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THE PHILIPPINE WAREHOUSE AND STORAGE SECTOR

A sectoral assessment and benchmarking study by USAID/Philippines' Delivering Effective Government for Competitiveness and Inclusive Growth (DELIVER) Project

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ACRONYMS

ASEAN	Association of Southeast Asian Nations
ARTA	Anti-Red Tape Authority
ASRS	Automated Storage and Retrieval System
BFAR	Bureau of Fisheries and Aquatic Resources
BOC	Bureau of Customs
BOI	Board of Investments
BPI	Bureau of Plant Industries
CALABARZON	Cavite, Laguna, Batangas, and Quezon Provinces
CAO	Customs Administrative Order
CBW	Customs Bonded Warehouse
CBWOCI	Customs Bonded Warehouse Operators Confederation Inc.
CCAP	Cold Chain Association of the Philippines
CFS	Container Freight Stations
CMO	Customs Memorandum Circular
CMTA	Customs Modernization and Tariff Act
CPBI	Census on Philippine Business and Industry
CSW	Cold Storage Warehouse
CY	Container Yards
DA	Department of Agriculture
DELIVER	Delivering Effective Government for Competitiveness and Inclusive Growth
DOE	Department of Energy
DOLE	Department of Labor and Employment
DOTR	Department of Transportation
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
ELSE	Ecozone Logistics Service Enterprise
FDA	Food and Drug Administration
FDI	Foreign Direct Investments
FGD	Focus Group Discussion
FIRB	Fiscal Incentives Review Board
FMCG	Fast Moving Consumer Products
FPA	Fertilizer and Pesticides Authority
FTEB	Fair Trade Enforcement Bureau
GAP	Good Agricultural Practices
GDP	Good Distribution Practices
GMP	Good Manufacturing Practices
GVA	Gross Value Added
IFC	International Finance Corporation
KSI	Key Stakeholder Interview
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
LSPH	Logistics Services Philippines
MIMAROPA	Mindoro, Marinduque, Romblon, and Palawan Provinces
NFA	National Food Authority
NMIS	National Meat Inspection Services

PD	Presidential Decree
PDEA	Philippine Drug Enforcement Agency
PEZA	Philippine Economic Zone Authority
PNP	Philippine National Police
PPP	Public-Private Partnership
PSA	Philippine Statistics Authority
PSIC	Philippine Standard Industry Classification
RA	Republic Act
ROLL-IT	Roads Leveraging Linkages to Industry and Trade
RRL	Review of Related Literature
SaaS	Software as a Service
SEC	Securities and Exchange Commission
SIPP	Strategic Investment Priority Plan
SRA	Sugar Regulatory Authority
UKWA	United Kingdom Warehouse Association
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value-added Tax
WB	World Bank
WMS	Warehouse Management System

ABOUT THE STUDY

There is a general lack of information about the warehouse and storage sector in the Philippines. Stakeholders are not visible to potential clients and government consequently reducing business opportunities and public-private dialogue to improve the sector. Moreover, the lack of information about the sector has hindered the government from developing effective and responsive policies, programs, and projects for the warehouse and storage sector's growth.

In response to this, the Department of Trade and Industry (DTI) has requested United States Agency for International Development (USAID), through its DELIVER Project, to conduct an in-depth assessment and benchmarking study of the Philippines' warehouse and storage sector. The assessment aims to provide a clear picture of the current situation of the sector, identify gaps and issues faced by the stakeholders, and propose recommendations to resolve these sectoral challenges. **It is envisioned that resolution of identified gaps and issues may lead to enhanced competitiveness and efficiency of the sector, and of Philippine business in general.**

USAID and DTI adopted different research methodologies to come up with the sectoral study. The project team conducted review of related literature, data gathering, key stakeholder interviews (KSI), focus group discussions (FGD), and a survey on a limited number of respondents. The results from these activities allowed the project team to come up with comprehensive information about the sector as well gather insights from the stakeholders as well.

