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UPGRADING IN AGRIBUSINESS  
GLOBAL VALUE CHAINS

APRIL 2017

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# **The Philippines in Agribusiness Global Value Chains**

## **An Introduction**

**FINAL DRAFT FOR REVIEW**

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Prepared by  
The Duke University Center on Globalization, Governance &  
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## Acronyms

ARCESS	Agrarian Reform Community Connectivity and Economic Support Services
ASEAN	Association of Southeast Asian Nations
ATI	Agricultural Training Institute
BOI	Board of Investment
COMPETE	Advancing Philippine Competitiveness
DA	Department of Agriculture
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
EFTA	European Free Trade Association
EPZ	Exporting Processing Zone
EU	European Union
FAO	Food and Agriculture Organization, United Nations
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
IPP	Investment Priorities Plan
ITH	Income Tax Holiday
PCARRD	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development
PEZA	Philippines Export Zone Authority
PSA	Philippine Statistics Authority
SPS	Sanitary and Phytosanitary Standards
STRIDE	Science, Technology, Research and Innovation for Development
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development

## I. Introduction

Over the past few decades, the orientation of the Philippines' economy has shifted from agriculture to services. This change continues today; in the first quarter of 2016, the services sector grew by 2.4% while agricultural industries fell by 4.4% (PSA, 2016). While this is often seen in a favorable light as the global economy shifts toward services industries, the country is missing out on important opportunities to leverage its diverse geographic and climatic conditions to generate better quality employment and income opportunities for a large segment of the population that is based in rural areas and continues to depend on agriculture for its livelihood. It is estimated that in 2015, the sector employed 29% of the Filipino workforce and according to World Bank Statistics accounted for 10.26% of the country's GDP (World Bank, 2016).

While the country once had a relatively strong agricultural sector, with its performance in terms of agricultural exports and gross value added on par with other Asian countries until the 1970s, the Philippines has lagged behind over the last three decades. This has been due to a dramatic slowdown of agricultural output growth, compared to significant yield increases among neighbors such as Vietnam.

The slowdown was attributed to land reform, inadequate investment in irrigation and other modern agricultural techniques by new smallholders, climate disruptions such as the El Niño Southern Oscillation (ENSO) phenomenon<sup>1</sup> and a slowdown in export potential due to the overvaluation of the peso, which undermined the competitiveness of the country's agricultural crops.<sup>2</sup>

The Philippines is seeking to revive its agribusiness sector by building up integrated industries, which leverage both production as well as processing and growing downstream domestic demand. As part of this initiative, the Philippines Department of Trade and Industry (DTI) launched a roadmap initiative that seeks to generate higher value addition for the country based on key products including bananas, cacao, coffee, mangoes, rubber and palm oil as well as other emerging high value crops (DTI-BOI, 2017). The drive to upgrade the sector seeks to fulfill the national growth agenda for reducing poverty, achieving the UN sustainable development goals and inclusive growth (NEDA, 2011).

Yet despite renewed interest and policies to drive the sector, it lags behind others in terms of its contributions to the economy. Between 2008 and 2015, the agricultural sector displayed the lowest value added share of GDP among the three major economic sectors (agriculture, services and manufacturing), and growth was driven by fisheries and

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<sup>1</sup> El Niño increases the chances of drought and La Niña increases the chances of flooding. The Phenomenon occurs every 2-9 years and although it can bring positive as well as negative impacts, it largely causes adverse effects (Habito & Briones, 2005; Hilario et al., 2009)

<sup>2</sup> The overvaluation of the peso in the early 1980's caused by industrial protection and macroeconomic policies also reduced the competitiveness of the agriculture sector. Quantitative restrictions on trade were eliminated in the mid-1980s combined with a reduction on import tariffs, as part of a generalized move to open the economy following the end of the Marcos regime. However, the overvaluation of the peso continued into the 1990s, where from 1992 to 1996 the real effective exchange rate appreciated sharply. During the Asian financial crisis (1997-1998) the peso witnessed a real effective exchange rate reverse benefitting the tradable goods sector (Habito & Briones, 2005).

traditional production, such as cassava and poultry, rather than by new high value added crops.<sup>3</sup>

Several issues contribute to this poor output, including low adoption of good agricultural practices, poor economies of scale, low research and development (R&D) spending, weak investment in ports and rural roads, and poor management of sanitary and phytosanitary (SPS) standards (Field Research, 2016). The sector suffers from low commercial agricultural presence and high incidents of poverty amongst smallholder operators—in 2012, 38.3% of farmers lived in poverty (PSA, 2014). The sector is characterized by small-scale, subsistence farming operations, primarily producing traditional crops (L. Corong, 2009). R&D funding has been far below other Asian countries in general (see Table 1), and government funding in agriculture in particular, has been predominantly concentrated on rice production (Field Research, 2016; Habito & Briones, 2005). Structural changes in the economy and demographics of the country have also impacted the sector. In particular, the growth of services and industry have contributed to urbanization; with high levels of poverty in predominantly subsistence agriculture, younger workers are attracted to seek opportunities in cities, which has left the agricultural sector dominated by aging farmers (NEDA, 2011).

**Table 1. Public and Private R&D Spending as Percentage of GDP, 2004-2013**

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
China	1.22%	1.32%	1.38%	1.38%	1.46%	1.68%	1.73%	1.79%	1.93%	2.01%
India	0.74%	0.81%	0.80%	0.79%	0.84%	0.82%	0.80%	0.82%	—	—
Japan	3.13%	3.31%	3.41%	3.46%	3.47%	3.36%	3.25%	3.38%	3.34%	3.47%
Korea	2.53%	2.63%	2.83%	3.00%	3.12%	3.29%	3.47%	3.74%	4.03%	4.15%
Malaysia	0.60%	—	0.61%	—	0.79%	1.01%	1.07%	1.06%	1.12%	—
<b>Philippines</b>	<b>0.13%</b>	<b>0.11%</b>	—	<b>0.11%</b>	—	—	—	—	—	—
Singapore	2.10%	2.16%	2.13%	2.34%	2.62%	2.16%	2.01%	2.15%	2.00%	—
Thailand	0.26%	0.23%	0.25%	0.21%	—	0.25%	—	0.39%	—	—
Vietnam	—	—	—	—	—	—	—	0.19%	—	—

Source: World Bank, 2014. (—) indicates no data for that particular year. R&D activities are defined as basic research, applied research, and experimental development.

