – SOCCSKSARGEN	4	4,000
Region 13 - Caraga Region	3	3,000
ARMM	1	1,000
Region18 - Negros Island Region	1	1,000
TOTAL	**100%**	**100,000 MT**

The Davao Region, being the primary cacao-growing region, committed to achieve 60% of the target, or equivalent to 60,000 MT. The remaining 40% are being shared by other regions from Luzon, Visayas, and Mindanao.

c. Development Directions and Upscaling Strategies

The constraints and opportunities identified by the stakeholders served as the basis in setting the development directions of this roadmap. These development directions that will guide the 2016-2022 Cacao Industry Roadmap are as follows:

- Increase in productivity level;
- Expansion of production areas;
- Moving Up of the Cacao Industry Value Chain;
- Strengthening of Market Presence through Branding; and
- Focus on Fine Flavour Beans Market

Aligned with the development directions are the seven (7) upscaling strategies that when implemented together with the development interventions support will lead to the attainment of the industry vision, mission and goal. These strategies are as follows

- Industry strengthening, expansion, and promotion;
- Improve farm productivity;
- Increase production and access to quality planting materials;
- Promotion of value-added products;
- Strengthen market linkage and promotion
- Continual research and development; and,
- Resource generation and mobilization

d. Cacao Industry Action Plan

The National Cacao Industry Action Plan is based on the seven (7) upscaling strategies where interventions both from the government and the private sector were laid down on a per strategy basis. This is actually where the convergence and collaboration takes place. Government interventions are distributed based on the agency's mandate.

Through the Action Plan, harmonization and integration of development initiatives from various sectors are made possible. This also provides transparency in the programs and projects implementation and further facilitates ease in the monitoring and evaluation of industry performance. Proper and on the track implementation of these interventions are expected to address industry challenges and constraints, hence leading to the attainment of the 2022 Philippine Cacao Challenge.

Table 6: Philippine Cacao Industry Action Plan

Programs, Activities, and Projects	Implementing Agencies
Strategy 1: Industry Strengthening, Expansion and Promotion	

Conduct of Regional Convergence and Creation of Regional Cacao Industry Councils	DA, DTI, PNCIC
Facilitate RDC recognition of Regional Cacao Industry Council & endorsement of cacao as priority sector	Reg'l Cacao Councils, PNCIC, RAFC
Promote Harmonization/Convergence of Agency Budgets and Production Targets	PNCIC
Conduct of Asia Pacific Cacao Conference	CIDAMI
Conduct Investment and Techno Forum	DTI, DA, PNCIC, CIDAMI, MinDA,
Establish industry Databank	DA-BPI, PSA
Creation of a Philippine Cacao Board or Council thru Presidential E.O.	PNCIC
Conduct farmer's field day and industry forum	DOST-PCARRD
Strategy 2: Strengthen Market Linkage and Promotion	
Quality standards & certification advocacy	BAFS
Organize the Philippine Cacao Festival	PNCIC
Participation to Int'l, Nat'l & Reg'l Exhibits/Fairs	DTI, DA, PNCIC
Market linkages and referrals (local and foreign)	DTI, DA, BOI
Packaging and Labelling Consultancy	DOST, DTI
Orientation on Single Origin, Traceability &GIS	BAFS
Credit & Marketing Assistance Program for ARBOs	DAR
Promotion of a Collective Trademark for Phil Cacao Export Products	DTI, MinDA
Standards Dev't for Philippine Cacao Products	DTI, DOST, DA
Strategy 3: Increase Production and Access to Quality Planting Materials	
Establishment of Nurseries & Budwood Gardens (including training)	BPI, DA-RFOs, DAR
Streamline Plant Nursery Accreditation and Certification	BPI
Planting material distribution	DA, PCA, DENR, LGU, DAR
Provision of supplies and materials to expand the established nurseries	DOST-PCARRD
Strategy 4: Improve Farm Productivity	
GAP on Cacao	DA-BPI, PNCIC
Integrated Pest Management	DA, DA-PhilMech
Provision of farm infrastructures (FMR, Irrigation system)	DA
Provision of Postharvest Facilities. Fermentation, Dryers, etc.	DA, PhilMech
Training on Cacao Fermentation and Drying	DA, CIDAMI
Support to FITS Centers, School on the Air, Farmers' Field Schools, etc.	DA
Creation of Inter-Agency Convergence Initiatives to support the various Capacity Building Activities	PNCIC
Science and Technology Community Based Farming (STCBF)	DOST-PCARRD
Inventory of existing & potential cacao production areas particularly on ARC's	DAR
Strategy 5: Promotion of Value-added Products	
Conduct of Skills and Techno Transfer Training on Cacao Processing	DTI, DOST, , DA-PhilMech
Conduct of Entrepreneurship Seminars	DTI
Conduct of Product Development Clinics and technology upgrading	DTI, DOST
Productivity Enhancement Trainings	DA, PNCIC
Provision of Cacao Processing Facilities (Common Service Facilities)	DA, DTI, DAR
Creation of Inter-Agency Convergence Initiatives to support Capacity Building Activities for cacao processing	PNCIC, DA, DTI
Utilization of cacao pod husk as fuel briquettes, cellulose acetate, feeds, and pectin	DA-PhilMech, DOST
Utilization of cacao dripping as wine, vinegar, ethanol and pectin	DA-PhilMech, DOST
Building cacao waste village enterprise models in strategic growing areas	DA-PhilMech, DOST
Strategy 6: Continual Research and Development	

