COCOA

Industry Study Mission | **Indonesia** | 9 Dec 14 - 12 Dec 14

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SMU Singapore Management University | International Trading Institute

MERCHANTS' CLUB



ISM OVERVIEW





Visit 1: 9th December

BT Cocoa Processing Plant

Tangerang

"We first had a company presentation by Ms Putu from BT Cocoa where we were given an introduction to how Cocoa beans, upon delivery to their factory, are being processed. Following which, we dressed up in lab coats and took a guided tour to see the individual machineries involved in processing Cocoa beans."





Visit 2: 11th December I Bali

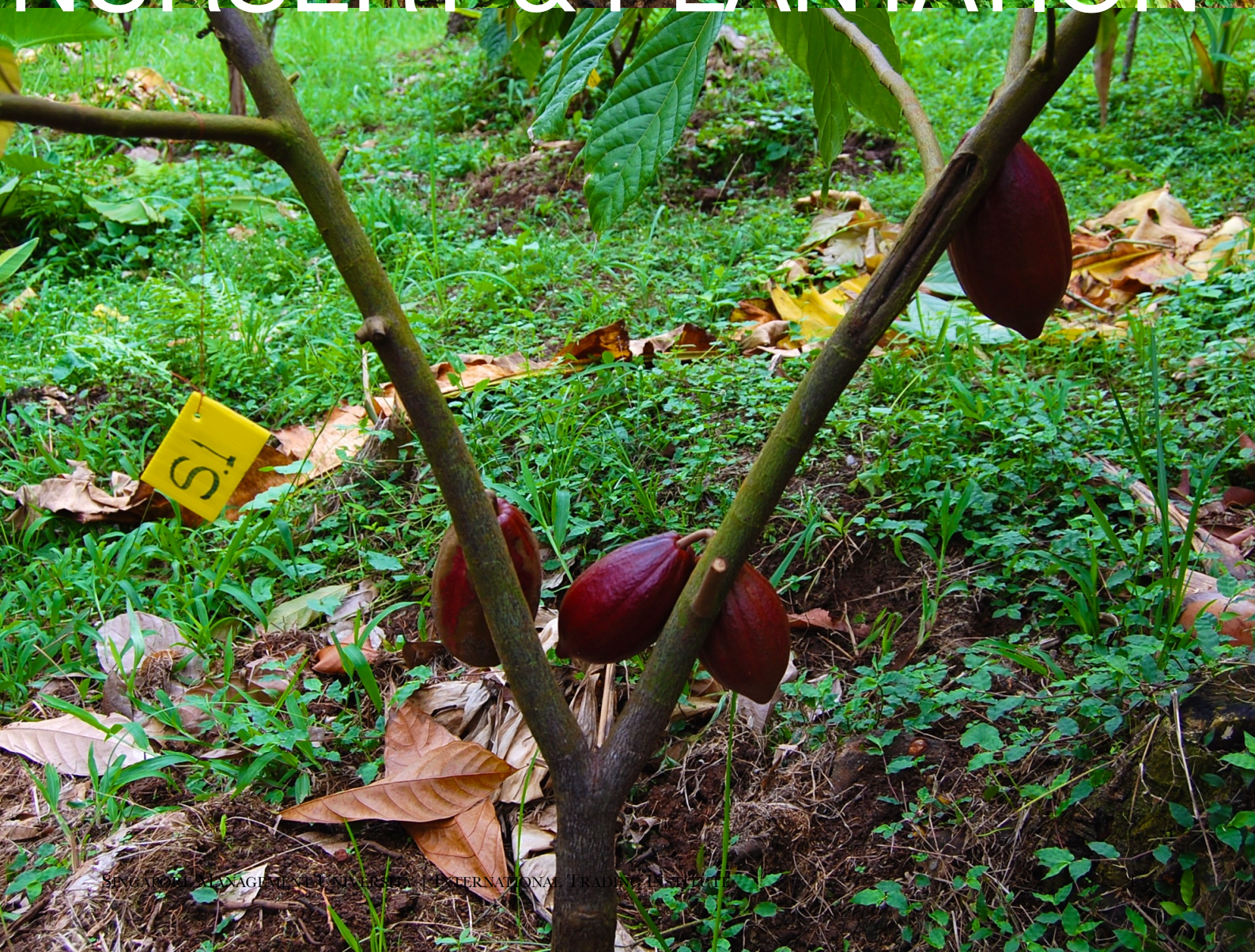
BT Sourcing Centre and Warehouse

"We also visited the BT Sourcing centre, where beans were received directly from farmers. We witnessed the process of drying where Cocoa beans were laid out in a warehouse and made to dry while receiving adequate amount of sunlight. Following the drying process, Cocoa beans were then packed into sacks and are ready to be delivered to processing factories."