These challenges make it very difficult to compete in a global environment increasingly characterized by large scale, commercial agriculture. To further understand the potential competitiveness of the country's agribusiness operations in the global and regional economy, the DTI Board of Investments (DTI-BOI), with the assistance of USAID/Philippines STRIDE program, commissioned a series of Global Value Chain (GVC) analyses to the Duke University Center on Globalization, Governance & Competitiveness (CGGC). Four agribusiness sectors were selected: cocoa, coffee, mango and rubber. In all four sectors, the Philippines has competitive advantages with respect to climate and geographical conditions for production. Three of these industries—cocoa, coffee and rubber—are currently small sectors, while the country has more experience with mango exports. In 2015, mango exports reached US\$91 million (UNComtrade, 2016), making the crop the third most important fruit export after

<sup>3</sup> Of the three main categories: agriculture, fisheries, and forestry, from 2009 to 2013 the fishery sector registered the fastest growth with an average growth rate of 9.2%. In comparison, agriculture's average value added growth was 1.4% driven predominantly by cassava and poultry, which registered average value added growth rates of more or less 4%. During the same period, the forestry sector contracted by 0.3% on average. Of the agricultural sub-sectors, rice,<sup>3</sup> livestock and poultry represented over 10% of the total industry value added share.

bananas and pineapples. The goals of the study are to provide both a set of recommendations to policy makers with guidance on entering and upgrading in the value chains selected, as well as to provide broader insights into binding constraints for the country's insertion in agricultural chains in general.

This report analyzes each of the four sectors and provides a detailed outline of the GVC for each industry. Specific country case studies are also examined, detailing the experience of other countries to identify potential lessons for growth in the industry. In the analyses of the Philippines participation, information from roadmaps created with the support of USAID-COMPETE was complemented with the mapping of key firms operating in the country onto the value chains (Field Research, 2016). This allows policymakers to understand the value generated by different types of firms in the country. Importantly, the global analysis of each industry report intentionally seeks to provide a broad perspective of the industry to support policy formation, not only in the short term, but also to help guide decision-making with respect to long-term potential in these sectors. Policy recommendations are provided for a number of different strategic areas essential to value chain participation, including industry institutionalization, cultivating human capital and improving economies of scale and SPS and quality standards compliance.

## 2. Global Value Chain Framework

Over the past three decades, high-value agricultural markets have become more sophisticated, consolidated and regulated, making it increasingly difficult for new actors to participate and upgrade in these value chains. Determining how to effectively insert these new producers in high-value agricultural markets requires a thorough understanding of how those markets work. The value chain methodology is a useful tool to trace the shifting patterns of production, link geographically dispersed activities and actors of a single industry, and determine the roles they play in developed and developing countries alike.

The value chain framework allows one to understand how industries are organized by examining the structure and dynamics of different actors involved. The value chain describes the full range of activities that firms and workers perform to bring a product from conception to consumption and beyond. It examines the labor inputs, technologies, standards, regulations, products, processes, and markets in specific industries and locations, thus providing a holistic view of industries both from the top down and the bottom up (Gereffi & Fernandez-Stark, 2016). The relationship between the different actors in these value chains is referred to as the governance structure of the chain.<sup>4</sup>

Value chains are generally dynamic and firms can enter into, or move between, different stages of the chain in order to gain higher returns to their participation. In the value chain literature, this movement is referred to as “upgrading”. Humphrey & Schmitz (2002) identified four types of upgrading: Process upgrading, that is, the adoption of new technologies to improve the efficiency of the production; Product upgrading, that is, the production of higher value products; Functional upgrading, which entails acquiring new functions that require a new set of skills; and Chain or Inter-sectoral upgrading, where actors move into new but often related industries. In addition to these upgrading trajectories, it is important to consider the first and often most challenging trajectory - entry into the value chain (Fernandez-Stark et al., 2011).

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<sup>4</sup> See Gereffi, et al. (2005) for a detailed typology of governance structures in global value chains.



In development, the GVC framework can be used to analyze industries, advise policy makers and other actors in the development field and identify skills gaps as well as understand how to include new producers and firms into the value chain. This is particularly relevant to understand the changes that have occurred in the past two decades that have reshaped how countries and firms within them can participate in agribusiness GVCs.

Traditionally, high-value agro-food sectors included producers of all sizes that participated in spot markets, where the forces of demand and supply prevailed and the highest bidder purchased the available product. Individual farmers determined the crop varieties grown, their desired quality levels and the production processes used. Today, however, this simple arrangement has been replaced by a highly complex agro-foods system. In response to rising global incomes, urbanization, and the liberalization and growth of international trade, traditional markets have been replaced with vertically coordinated, market linkage systems, where local sourcing in both developed and developing countries has largely been replaced by centralized national, regional or international supply chains and strict sets of standards must be met to gain access to these chains (Reardon et al., 2009; van der Meer, 2006).

National and global lead firms now dictate how products are cultivated, harvested, transported, processed and stored through a series of public and private standards that producers, both large and small, around the world must abide by in order to maintain their access to markets. These changes have required producers to upgrade in various ways. These requirements can serve as important barriers to market access as compliance and upgrading, such as the installation of new irrigations systems or a shift to organic production, often demand considerable “financial, informational and network resources (Lee et al., 2010).”

Furthermore, in developing countries, these specific firm level constraints to participation often are further compounded by country-level challenges to competitiveness. These challenges include weak regulatory institutions, such as poorly designed and implemented sanitary and phyto-sanitary (SPS) regulations, inadequate transportation, power and water infrastructure and the absence of important upstream value chain actors, such as equipment, seed and fertilizer suppliers and firms providing supporting services (Hazell et al., 2010; Markelova et al., 2009).