Varietal Improvement Program	USM
Cultural Management Program	USM
Pest and Diseases Control Program	DA BPI, USM
Improvement of Postharvest Technologies and establishment of R&D Center which include laboratory facilities	UPLB, DOST PHILMECH
Cacao Industry Profiling, Mapping and Geo-Tagging	DA-RFOs, DAR, DENR
Explore R&D Collaborations with Cacao Industry Experts in the BIMP-EAGA	MinDA
Strategy 7: Resource Generation and Mobilization	
Credit Facilitation	DA, DAR, DTI, LBP
Designing Special Programs	DA. ACPC
LBP Cacao 100	Land Bank
SBC Financing Program	SBC
Capacity building for resource generation	PNCIC
APCP & LBP: Financing Facilitation	DAR
Institutionalize a Convergence Mechanism for the preparation of Agency Budgets and Performance Targets Re: Cacao Industry Dev't	PNCIC
Agri-Insurance Program under ARAs	DAR

e. Industry Cluster Governance Framework

The industry stakeholders recognize the need to strengthen structural capability and control mechanism in the development and promotion of the cacao industry at the national level. Thus, initially, the National Cacao Industry Technical Working Committee (NCITWG) was created last August 2015 to spearhead the cacao industry development and paved the way for the organization of 15 Regional Cacao Industry Development Councils.

At the Regional level, Regional Cacao Industry Councils are being established. These councils will spearhead the development of the industry in their respective regions. The elected chairpersons will represent their regions at the Philippine National Cacao Industry Council (Philippine Cacao). To date, sixteen (16) regional councils and five (5) provincial councils are already created.

The finalization of the 2016-2022 Philippine Cacao Industry Roadmap, necessitated the creation of a permanent national structure that will spearhead the cacao industry development thus, the creation of the Philippine Cacao. The Council is expected to attain the following organizational objectives:

- Provide leadership in the cacao industry development;
- Strengthen structural capability and control mechanism in the development and promotion of the cacao industry at the national level;
- Forge/strengthen public and private sector partnership for better coordination of development initiatives; and,
- Represent the industry to international cacao governing bodies;

To ensure a harmonized and synchronized industry development as well as instill a certain level of industry disciple, the following functions and responsibilities of the Philippine Cacao are further defined below:

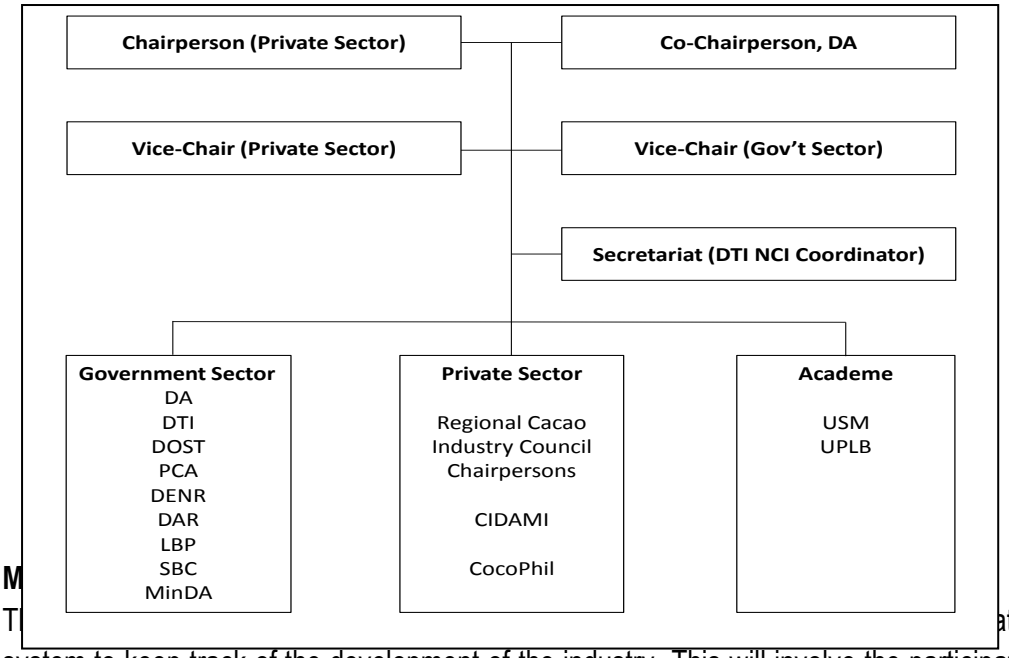
- Spearhead the development and promotion of the Philippine Cacao Industry;
- Formulate/advocate industry-related policies;
- Serve as the forum and coordinating body to discuss strategic issues affecting the cacao industry at the national level;
- Integrate and harmonize development efforts, programs and projects of the private and government sectors;
- Conceptualize, recommend, and monitor/evaluate project implementation;
- Promote transparency on project implementation; and,
- Establish/harmonize cacao technical production protocol.

The Council will be composed of public and private sectors, with at least 60% of the members coming from the latter. Government representatives will be coming from agencies involved in the development and promotion of the cacao industry. On the other hand, the private sector will be composed of chairpersons of the Regional Cacao Industry Development Councils and representatives of cacao industry organizations that are national in scope.

This will be a private sector led Council, thus, representative from the sector take the chairmanship and co-chaired by the DA being the lead government agency. There will be two (2) vice chairpersons, one from the private and another from the government sector with the latter represented by the DTI. The DTI-XI, being the DTI National Cacao Industry Cluster Coordinator of the agency, will serve as the Council's secretariat in close coordination with the DA-BPI. Tenure of office will be two (2) years.

Below is the proposed organizational structure of the Council.

Figure 15: Proposed Philippine National Cacao Industry Council (Philippine Cacao)



f. M

T ation system to keep track of the development of the industry. This will involve the participation

of all stakeholders particularly the participating government institutions as they will be required to submit periodic report.

Monitoring Report Forms will be developed and distributed to concerned agencies for periodic submission. This will be consolidated by the secretariat and presented to the council for evaluation.

Data gaps particularly on the production area, volume of production and productivity level will be a major concern that the system will address. The industry's bottomline indicators will focus on the following measures: job created, export and investment generated, MSMEs created and assisted, sales generated, loan approved and released, techno trainings/seminar conducted, and areas planted, among others.

IV. Philippine Cacao Industry: Way Forward

- **One Sector-One Voice;** Institutionalized the National, Regional and Provincial Cacao Industry Councils
- Intensify Industry promotion and strengthen market presence
- Involvement of Cacao Industry Councils in the government cacao seedling procurement program
- Develop Regional/Provincial Cacao Experts Pool and come up with a Harmonized Cacao Production Protocol Manual
- Validate National Cacao Industry Data
- Set up Cacao Industry Monitoring System
- Facilitate establishment of Cacao Testing Laboratory
- Level-up quality of Philippine Cacao Beans. Establish the Philippine Cacao Beans Award Program
- Start the ground work for the Philippine ICCO membership and
- Certification of Philippines as suppliers of Fine Flavour Cacao Beans