VISIT 3: 12th December | Bali

NURSERY & PLANTATION






SERASI
2013







REFLECTIONS

Industry Study Mission (ISM) Indonesia 2014 offered a wide range of learning experiences and exposures, with a well-planned and executed four-day itinerary in two cities, Jakarta and Bali. Going right into the heart of one of Indonesia's largest cocoa companies, the trip brought about invaluable hands-on experiences as we were privileged enough to tour in the company's warehouses, visit its processing facilities and operations, nurseries and even into one of the local farmer's plantations in Bali. It is such exposures and hands-on experiences that truly puts what we read and study into context. More importantly, under the good guidance and sharing sessions with industry experts, it brought a whole new level of learning to this trip.



Our first visit to BT Cocoa's processing plant in Tangerang, Jakarta, started with us embarking on foot along the streets. The first experience with the local communities started with us passing by local shops alongside the heavy traffic, before the contrasting white and magnificent structure of BT Cocoa plant slowly came into view. In the plant, we saw how advanced and sophisticated the processes were, adopting many precision high-technology equipment and automated systems, bringing the amount of manual labour to a minimum. Apart from witnessing first-hand processes, from the receipt of cocoa beans to the vital pressing process resulting in the transformation of the beans into cocoa butter, liquor and powder, we were able to visualise the steps that a single bean has to go through to produce the aforementioned products. Following the tour around the plant, the group had the opportunity to interact with the company's staff in the cocoa trading desk. The brief introduction into their day-to-day operations gave us a glimpse into the challenges and rewards that traders face and have to overcome daily, and the session ended off with exchanging of thoughts and insights on the outlook of the industry.

Another highlight of the trip was our visit to a local farmer's plantations in Temekus, Bali, as we saw how innovative and organised the farmers were in their farming techniques. Under the warm hospitality of the locals, we witnessed side-grafting techniques adopted by the farmer, and even tasted cocoa pulps raw from the cocoa pods. It was a true representation of effective farming as the plantation was greatly utilised with multiple crops serving multiple purposes, despite undulating terrain and other challenges that the farmers face.

Lastly, but definitely not the least, a major plus point for the trip was the sharing and learning experiences with Madam Deborah Lim, as she patiently attended to all questions. We were all deeply appreciative for her guidance which truly brought our learning to the next level with her profound knowledge of the cocoa industry.



ABOUT INDONESIA

Macro Overview

Officially known as the Republic of Indonesia, the world's fourth most populous country is in Southeast Asia and Oceania. Indonesia is an archipelago comprising approximately 17,508 islands and has 33 provinces with approximately 252.8 million people today. Following three and a half centuries of Dutch colonialism, Indonesia secured its independence after World War II in August 1945. Indonesia's history has since been turbulent, with challenges posed by natural disasters, corruption, separatism, a democratisation process, and periods of rapid economic change.