### **3. Methodology**

This research draws on multiple sources of information: an extensive review of the academic and business literature available for these four global value chains; in-country interviews with representatives from the private sector, government and regulatory bodies and academic institutions; national industry roadmaps prepared by leading industry associations; aggregated international and national trade data from the Philippines as reported in the United Nations Statistics Division database, UN Comtrade. In addition, use was made of the FAOStat database on production and exports. Three firm-specific datasets provided by the Philippines Statistics Authority (PSA), the Philippines Export Zone Authority (PEZA) and the Department of Trade and Industry-Board of Investments (DTI-BOI) were also used. The first dataset provided firm-specific import and export data from 2007–2014; the second draws on company registration for PEZA-status under the country’s export processing zone regime for relevant years from 1974–2015 (September) and finally, the third dataset covered DTI-BOI-approved investments from 1974-2015. The PSA database included 10-digit Philippine Standard

Commodity Classification (PSCC) codes, trade value, and destination/origin by company. In order to provide anonymity, a dummy code was used in place of the firm name. This dataset was used to explore the activities being performed by different firms in each GVC, concentration of exports in various sectors, backward linkages, primary end markets and type of products exported at a more detailed level than is provided with six-digit data available in UN Comtrade. Additional data, particularly concerning number of firms and total employment in 2010 for the sectors as a whole, was derived from the Philippines Annual Yearbook (2013) published by PSA.

Firms participating in GVCs were identified based on the analysis of individual industry roadmaps, review of press releases for new foreign direct investment (FDI) in the country, lead firms identifying their local suppliers and competitors, the DTI-BOI and PEZA investment lists, and a review of earlier studies in select industries. 43 individuals were interviewed at 16 firms (the majority of the interviewees were in senior management positions), four industry associations and three public and educational institutions. Companies interviewed were identified by Duke CGGC and interviews were requested and coordinated by the Department of Trade and Industry, with assistance from USAID, through both the Science, Technology, Research and Innovation for Development (STRIDE) and Advancing Philippine Competitiveness (COMPETE) programs.

#### **4. Foundations for GVC Participation in High Value Agribusiness Sectors**

Each of the individual crops studied encapsulate agriculture's broader contribution to the Philippines' economy. As a whole, agriculture constitutes a small and declining share of overall GDP; however, it is an important employment generator, with as much as 30% of the country's labor force working in agriculture. While the employment potential affords marginalized socio-economic groups the opportunity to position themselves to capture economic gains, there are significant barriers for smallholders. The most prominent challenges often center on global industry trends that emphasize coordination along the supply chain and the need for domestic actors to pursue certifications and standards to signal quality to lead firms. This section offers an introduction to agriculture's general profile in the Philippines, outlining its trade, investment and human capital components.

##### **4.1. Trade<sup>5</sup>**

Agriculture contributes relatively little to the country's export basket. Table 2 details the Philippines top 15 exports in 2015. Accounting for 86% of total exports, only two agricultural categories are included (H2-15 and H2-08), and together these account for just 3% of exports. The first covers primarily derivatives from coconut oils (H2-15) while the second (H2-08) is edible fruits. Edible fruits accounted for 1.4% of exports in 2015, with bananas and pineapples representing the largest share by a significant margin. Dole, Chiquita International and Del Monte are key investors in the banana and pineapple sectors and the Philippines is a leading global exporter in both categories.

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<sup>5</sup> Total external trade for the same year amounted to \$129.894 billion, which is an increase of 1.9% compared to the previous year. However, the increase was due to total imports which increased by 8.7% (\$71.067 billion), in comparison total exports decreased by 5.3% (\$58.827).

**Table 2. Philippines' Top 15 Exports by HS Code**

HS-		Export Value (US\$ billion)					Share of Exports (%)					CAGR 2007-2015
		2007	2009	2011	2013	2015	2007	2009	2011	2013	2015	
	Total Exports	50.5	38.4	48.0	54.0	58.6						2%
H2-85	Electrical machinery and equipment and parts thereof; sound recorders and r ...	22.2	15.5	11.9	20.3	26.0	44%	40%	25%	38%	44%	2%
H2-84	Machinery and mechanical appliances; parts thereof	10.8	8.7	5.1	6.7	8.2	21%	23%	11%	12%	14%	-3%
H2-44	Wood and articles of wood; wood charcoal	0.8	0.9	1.7	3.2	2.9	2%	2%	4%	6%	5%	17%
H2-90	Optical, photographic, cinematographic, measuring, checking, precision, med ...	1.2	1.2	0.6	1.9	2.4	2%	3%	1%	4%	4%	9%
H2-26	Ores, slag and ash	0.9	0.5	1.1	2.3	1.6	2%	1%	2%	4%	3%	8%
H2-89	Ships, boats and floating structures	0.0	0.4	0.6	0.6	1.5	0%	1%	1%	1%	3%	61%
H2-87	Vehicles other than railway or tramway rolling stock	1.8	1.6	2.2	1.4	1.4	4%	4%	5%	3%	2%	-3%
H2-15	Animal or vegetable fats and oils	0.7	0.6	1.4	1.1	1.2	1%	2%	3%	2%	2%	6%
H2-62	Articles of apparel and clothing accessories, knitted or crocheted	1.1	0.7	0.8	0.8	0.9	2%	2%	2%	2%	1%	-2%
H2-74	Copper and articles thereof	1.5	0.8	1.4	1.0	0.9	3%	2%	3%	2%	1%	-6%
H2-08	Edible fruit and nuts; peel of citrus fruit or melons	0.7	0.6	0.9	1.3	0.8	1%	2%	2%	2%	1%	2%
H2-27	Mineral fuels, mineral oils and products of their distillation	1.4	0.7	1.4	2.1	0.8	3%	2%	3%	4%	1%	-7%
H2-39	Plastics and articles thereof	0.3	0.3	0.5	0.5	0.7	1%	1%	1%	1%	1%	10%
H2-61	Articles of apparel and clothing accessories, not knitted or crocheted	1.2	0.8	0.6	0.7	0.5	2%	2%	1%	1%	1%	-10%
H2-88	Aircraft, spacecraft, and parts thereof	0.3	0.3	0.0	0.4	0.5	1%	1%	0%	1%	1%	8%
	Top 15 (2015)	44.8	33.7	30.3	44.5	50.4	89%	88%	63%	82%	86%	1%

Source: UN Comtrade, Philippines Exports to World, HS-2002, AG2, 2007-2014 data downloaded 12/14/2016; 2015 data downloaded 01/24/2017.