V. Regional Cacao Industry Councils: Next Steps…

- Recognition of the Regional Cacao Dev't Council by RDC and the endorsement of Cacao as a Regional Priority Sector
- Localize the 2016-2022 National Cacao Industry Road Map
- Validate Regional Cacao Industry Baseline Data
- Promote establishment of nurseries and budwood gardens
- Coordination in the gov't cacao seedlings procurement and distribution program
- Facilitate technology transfer for farmers & government field technicians
- Move up the value chain, more value adding activities
- Identify/establish Centers of excellence and Model Farm

VI. Philippine National Cacao Industry Council Directory

Membership	Representative	Designation	Contact Details

Chairperson: Cacao Industry Dev't Assn of Mindanao Inc.	Mr. Valente D. Turtur	Executive Director	09173778756 v_turtur@yahoo.com
Co-Chairperson: Dept. of Agriculture	USec. Evelyn Lavina	Undersecretary	(02) 926 8444 agri.hvc.da@gmail.com
Vice-Chair (Private Sector): Cacao Industry Council of Southern Mindanao	Mrs. Charita Puentespina	Chairperson	09176327686 puetespinafarms@yahoo.com
Vice-Chair (Gov't Sector): Dept. of Trade and Industry	USec. Zenaida Maglaya	Undersecretary	(02) 751 3335 rodg@dti.gov.ph
Secretariat: Dept. of Trade and Industry	ARD Edwin O. Banquerigo	Assistant Regional Director	(082) 224 0511 loc. 208 r11.davaocity@dti.gov.ph
Government Sector:			
Mindanao Dev't Authority	Usec. Janet Lopoz	Undersecretary	(082) 221 8109 info@minda.gov.ph
Dept. of Science and Technology	Dr. Reynaldo V. Ebora	Executive Dir., DOST PCAARRD	(049) 536 4990 r.ebora@pcaarrd.dost.gov.ph
Philippine Coconut Authority	Dennis Andres	Manager of Operations Dept., PCA	(02) 928 4501 loc. 509 ofad@pca.da.gov.ph
Dept. of Environment and Natural Resources			(02) 920-6215; 927-4788; 925-2139 invitation@denr.gov.ph hea@denr.gov.ph
Dept. of Agrarian Reform	USec. Rosalinda Bistoyong	Undersecretary	(02) 426-7484
Land Bank of the Philippines	Edgardo S. Luzano	Dept. Head , LBP	(02) 405-7450; 405-7309
Small Business Corporation	Bartholomew Brillo L. Reynes	President & CEO	(02) 751-1888 breynes@sbgfc.org.ph
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ACPC	*Agricultural Credit Policy Council*
ASEAN	*Association of Southeast Asian Nations*

List of Acronyms

BAFS	Bureau of Agriculture and Fisheries Standards
BPI	Bureau of Plant Industry
CIDAMI	Cacao Industry Development Association of Mindanao
CPB	Cocoa Pod Borer
DA	Department of Agriculture
DA-HVCDP	Department of Agriculture – High Value Crops Development Program
DA-RFOs	Department of Agriculture –Regional Field Offices
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
FFC	Fine Flavoured Cocoa
GAP	Good Agricultural Practices
ICT	Information Communication Technology
KFI	Kennemer Foods International
LGU	Local Government Unit
MCDC	Mars Cocoa Development Center
MinSAAD	Mindanao Sustainable Agrarian and Agriculture Development
MPEX	Manufacturing Productivity Extension Program
MRP	Manufacturing Resurgence Program
NCITWG	National Cacao Industry Technical Working Group
NGO	Non-government Organization
NSIC	National Seeds Industry Council
NSO-FTS	National Statistics Office – Foreign Trade Statistics
PAPs	Programs, Activities, and Projects
PCA	Philippine Coconut Authority
PCARRD	Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development
Philippine Cacao	Philippine National Cacao Industry Council
PhilMECH	Philippine Center for Postharvest Development and Mechanization
PSA	Philippine Statistics Authority
SBC	Small Business Corporation
SETUP	Small Enterprise Technology Upgrading Program
UPLB	University of the Philippines – Los Baños
USM	University of Southern Mindanao
VCA	Value Chain Analysis
VSD	Vascular Streak Dieback