EXECUTIVE SUMMARY

The warehouse and storage sector falls under the transport and storage industry based on the Philippine Standard Industry Classification (PSIC). It is comprised by different types of warehouse and storage facilities such as cold storage warehouse (CSW), customs bonded warehouse (CBW), Ecozone Logistics Service Enterprise (ELSE), general warehouse, and product-specific warehouses.

The warehouse and storage sector continues to substantially contribute to the Philippine economy. As a sector, warehouse and storage contributed PHP 176.1 billion to the Philippine economy in terms of Gross Value Added (GVA) in 2022. Over the past 10 years, the sector's GVA increased by an average of 9.9 percent. The 2018 Census on Philippine Business and Industry reported that the sector was able to generate 11,913 direct jobs to Filipinos.

Based on a 2020 DTI Study, transport and logistics comprise 25.5 percent of cost of goods sold in the Philippines. Out of the total, transport comprise 7.6 percent, which is the single largest component. However, it is also important to look at the remaining cost components and its nature. Warehousing cost (3.6 percent) and inventory management cost[1] (6.7 percent) are both incurred while products are in storage. These two cost items combined is already 10.2 percent of cost of goods sold. As such, it is equally important for the government to develop a more efficient warehouse and storage sector to reduce cost and enhance the competitiveness of Philippine products.

The high cost of transport and logistics in the Philippines is reflected in World Bank's Logistics Performance Index (LPI). In the 2018 edition of the index, the Philippines ranked 60th out of 160 countries. Among ASEAN member states, the Philippines ranked sixth with Singapore, Thailand, Vietnam, Malaysia, and Indonesia all ahead. The indicates the need for improvement to ensure that the Philippines remain competitive with its ASEAN peers.

The Philippines is the fastest growing internet economy in the Southeast Asia. According to a study conducted by Google et.al.[2], local e-commerce has increased from USD 3 billion in 2019 to USD 12 billion in 2020 in terms of gross merchandise value. This trend is expected to continue and reach USD 26 billion worth of gross merchandise value by 2025. The growth of e-commerce brought about the COVID-19 pandemic has caused the warehouse and storage sector to innovate to accommodate the demands of e-commerce platforms. A study conducted by KMC Savills[3] showed that 48 percent of the total demand came from e-commerce activities followed by 3PL companies (19 percent), some of which are fulfilling e-commerce transactions. This trend is expected continue in the succeeding years even after the pandemic. As such, there will be pressure for warehouse and storage

[1] The expenses incurred by a firm for storing inventory items over time before the items are sold. This expense includes equipment, employee salaries, insurance, damages, and other inventory-related expenses.
[2] e-Conomy SEA 2021 (Google, Temasek, and Bain & Co.)
[3] Industrial and Logistics Sector – May 2021 (KMC Savills)

operators to provide space and services that is appropriate for e-commerce requirements.

The regulatory environment of the warehouse and storage sector is highly fragmented. There are multiple government offices that regulate facilities depending on its operation. There is the National Meat Inspection Services (NMIS) for cold storage warehouse (CSW) storing meat products, Bureau of Fisheries and Aquatic Resources (BFAR) for CSW keeping aquatic products, Bureau of Plant Industry (BPI) for CSW catering to plant products, Fertilize and Pesticide Authority (FPA) for warehouse storing fertilizers and pesticides, National Food Authority (NFA) for warehouse keeping grains (rice and corn), Sugar Regulatory Administration (SRA) for warehouse stowing sugar, Bureau of Customs (BOC) for customs bonded warehouse (CBW), and Philippine Economic Zone Authority (PEZA) for Ecozone Logistics Service Enterprise (ELSE). There are also regulations from the local government units that differ from one locality to another. Despite the presence of multiple regulatory bodies related to warehousing, there is no government body that regulates or even register general warehouses.