Notes: Green indicates CAGR is greater than the Philippines economy-wide average for the given time frame.

The Philippines primarily trades these products with regional trading partners. Key trading partners for high value agricultural products (H2-07, 08, 09, 18, 4001)<sup>6</sup> are Japan, China and Republic of Korea, together accounting for 54% of imports in 2015. Other regional trade partners, including Indonesia, Thailand, Singapore and Vietnam account for a further 12% (UN Comtrade, 2016).

#### 4.1.1. Trade Policy & Agreements

The Philippines strong trade relationships with its regional partners is partly a result of strong **regional trade agreements**. The Philippine – Japan Economic Partnership

<sup>6</sup> This includes fresh and dried fruits and vegetables, semi-processed rubber, cocoa and coffee.

Agreement (PJEPA) is the only comprehensive economic bilateral agreement of the Philippines. The agreement came into force in 2008 and allows duty free access for up to 80% of Philippine exports to Japan, for close to 7,500 products. The PJEPA removes all tariffs on vegetables, fruits (mangos, durian, guavas, papayas, mangosteen, figs and dates, berries, apples, grapes) and coffee (DTI, 2007). Japan is an important trading partner for the Philippines and is the country's largest destinations for high value agricultural products. Fruit grown in the Philippines and exported to Japan as percentage of total Japanese imports include Bananas (58%), Pineapple (7%), Mango (1%), Avocado (1%) and Papaya (1%). Japan, in turn, has been a key market for fresh mangos for the Philippines. However, the implementation of strict SPS standards for fresh produce in 2010 significantly impacted trade.

In addition, the Philippines is a member of the Association of Southeast Asian Nations (ASEAN) which has encouraged open trade links and given the Philippines a greater degree of political influence on the regional stage (IHS Connect, 2016). The ASEAN Free Trade Agreement (AFTA) was signed in 1993, and expanded in late 1990s (ASEAN, 2016). This agreement brought together ten countries with diverse populations and varying levels of economic development. Importantly, the agreement covers the reduction of tariffs as well as the elimination of non-tariff barriers, harmonization of customs nomenclature, valuation, and procedures and development of common product certification standards. ASEAN took a step closer to becoming a fully integrated economic union with the ASEAN Economic Community (AEC), which came into effect at the end of December 2015. The removal of trade barriers indeed provides the Philippines with potential markets for its agribusiness crops; however, at the same time, it increased competition for agricultural imports from its larger regional peers. For example, Vietnam has become a key supplier of cheap coffee beans to the Philippines in recent years.

Although the Asian Pacific Economic Community (APEC) is the Philippines primary trading region, efforts have continued to open up market access to Europe. In April 2016, the Philippines signed a Free Trade Agreement (FTA) with the European Free Trade Association (EFTA).<sup>7</sup> The agreement, however, excludes most trade in fresh agricultural products, but does allow preferential trade in processed products such as mango chutney, jams and marmalades, and extracts, essences and concentrates, of coffee (EFTA, 2017a, 2017b). In addition to EFTA, the country began Free Trade Agreements (FTA) negotiations with the European Union (EU) in 2015 and, since 2014,<sup>8</sup> is a beneficiary of the EU Generalized System of Preferences Plus Program (GSP+), which provides tariff free entry of just over 6,000 products, including processed fruit, prepared food and marine products (European Commission, 2015). It is the only GSP+ beneficiary country in ASEAN (Invest Philippines, 2017). GSP + provides tariff free entry for dried mango and natural rubber.

The Philippines is also a beneficiary of the US GSP plus program. The US Generalized Systems of Preferences Plus program permits 3,500 products to be exported to the country duty free. The Philippines ranks 6<sup>th</sup> of leading GSP beneficiaries (2012) with GSP duty-free imports valued at US\$1.2 billion and total imports worth US\$9.6 billion (Jones, 2015). Table 5 provides a short list of applicable agricultural products that are included within the US-GSP scheme.

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<sup>7</sup> Member states include: Iceland, Liechtenstein, Norway and Switzerland

<sup>8</sup> Prior to the GSP+ the Philippines benefitted from the standard GDP scheme (European Commission, 2017).

**Table 3. USA: GSP – Eligible Agricultural Products**

Tariff No	Brief Description	MFN Rate	GSP indicator
9019020	Coffee substitutes containing coffee	1.5 cents/kg	A+
21011232	Preparations with a basis of extracts, essences or concentrates with a basis of coffee, subject to general note 15 (outside quota)	10%	A
21013000	Roasted chicory and other roasted coffee substitutes and extracts, essences and concentrates thereof	2.1 cents/kg	A+
08045040	Guavas, mangoes, and mangosteens, fresh, if entered during the period September 1 through May 31, inclusive	6.6 cents/kg	A
08045060*	Guavas, mangoes, and mangosteens, fresh, if entered during the period June 1 through August 31, inclusive	6.6 cents/kg	A
08045080	Guavas, mangoes, and manosteens, dried	1.5 cents/kg	A*
08119052	Mangoes, frozen, whether or not previously steamed or boiled	10.90%	A
20019045	Mangoes, prepared or preserved by vinegar or acetic acid	1.5 cents/kg	A
20079950	Guava and mango pastes and purees, being cooked preparations	1.30%	A
20089940	Mangoes, otherwise prepared or preserved, nesi	1.5 cents/kg	A

Source: (USTR, 2017)

Note: \* Philippines is excluded from GSP benefits; 'A' Products Eligible for special GSP status 'A\*' GSP eligible, although can be withdrawn in the case of competitive requirements, A+ indicates products eligible for least developed beneficiary developing countries only.

## 4.2. Investment

DTI-BOI is the key agency responsible for overall investment promotion in the country. One of the key goals of DTI-BOI is to attract FDI to support the country's economic growth agenda in sustainable and inclusive growth. DTI-BOI is responsible for leading the development of the investment priority plan on a tri-annual basis. The 2014-2016 Investment Priority Plan (IPP) aimed to increase investments in infrastructure, agriculture, education and health while creating greater opportunities and creating jobs with higher value added as well as expanding industry capacity. As part of the 2014 IPP, DTI-BOI pursued continued investment in crops such as coconut, cassava, coffee and cocoa as well as high value crops such as rubber, spices, vegetables and fruits (mangoes). Rubber is seen as the most profitable agro-industrial business; in other parts of ASEAN, countries such as Thailand, Indonesia, Malaysia and Vietnam have used rubber development successfully to develop their agriculture sector and reduce rural poverty (BOI, 2014).