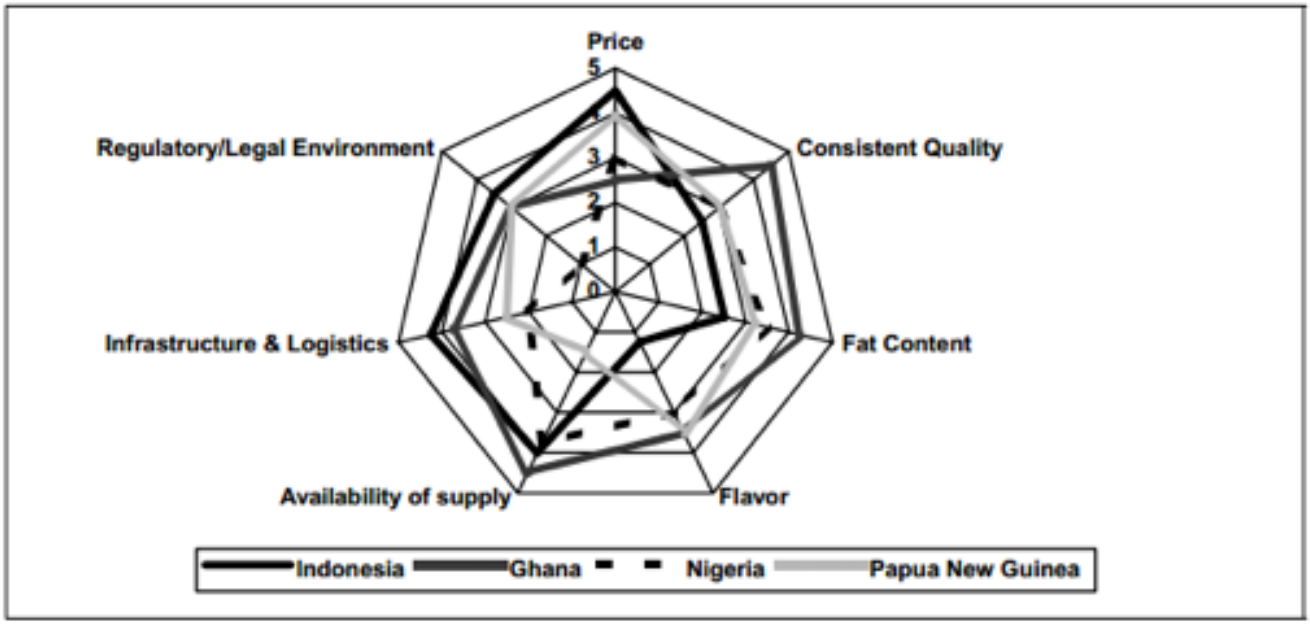
Cocoa is not considered one of the main exports of Indonesia. However, in terms of worldwide cocoa production volumes, Indonesia ranks third (behind Ivory Coast and Ghana). In terms of export, cocoa forms Indonesia's fourth largest foreign exchange earning from the agriculture sector (after palm oil, rubber and coconut). However, the majority of Indonesia's cocoa export constitutes raw beans instead of processed cocoa, meaning that Indonesia loses out on added value revenues.





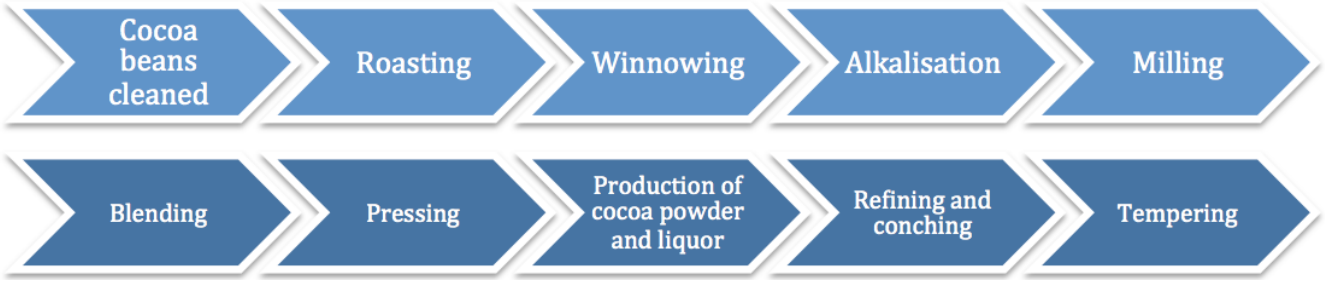
COCOA OVERVIEW

The cocoa bean, fruit of the cocoa tree, plays an economic importance globally in forming an essential element for the taste of chocolate, a worldwide popular delicacy. Cocoa beans come in three main varieties, namely *Forastero*, *Criollo* and *Trinitario*, a hybrid of the two. Indonesia's biggest competitive advantages include its low cost, high production capacity (availability of supply), efficient infrastructure and open trading/ marketing system (business environment). As the largest producer of unfermented bulk beans, Indonesia currently occupies a strong position with few competitors in this segment of the global market. In spite of its large production capacity, its biggest competitive gap is the inconsistency of cocoa bean quality mainly due to widespread pest infestation.





COCOA PROCESSING



Transforming Cocoa Beans into Chocolate

The cocoa beans are cleaned to remove foreign matter. A bean count will be conducted so that BT cocoa knows how much to pay the famers for the bag of beans delivered.