As a result, the 2014-2016 IPP provided investment incentives in various parts of the agricultural industry for investments that are not necessarily export-oriented. Operations eligible for incentives from the Board of Investments (BOI) included the commercial agricultural production of coconut, corn, cassava, coffee, cocoa, fisheries, poultry and livestock, rubber, spices, vegetables and fruits as well as some emerging

commodities such as jackfruit and peanuts.<sup>9</sup> These projects had to be endorsed by the Department of Agriculture (DA). Commercial processing operations were fewer product specific restrictions; mostly requiring the operations to be based on locally produced raw materials.<sup>10</sup> In specific geographic areas, incentives were also available to supporting services and infrastructure projects, such as cold chain storage, pack houses, R&D centers and TVET training organizations.

Complementing DTI-BOI incentives are those provided by the Philippines Export Zone Authority (PEZA). Although PEZA is primarily oriented towards export-oriented manufacturing and services, agricultural processing operations exporting the majority of output (70% for foreign firms and 50% for domestic firms) are also eligible to set up in PEZA zones. This entitles them to numerous tax and customs benefits, including a four-year tax holiday followed by a maximum total tax rate of 5%, expedited imports and exports, duty free imports of capital equipment amongst others. As with BOI incentives, those offered under PEZA for Agro-industrial Economic Zone Export Enterprise status are focused on fostering investment in downstream processing stages of the chain. Eligible firms must process or manufacture agricultural products for export. Processing is defined as converting an agricultural/marine product to an intermediate or final product.

However, of the total 1,955 BOI registered investments for new operations between 2005-2015, only 3% of those were in agriculture, forestry or aquaculture. Of those investments, there were 22 new investments oriented towards high value crops; the majority of these investments were in pineapples and bananas (see Table 4). No new or expanded investments were registered with BOI in the four prioritized sectors analyzed in this report over the 1968-2015 period covered by the database, despite the inclusion of these products as priority sectors in the 2014-2016 IPP.

During the same period 2005-2015, investments in PEZA zones were comparably low. 19 new agri-processing or downstream firms were registered in PEZA zones. Of these, the majority were rubber and rubber products firms serving the automotive sector, with just one new mango firm and one new coffee firm registering during this period. Rubber parts producers serving the automotive sector, however, primarily relied on synthetic rather than natural rubber. The majority of this was imported.

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<sup>9</sup> Emerging commodities listed in the IPP include sampaloc, jackfruit, peking duck, native pigs, siling labuyo, peanuts, monggo, and achuete.

<sup>10</sup> Commercial processing of agricultural products should involve the use of domestically-produced raw or semi-processed agricultural products, unless these inputs are not locally produced (NLP) or are not in sufficient quantity (NISQ). If using imported raw or semi-processed agricultural products that are locally produced (LP) or in sufficient quantity (ISQ), the project may qualify for registration, provided that the finished/final product is for export, or the project qualifies for pioneer status (DTI-BOI, 2015b).

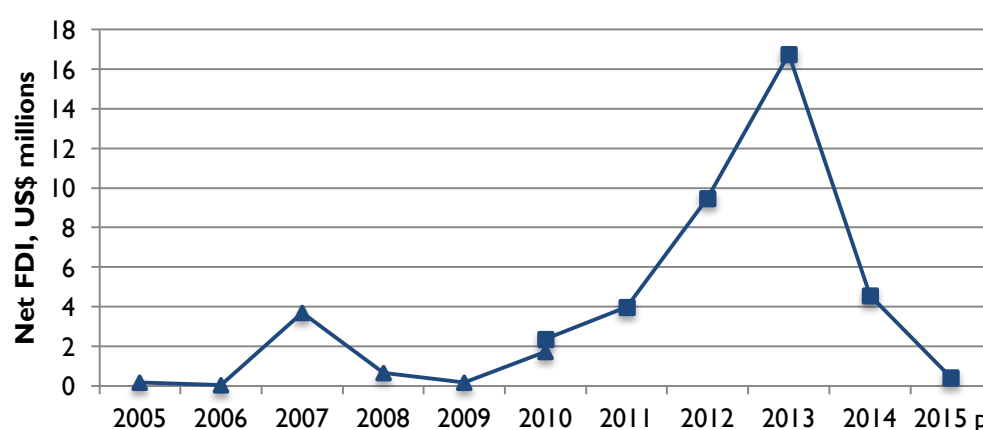
**Table 4. BOI Registered Investments in High Value Agribusiness Products, 2005-2015**

Product Group	BOI Investments (2005-2015)	PEZA Investments (2005-2015)	
		No of New Firms	No of Expansions
Banana	15	1	0
Pineapple	4	1	2
Rubber*	0	17	11
Mango	0	1	1
Coffee	0	1	0
Cacao	0	0	0
Other	3		
<b>Total</b>	<b>22</b>		
<b>Total Agro</b>	<b>68</b>		

Source: (DTI-BOI, 2015a); PEZA (2016a)

### Foreign-Direct Investment

In contrast to the increasing levels of foreign direct investment (FDI) in both the services and manufacturing sectors, the agriculture sector (agriculture, forestry and fishing) however, has traditionally received very little FDI and must rely on domestic investment. The agriculture sector attracted less than 0.5% of the country's total FDI from 2012 – 2014, although investment inflows into the agri-sector peaked during this period. Although it trails far behind other economic sectors 2011-2014 saw important increases in FDI in the sector. Investments in downstream agri-processing operations could also be registered as manufacturing. The lack of FDI into the sector is likely linked to laws prohibiting foreign ownership of agricultural land investors,<sup>11</sup> in downstream stages must therefore rely on third party producers to provide sufficient raw materials for their operations.

**Figure 1. Agriculture: FDI Inflows, Value 2005-2015 (US\$ Millions)**

Source: Authors based on Philippines Central Bank Statistics, 2005-2016.