Roasting is conducted to bring out the flavour of the cocoa beans. The temperature, time and degree of moisture involved in roasting depend on the type of beans used and the sort of chocolate or product required from the process.

Winnowing removes the shells from the beans to leave just the cocoa nibs and the nibs undergo alkalisation, usually with potassium carbonate, to develop the flavour and colour. Bleaching may occur for manufacturers that want to add colour to their chocolate (e.g. Japanese Macha chocolates).

Nibs are then milled to create cocoa liquor (cocoa particles suspended in cocoa butter). The temperature and degree of milling varies according to the type of nib used and the product required.

Manufacturers generally use more than one type of bean in their products and therefore the different beans have to be blended together to the required formula.

The cocoa liquor is pressed to extract the cocoa butter, leaving a solid mass called cocoa presscake. The processing now takes two different directions. The cocoa butter is used in the manufacture of chocolate and the cocoa presscake is broken into small pieces to form cocoa powder.

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Cocoa liquor is used to produce chocolate through the addition of cocoa butter. Other ingredients such as sugar, milk, emulsifying agents and cocoa butter equivalents are also added and mixed. The proportions of the different ingredients depend on the type of chocolate being made.

The mixture then undergoes a refining process by travelling through a series of rollers until a smooth paste is formed. Refining improves the texture of the chocolate. Conching is a kneading or smoothing process, which further develops flavour and texture.

The mixture is then tempered or passed through a heating, cooling and reheating process. This prevents discolouration and fat bloom in the product by preventing certain crystalline formations of cocoa butter developing.

The mixture is then put into moulds and cooled in a cooling chamber. The chocolate is now produced and packaged for distribution to retail outlets.





Raw Cocoa



Roasted Cocoa Beans





Cocoa Nibs

Cocoa Butter





Cocoa Liquor

Natural Cocoa Cake





Natural Cocoa Powder

Alkalised Cocoa Powder

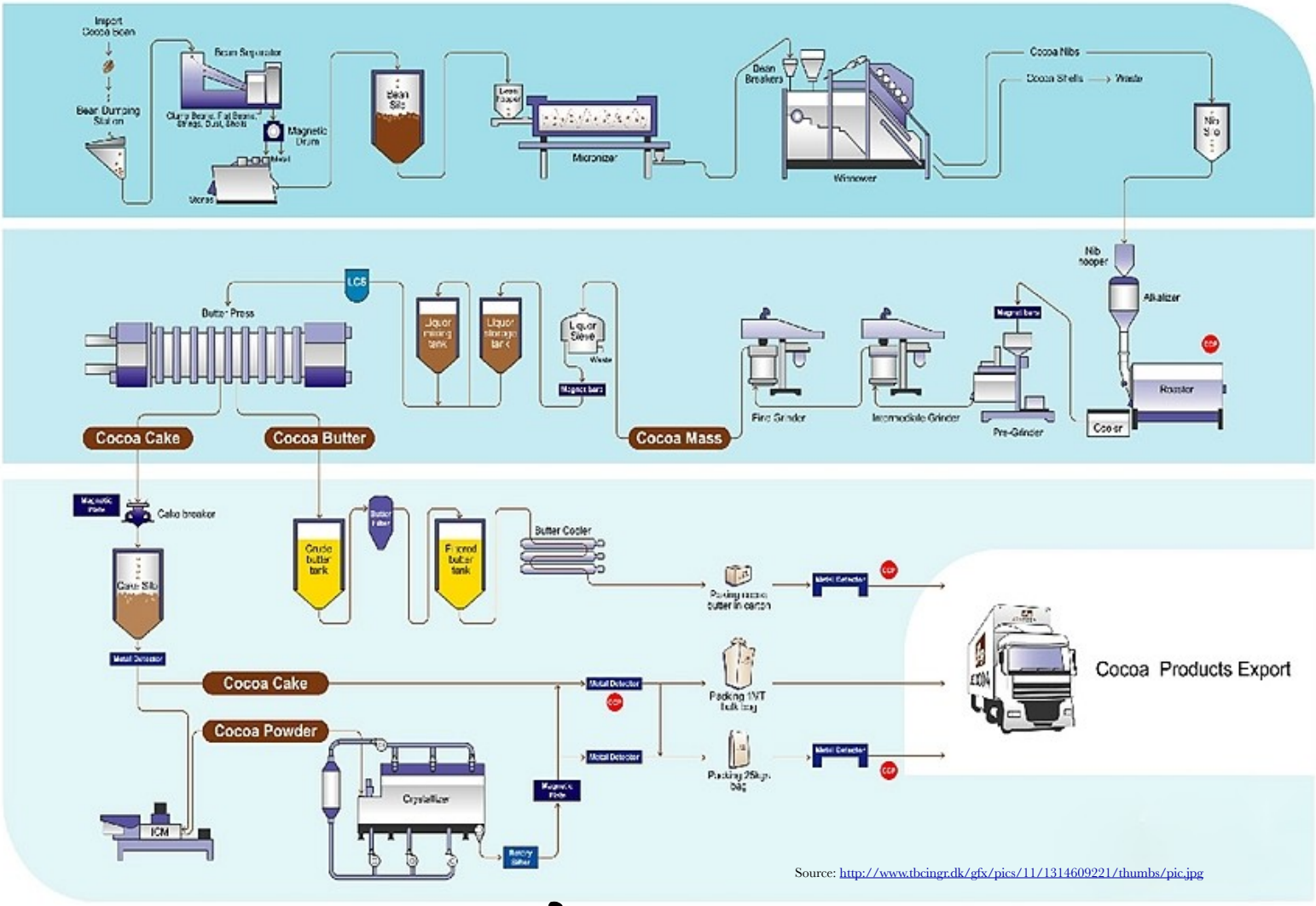




CHOCOLATE!

PROCESS FLOW

Low Hygiene
Medium Hygiene
High Hygiene



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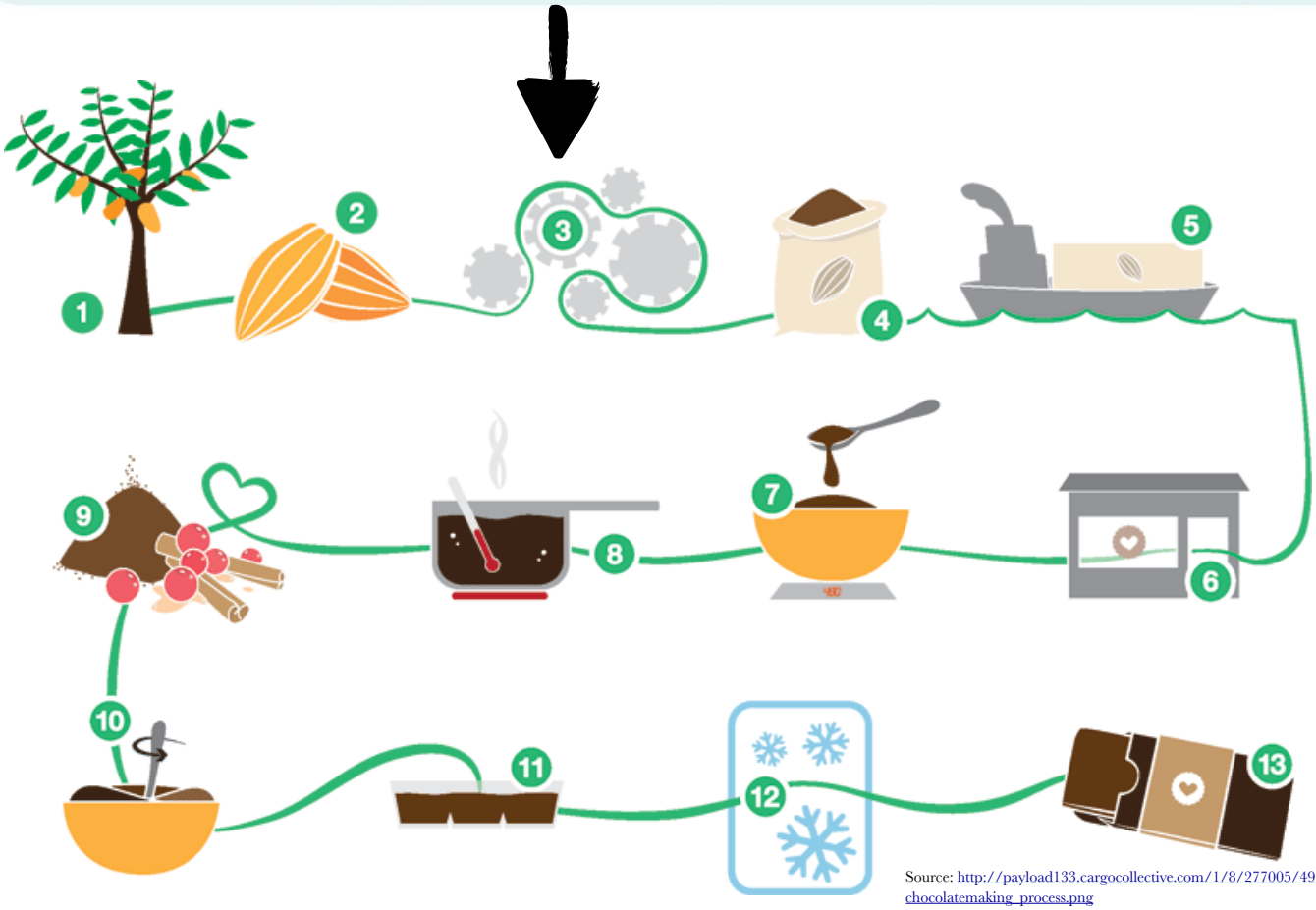