Note: Prior to 2010, the bank classified FDI according to PSIC 1994 classifications, in 2010 it adopted the PSIC 2009 classifications, thus resulting in a slight difference in statistics.

<sup>11</sup> Source: (Official Gazette, 2017)

### 4.3. Human Capital Development

In 2015, the Philippine agriculture sector employed 29% (almost 11.3 million people) of the country's 39 million workforce, the second largest employer behind services. With very low contributions to the GDP and exports, it is clear that labor productivity in the industry is extremely low.

**Table 5. Aggregate Workforce Distribution per Economic Sector (Units - Thousands)**

	2010	2011	2012	2013	2014	2015
Agriculture	11,957	12,268	12,093	11,759	11,801	11,294
Construction	2,016	2,091	2,232	2,364	2,578	2,697
Manufacturing	3,033	3,080	3,112	3,150	3,212	3,209
Mining and quarrying; Electricity, gas and water supply	349	359	398	404	376	369
Trade, Transportation, Accommodation & Food, Business & Administrative Services	12,365	12,984	13,123	13,555	13,933	14,221
Public Administration, Community, Social and other Services & Activities	6,315	6,410	6,641	6,686	6,749	6,952
<b>Total workforce</b>	<b>36,035</b>	<b>37,192</b>	<b>37,600</b>	<b>37,917</b>	<b>38,651</b>	<b>38,741</b>
<b>Agriculture as percentage of total workforce</b>	<b>33%</b>	<b>33%</b>	<b>32%</b>	<b>31%</b>	<b>31%</b>	<b>29%</b>

Source: Authors based on ILOstat Database.

In the five years from 2010 to 2015, however, the number of Filipinos working in agriculture decreased by 4% (663,000). The decline in the sector is occurring equally among men and woman, although men still represent the majority of the agricultural workforce (74%). In 2010, 22% of females and 41% of males worked in agriculture, however, in 2015 the share of females was down to 19% and males down to 36%. Agriculture has the highest number of underemployed persons, close to 50% of the workforce (M.Briones, 2013). Reasons for this decrease include a shift towards the service sector and urbanisation (Oxford Business Group, 2016), and a declining interest in the sector by youth who see agriculture as a subsistence activity. The average age of farmers in the Philippines is 57 (DAR, 2013).

#### 4.3.1. Wages

Daily salaries in agriculture are slightly lower than those of non-agriculture (Table 8). Rural wage rates have declined in real terms compared to other countries in Asia as the rural population continues to grow, rather than shrink due to population growth (FAO, 2015). Those workers who are employed in retail or in services (with 10 or less employees) also receive the same highest rate as that of agriculture (DOLE, 2016). Daily



rates vary by region; for example, the minimum rate in non-agriculture in NCR is 229 pesos (US\$4.95) higher than IV-A region. This is also true for the agriculture sector where those working in the National Capital Region (e.g. Metro Manila) receive a higher minimum wage (Table 8). The cheapest labor comes from Mimaropa, where plantation and non-plantation staff demand a minimum of 230 pesos (approx. US\$4.5).

**Table 6. Regional Daily Minimum Wage Rates Non-Agriculture, Agriculture (2016), (Pesos)**

Region	Non-Agriculture		Agriculture			
			Plantation		Non-Plantation	
	Min	Max	Min	Max	Min	Max
<b>NCR (National Capital Region)</b>	454	491	454		454	
<b>CAR (Coordillera Administrative Region)</b>	265	285	255	285	255	285
<b>I (Ilocos)</b>	227	253	233		227	
<b>II (Cagayan Valley)</b>		300	280		280	
<b>III (Central Luzon)</b>	313	364	298	334	298	334
<b>IV-A (Calabarzon)</b>	285	378	275	353.5	275	333.5
<b>IV-B (Mimaropa)</b>	225	285	230	235	230	235
<b>V (Bicol)</b>	248	265	248		248	
<b>VI (Western Visayas)</b>	256.5	298	267		256.5	
<b>VII (Central Visayas)</b>	295	353	275	335	275	335
<b>VIII (Eastern Visayas)</b>		260	241		235	
<b>IX (Zamboanga Peninsula)</b>		280	255		235	
<b>X (Northern Mindanao)</b>	303	318	291	306	291	306
<b>XI (Davao)</b>		317	307		307	
<b>XII (SOCCSKARGEN)</b>		275	257		257	
<b>XIII (Caraga)</b>		275	275		275	
<b>ARMM (Autonomous Region in Muslim Mindanao)</b>		265	255		255	

Source: (DOLE, 2017)

#### 4.3.2. Educational Institutions

Overall, the agricultural sector attracts a very small share of students, accounting for just 3% of all higher education enrolment. Although as a total share of students, agricultural, forestry and veterinary enrolment has remained fairly consistent over the past ten years, enrolment has doubled in real terms since hitting a low of 58,248 in 2007. Enrolment increased significantly (30%) between 2014 and 2015. These general recovery and growth in the number of students seeking agricultural degrees may be due to a government led initiative to provide more agricultural scholarships (Zamora, 2014). Graduation rates are higher than other sectors such as engineering, at 31-36% (compared to 11%) (CHED, 2016; Zamora, 2014).

There are 110 state universities and colleges that offer agricultural programs including the University of the Philippines.

**Table 7. Agriculture, Forestry and Veterinary Medicine**

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Enrolment	63,744	59,634	58,248	59,208	59,745	63,471	68,098	81,740	96,164	125,526
Graduated	13,019	12,627	10,650	9,862	10,043	9,618	11,605	13,796	13,986	14,191
Performance in passing %	31.77	33.7	35.35	34.18	35.07	35.5	36.7	36.37	35.3	36.44
Total HE Enrolment (thousands,)	2,489	2,583	2,633	2,628	2,774	2,951	3,044	3,317	3,563	3,812
Students enrolled in agriculture (%)	3%	2%	2%	2%	2%	2%	2%	2%	3%	3%

Source: (CHED, 2016)

The majority of students are pursuing undergraduate degrees, with just 2% in post-graduate studies. Nonetheless, the total number of post-graduate students doubled between 2005/06 and 2011/12.

**Table 8. Enrollment by Higher Education Level (BS, MS, and PhD programs in agriculture)**

Degree Program	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Bachelor Degree	46,878	43,705	41,950	40,998	41,851	45,574	46,571
Masters	465	480	475	617	514	805	813
Doctoral	88	80	111	98	113	153	166

Source: Adapted from Zamora (2014)

At the technical level, within the agriculture sector, the most popular courses to undertake at the technical and vocational training level are 'Agri-fisheries' and 'Horticulture NC II'. In comparison to these two sectors, rubber processing and production is very low.

**Table 9. Number of Persons Assessed and Certified by Sector by Qualification by Year, 2010-2011 and 2013**

Sector/Qualification	2010		%	2011		%	2013		%
	Assessed	Certified		Assessed	Certified		Assessed	Certified	
Agri - Fisheries	13,688	9,629	70.3	7,498	6,686	89.2	19,420	16,390	84.4
Agricultural Crops Production NC I	1,421	1,278	89.9	1,307	1,263	96.6	2,198	1,941	88.3
Agricultural Crops Production NC III	99	77	77.8	94	86	91.5	177	164	92.7
Animal Production NC II	1,087	921	84.7	962	833	86.6	4,947	3,738	75.6
Aquaculture NC II	207	203	98.1	356	333	93.5	1,147	1,088	94.9
Fish Capture NC II	8	8	100	10	10	100	78	78	100
Fish Capture NC I	69	68	98.6	5	5	100	347	307	88.5
Horticulture NC II	1,660	1,482	89.3	1,905	1,813	95.2	9,454	8,068	85.3
Horticulture NC III	5	5	100	4	4	100	17	17	100
Landscape Installation and Maintenance (Softscape) NC II	66	55	83.3	39	37	94.9	36	15	41.7
Rice Machinery Operations NC II	10	8	80	18	18	100	8	7	87.5
Rubber Processing NC II							104	104	100
Rubber Production NC II							907	863	95.1

Source: (TESDA Statistics, 2013)

### 4.3.3. Training and Extension Services

Training and extension services are designed and carried out by the DA's Agricultural Training Institute (ATI). The ATI offers an e-Extension program for Agriculture and Fisheries, which allows distance interaction between farmers, fishermen and other stakeholders that seeks to improve productivity, profitability and global competitiveness. The organization also conducts traditional training at Farmers' Field Schools that encourage learning and education about agriculture to the nation's youth (ATI, 2017b). Other services include train the trainer programs, farm and business advisory services, and information, education and communications services.

Private extension service providers in the country must be accredited by ATI. These organizations include international NGOS (such as ACIDI/VOCA), private firms, faith-based organizations, cooperatives registered with the Cooperative Development Authority, amongst others. Joint ventures are permitted for foreign firms looking to work with local extension service providers, but face additional regulatory requirements (ATI, 2017a). For organic agricultural production, the ATI is required to accredit private extension service providers. This initiative, launched in 2010, is an effort to both improve organic agriculture uptake in the country, as well as foster increased public-private partnerships for extension service provision (DTA, 2012).

## 5. Agriculture and Government Institutions

Agricultural policy and production in the Philippines over the past half century has been dominated by agrarian reform and a shift towards policies to support increasingly small farms. The combination of land reform policies from the 1950s and subsequent land division by families has resulted in the average sizes of farms decreasing to 1.3 ha in 2012. With a strong focus on subsistence agriculture, policies in the past have oriented towards staple crops such as corn and rice. As the country seeks to revive its agribusiness sector, there has been an increased focus on driving the development of high value agriculture. Key agencies that have taken the lead in this include the Department of Agriculture (DA), the Department of Trade and Industry (DTI), and the Department of Science and Technology (DOST) amongst others. Table X below highlights these key agencies and major programs that they have launched. Given that the majority of these initiatives have been recently put in place, comprehensive evaluations of their impact have yet to be carried out.

**Table 10. Key Public Stakeholders and Programs in the Development of High Value Agriculture in the Philippines**

<p><b>Department of Agriculture</b></p>	<p>Government institution mandated to establish and implement policies for the growth of the agricultural sector. Allocation of resources for technical assistance, R&amp;D, etc. for the agricultural sector. Must work through local governments to implement plans.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• DA has developed <i>roadmaps</i> for several agricultural sectors, including coffee, cacao and rubber.</li> <li>• <i>High Value Crops Development Program (2014-2020)</i>: Established to support the development of modern value chains in 20 high value agricultural crops, including the four industries being analyzed. The Program is funded under the World Bank assisted Philippines Rural Development Program.</li> <li>• <i>Agricultural Training Institute</i>: Orchestrates the National Extension System, supports accreditation of extension service providers and provides direct training to farmers, including training programs in the cocoa, coffee, mango and rubber.</li> <li>• <i>Philippines National Standards (Bureau of Agriculture and Fisheries Product Standards (BAFPS))</i>: Established the code of good agricultural practices for several high value agricultural products including mango (2009), cacao (2011) and coffee (2015). These codes, nonetheless, fall short of the globally recognized good agricultural practices, such as GlobalGAP and there has been very low uptake; of the three products mentioned above, only 7 mango farms were certified under this national standard as of May 2016 (BAFS, 2017).</li> </ul>
<p><b>Department of Trade and Investment – Board of Investment</b></p>	<p>Government entity charged with identifying investment priorities, promoting and attracting investment. Promotes investment in commercial production of high value crops and downstream processing of local agricultural products.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• Coordinating roadmap initiative for various products in the sector.</li> <li>• IPP 2014-2016 established fiscal incentives for the commercial agricultural production and processing of high value crops, entitling investors to 6-8 year tax holidays. Incentives also extended to some R&amp;D, infrastructure and training services for agribusiness operations.</li> <li>• <i>Shared Services Facility Program</i>: seeks to address the gaps and bottlenecks in the value chain of priority industry clusters through provision of processing and/or manufacturing machinery, equipment, tools and related accessories for the common use of the micro and small enterprises.</li> </ul>