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DEMAND & SUPPLY

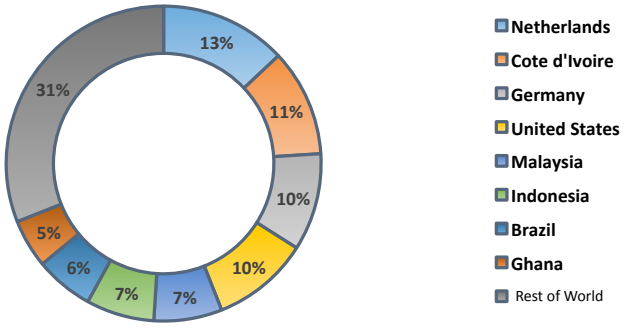


Demand Factors

Grinders & Consumers

Top grinders in the world are Netherlands, Cote d'Ivoire, Germany and the United States. Indonesia is ranked 6th in the world as the net exporter of Cocoa is gradually expanding its grinding capacities and demand for cocoa processing. Largest consumers of cocoa are currently the United States (20%), Germany (9%), France (6%), and United Kingdom (6%) as of 2011.

World Top Cocoa Grinders



New Projects

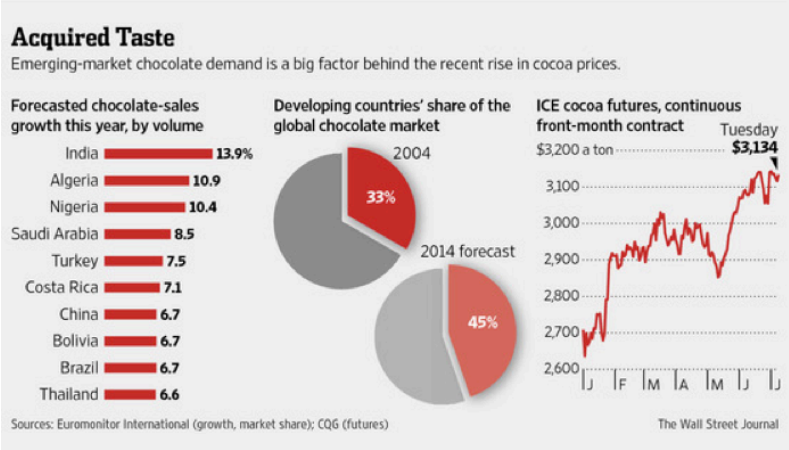
Rapid growth in chocolate consumption is evident in the recent years which boosted the demand for industry's players to engage more in the downstream processing segment. In recent years, there has been several major processing and manufacturing projects invested into Indonesia to meet growing demand in Asia. This is well-supported by government's initiatives to shift a stronger focus into the downstream segment to gain higher revenue income from processed products. In 2013, the world's leading manufacturer of high quality cocoa products, Barry Callebaut, created a joint venture with P.T. Comextra Majora, a cocoa processing facility located in South Sulawesi, to open a US$ 33 million cocoa processing facility in Makassar, South Sulawesi, with an annual grinding capacity of 30,000 tonnes.

Foreign Investment in Cocoa Processing Industry:

Firm	Origin	Location	Capacity (MT)	Investment (US$)
PT Asia Cocoa Indonesia	Malaysia	Batam	120,000	50 million
PT Jebe Koko	Malaysia	Gresik	60,000	21.5 million
PT Barry-Comextra	Switzerland	Makassar	60,000	41.6 million
PT Cargill Indonesia	USA	Gresik	70,000	124 million
Total			310,000	237.1 million

Source: Indonesian Cacao Industry Association (AIKI)

In 2014, agricultural commodity trading giants, Olam and Cargill also unveiled plans in expansions new cocoa processing facilities plans in Indonesia. Olam's US$61 million investment in its 5th facility globally will have an initial production capacity of 60,000 tonnes and is projected to begin operations in early 2016. During the same period, Cargill's US$ 100million cocoa processing facility at Gresik in the East Java region was completed and primary productions include cocoa liquor, cocoa butter and cocoa powder, which are sold under the brand name *Gerkens Cacao*. Seeing rising income from emerging markets such as India and China, particularly in the middle-income groups, boosts strong demand outlook trends in the emerging markets. Coupled with a supply shortage due low yield from the El-Nino effect, cocoa prices rose in accordance.



Production and Exports

Today, the world's largest producer of Cocoa beans is Ivory Coast, contributing to almost 40% of the total world production, followed by Ghana (18%) and Indonesia (15%). The importance of Cocoa to Indonesia has rapidly grown over the last two decades growing almost ten-fold, emerging as the third largest producers of raw cocoa beans today at 13% of global production. Aside from geographical and its tropical climate advantage, the cocoa industry boom in the 1980s can be attributed to the free market economy and a hands-off approach adopted by the government of Indonesia.



Within Indonesia, there are 5 regions where Cocoa is cultivated. The main producing region is Sulawesi, accounting for 75% of Indonesia's Cocoa production. Cocoa exports form Indonesia's fourth largest foreign exchange earnings from the agriculture sector (after Palm Oil, Rubber and Coconut). Despite that, Indonesia's Cocoa productivity per hectare has been lagging behind that of other cocoa-producing countries. As such, the government started a five-year Cocoa revitalization program in 2009 to boost production. However, poor weather has hurt flowering, delayed harvesting and yields are estimated to be at a 10-year low of 400,000 tons. Smallholders' farms acreage expanded from 13,125 ha in 1980 to 418,400 ha in 1995 spurred by high world cocoa prices due to sharp reduction of output from West Africa and Dominican Republic. These farmers play a significant role in the sector as they produce about 90% of cocoa output.

Local Cocoa Bean Production

Year	Production (Tons)
2007	520,000
2008	530,000
2009	545,000
2010	559,000
2011	459,000
2012	460,000
2013	482,000

Source: Indonesian Cacao Industry Association (AIKI)



Production and Exports

The industry has been largely focused on the upstream segment as most of its cocoa exports constitutes of unfermented raw beans which are largely produced by small holders. With multiple levels of local and international cocoa bean buyers fiercely competing on price, smallholder cocoa farmers has many selling options and market channels for their production. Within such a market-based environment that differentiates little for quality, Indonesian smallholder cocoa bean farmers have little incentive to upgrade or adopt more labor-intensive (and costly) production and post-harvest practices.

Major destination countries of Indonesia's raw beans includes Malaysia, USA, Brazil, China and Singapore, with approximate 20% of production retained for domestic processing. In addition to raw cocoa beans, Indonesia also produces and exports a small volume of processed cocoa products including powder, paste/liquor, cake and butter, in which 40% of processed cocoa products from Sulawesi are exported to USA.

Bountiful harvest

In 2014, the world's largest cocoa producer, Ivory Coast, has recorded the largest crop in history, amounting to over 1.8 million tons. In October 2014, Ivory Coast authorities have raised Cocoa farm prices for the 2nd consecutive year, providing greater incentives for farmers producing Cocoa. Thus, we can expect an increase in production of Cocoa beans from the world's largest producer of Cocoa beans.