<p><b>Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD)</b></p>	<p>Council under the Department of Science and Technology that formulates policies, plans and programs for science and technology-based R&amp;D in agriculture, forestry, aquatic and natural resources sectors. They also promote and transfer new knowledge and technologies through the Technology Transfer and Promotion Division.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• PCAARRD has specific offices and personnel dedicated to the cacao, coffee, mango and rubber sectors amongst others.</li> <li>• PCAARRD provide direct funding and support for the transfer of technology and knowledge for key high value agricultural products. Several of these initiatives have been funded through the USAID STRIDE program. For example, in 2015, the Council financed an organic Arabica R&amp;D program in Benguet which successfully introduced the production of organic fertilizer and intercropping for the pilot program (DOST-PCAARRD, 2015). Rubber programs include strengthening relationships with local universities to increase productivity in the sector in Mindanao.</li> </ul>
<p><b>Department of Environment and Natural Resources</b></p>	<p>Manage Community Based Forestry Land Management (CBFLM) agreements which increase communities' participation in forest management. These communities can lease government land for up to 25 years. CBFLM leases were recently made eligible to be used as collateral for securing financing.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• In 2015, 25 year leases were accepted as collateral for loans under the Securities Exchange Commission, allowing investors to leverage these properties for high value crops.</li> </ul>
<p><b>Department for Agrarian Reform</b></p>	<p>Manages land reform and assignation of plots to smallholders. Only land under a certain altitude is subject to this reform.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• Agrarian Reform Community Connectivity and Economic Support Services (ARCESS)", is DAR's strategic intervention to retain the awarded lands of agrarian reform beneficiaries (ARBs) through increased production and engagement in agri-based and related enterprises. The ARCESS project is implemented in the ARB areas planted with rice, corn, sugarcane, coconut, cassava, palm oil, rubber, coffee, vegetables and other high-value crops.</li> <li>• The Agri-Agra Law requires banks to allocate 10% of their loan portfolio to recipients of Agrarian Reform. However, many banks still view this as risky and prefer to pay the fine than to lend to these producers (World Bank, 2011).</li> </ul>
<p><b>Philippine Export Zone Authority (PEZA)</b></p>	<p>PEZA serves a dual role, managing both the granting of EPZ incentives across the country, as well as directly engaging in the promotion of FDI in the country. Provides fiscal and non-fiscal incentives for downstream agricultural processing activities for export. The organization provides a one-stop-shop for all issues regarding investments and exports.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• Provides incentives for the processing or extraction of intermediate and final products from agricultural inputs. At least one coffee company and one mango company had established processing operations in PEZA zones between 2005 and 2015.</li> </ul>
<p><b>Cooperative Development Authority</b></p>	<p>Maintains statistics, registry of all cooperatives in country, as well as providing technical and legal services in their formation.</p> <p><b>Relevant Programs and Policies:</b></p> <ul style="list-style-type: none"> <li>• Provided seedlings for coffee production</li> </ul>

Source: Authors

## **6. Organization of the Overall Report**

The remainder of the report includes one report per industry. Each of the four chapters begins with a global perspective of the corresponding GVC and ends with industry-specific upgrading trajectories and recommendations. The global perspective provides a comprehensive overview of the entire industry, including: key sources of demand and supply; stages in which different countries operate; the governance structure of the chain; and the standards and certifications required for each segment. This allows policy makers to understand the geographical distribution of the value chain, identify both potential competitors and buyers, and appreciate how power is exerted through the chain. These characteristics of the chain are important for both FDI recruitment strategies as well as agencies focused on promoting local firm participation in value chains. In particular, knowing the standards that govern entry into the chain is an essential step, and policy makers can support local firms by helping to ensure the presence of certifying firms within the country and providing grants or loans for these firms to achieve certification. As part of this analysis throughout the reports comparisons are made to other competing countries or countries in similar positions to the Philippines as well as to regional peers in the ASEAN region including Indonesia, Malaysia and Vietnam.

Finally, each chapter closes with a discussion of Philippines position in the value chain, identifying upgrading trajectories that may be most suitable for the country to pursue based on its competitive advantages and recommending strategies for upgrading.

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## 8. Appendix

Table II details the incentives available under both the DTI-BOI and PEZA investment schemes.

**Table II. Investment Incentives for Agri-Processing firms in the Philippines**

Investment/ Incentive Requirement	Details	Time Frame	Unrestricted Investments (BOI)	Export Market- Oriented Investments (PEZA)			
Corporate Income Tax Rate Exemptions (standard 30%)	• Pioneer project	6-8 years	Up to 8 years	Up to 6 years			
	• Non-pioneer project	4-6 years	Up to 6 years	Up to 4 years			
	• Income Tax holiday (ITH) extension, depends on: • Net foreign exchange earnings of US\$500 million • Capital equipment: labor <US\$10,000 : 1 • Local raw materials > 50% of total raw materials	Up to 3 years (1 per criteria)	✓	✓			
	• Special 5% tax (gross income) in lieu of other national and local taxes	Post –ITH period	No	✓			
	• Equivalent of 25% of duties for import substitution of raw materials used in producing non-traditional exports • Equivalent of 100% of taxes and duties on domestic capital equipment	No limit	No	None	70% (Foreign firms) 50% (Domestic firms)		
Import Duties: Raw Materials, Components, Capital Goods	• Duty-free imports					Spare parts only (reduced rates on others)	✓
Export and Excise Tax	• Exempt					10 year exemption	✓
Right to Remittances/ Repatriation Tax	• Yes					✓	✓
Sales Tax/ Consumption Tax	•					No	Exempt
Minimum Exports	• Minimum export requirement; (actual and intended)					40% Limited	100% Yes
Ownership	• Foreign ownership permitted • Repatriation of profits					Endorsement required by the DA	100% foreign employment permitted in first year; after that 5%.
Other Requirements/ Benefits	• Employment of foreign nationals • Additional deductions for training and labor expenses; • Simplified import-export procedures (Electronic Import Permit System and Automated Export Documentation)						

Strategic Sub-Sector	Identification of specific sub-sectors eligible to apply for incentives	Commercial production coconut, corn, cassava, coffee, cocoa, fisheries, poultry and livestock, rubber, spices, vegetables and fruits Processing or extraction of intermediate and final products from raw materials produced in the Philippines.	Processing or extraction of intermediate and final products from agricultural inputs.
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Source: DTI-BOI (2015b); PEZA (2016b)