Short Term

El-Nino Threat

Both supply and demand have seen a solid uptrend over the past few years. The late developing El-Nino effect poses a threat to the supply outlook during the early part of 2015 and this is particularly the case for Indonesia as it will be taking a direct hit from the El-Nino and would likely see a drier than normal condition to its cocoa growing areas. Indonesia has expanded its grinding capacity, and this might potentially turn the nation from being a net exporter of 20,000 tonnes of cocoa beans this year to a net importer of 40,000 tonnes in 2015. A reduction in the domestic crop from El Nino would boost their import requirements even further.

Long Term

El-Nino Threat

Longer-term demand growth remains a major source of support, particularly in emerging markets such as China and India. Global consumption is expected to grow 3% annually over the next few years.

TRADING PRACTICES





The following provides a rough overview of the distinction between the physical and futures markets. It is important to note that nearly all cocoa coming from origin countries is sold through the physical market.

Physical Market

Trading and Shipping Cocoa Beans

The physical cocoa markets centre around the origin countries and are usually free and competitive; with Ghana as an exception, where the Cocoa Marketing Board (Cocobod) act as a monopsony buyer which exports either directly or through major exporters. Cocobod also fixes prices for the season. However, beans from Ghana are also the best grade because of good farm practice.

Otherwise, the structure and complexity of the cocoa marketing channel differs across the countries, but usually comprises middlemen (for example: local traders, wholesaler, grinder. Alternatively, farmers' cooperatives.)

Example 1



Example 2



Reselling

In Indonesia, local farmers sell their cocoa beans to local collectors (at this stage, cocoa beans in non standard packing arrive at a town warehouse). Local collectors then pass them onto local traders, who in turn amass a larger quantity of cooca beans before reselling it to exporters or cocoa grinders. Increasingly, Cocoa grinders such as BT Cocoa are investing significant effort into sustainability through programs such as BT C.A.R.E; which focuses on partnering with farmers, training farmers, rehabilitating farms and buying cocoa directly from farmers.

Otherwise, the structure and complexity of the cocoa marketing channel differs across the countries, but usually comprises middlemen (for example, local traders, wholesalers, grinders and farmers' cooperatives.)





Warehouses

In Indonesia,Cocoa processors frequently source their Cocoa beans from local traders and imports, before stockpiling them in warehouses. Upon arrival at a warehouse, the beans undergo weighing, fermentation tests, bean count, cut test and a moisture test will have to be done.



Export

Reconditioning for export can also occur whereby the cocoa bean undergo further drying, sorting and cleaning, repacking into jute bags (usually gross weight 60-65 kilos), and fumigation before exporting. Settlement is based on quality on arrival.





Futures Market

Participants

Cocoa futures contracts are generally not used to secure supply of beans but rather manage price volatility. As all contract terms are standardised and set in advance, therefore they are interchangeable, except for time of delivery. Market participants include commercial (e.g. hedgers: farmers, manufacturer, importers and exporters) and non-commercial traders (e.g. speculators).

Exchanges

Cocoa futures are traded on NYSE (Euronext-LIFFE) – London and ICE Futures US - New York, and these provide a reference point for the physical trade in Cocoa. Having benchmarks set in London or New York makes it harder for producers or buyers to manipulate prices in local markets.

Contract months are during March, May, July, September and December. In general, cocoa is almost always in a Contango market (spot prices usually lower than future prices). It is traded 5 positions a year, and up to 9 positions ahead. The mechanics of the transaction via an Exchange's Clearing House, margin requirements and Futures Contract specification will not be covered in this report, but can be obtained via http://www.icco.org/about-cocoa/processing-cocoa.html

Major factors affecting price movements

Speculators

The activity of investment funds on futures markets has in recent years played a big role in short-term price movements. These add volume, volatility and liquidity to the already small market. They were an important contributing factor in the 50% rise in price from mid-2007 to mid-2008 and the subsequent sharp price fall during the Financial Crisis, because they can cause huge movements when they enter or exit a position.

Currency Movements

Cocoa, being one of the unique soft commodities that are traded in 2 different currencies, is affected by the GBP-USD exchange rate. Any changes in the exchange rate offer traders an additional arbitrage opportunity.

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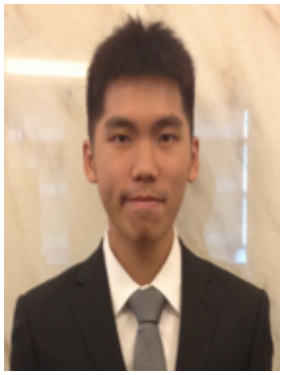

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