Warehouse and Storage Facilities across the Philippine Regions

Region	CBW	CSW	Grains Public	Grains Private	ELSE	Fertilizer and Pesticide
NCR	86	93	18	128	16	0
CAR	0	0	10	0	4	15
R1	0	3	26	378	0	38
R2	0	3	45	326	0	12
R3	1	40	59	557	6	121
R4-A	4	46	20	741	434	75
R4-B	0	1	40	0	0	17
R5	0	4	22	217	0	30
R6	0	12	23	344	0	64
R7	26	22	18	71	49	39
R8	1	8	22	220	1	10
R9	3	5	21	179	0	18
R10	4	8	23	215	2	106
R11	8	10	31	162	0	226
R12	10	14	31	483	1	40
R13	0	5	12	270	0	3
BARMM	0	-	13	110	-	-
SUB-TOTAL	143	274	434	4,401	513	814
TOTAL	**6,579**					

SOURCE: NMIS, BFAR, BPI, NFA, FPA, BOC, and PEZA

The project team was able to identify 6,580 warehouse and storage facilities registered across different government offices. Bulk of these facilities are registered under the Department of Agriculture. However, there is a shortage of

available information on general warehouses despite its significant role in traditional trade as well as in e-commerce.

The conduct of research, data gathering, KSI, KII, and survey enable to study team to come up with SWOT[4] analysis. The findings and results are summarized in the table below.

SWOT Findings

Strengths	Weaknesses
• Growing market due to e-commerce and manufacturing • Highly active warehouse and storage sector • Improving adoption of warehouse and storage technology • Improving infrastructure • High level of interest in warehouse receipt law • Increased economic activity and recovery from the pandemic • Expansion to other warehouse and storage services • Available incentives offered by the Board of Investments and Philippine Economic Zone Authority	• Price of real estate in prime location has dramatically increased • Fragmented market and lack of market visibility • Challenging regulatory environment • Higher cost in doing business compared to other ASEAN Nations • Manpower skills needs improvement
Opportunities	**Threats**
• Relocation of manufacturing companies in China to ASEAN countries due to high wages	• Better business environment in other ASEAN nations

Based on the findings in the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, the project team, along with DTI and stakeholders have come up with the following recommendations:

1. **Pursue investments in infrastructure**.
    - DTI to encourage more private sector investments in warehouse and storage facilities.
    - Government to build public infrastructure in support of logistics and e-commerce.

2. **Streamline government processes**.
    - DTI has already prepared an inventory of national and local regulations related to warehouse and storage business.

[4] Strengths, Weaknesses, Opportunities, and Threats (SWOT)

- Conduct streamlining of government processes in both horizontal and vertical approach.

3. **Create a comprehensive national warehouse registry**.
    - DTI to create a comprehensive national warehouse registry in support of food security and policy formulation by the government.
    - Expand the registration scope to include general warehouses.
    - Generate warehouse and storage facility visibility for potential users and clients.

4. **Promote digitization and automation of warehouse and storage facilities**.
    - Assist warehouse and storage operators to modernize and upgrade technologically to improve competitiveness and increase efficiency.
    - Develop smart warehouses.

5. **Advocate for the passage of the Revised Warehouse Receipts Law**.
    - Include the Revised Warehouse Receipts bill in the DTI's legislative agenda.

6. **Develop and invest in warehouse and storage manpower skills**.
    - Adopt skills framework for supply chain and logistics developed by DTI along with industry stakeholders.

7. **Provide competitive business environment comparable to other ASEAN member states**.
    - Explore the possible inclusion of the warehouse and storage sector in the Philippine Strategic Investment Priority Plan (SIPP) in order to increase investments in the sector.

8. **Establish a warehouse and storage sector association**.
    - Create a warehouse association improve sectoral representation.
    - Association to represent the sector during public – private dialogue in key issues, concerns, and development goals.

SECTION 1

INTRODUCTION

A. BACKGROUND OF THE STUDY

The Philippines supply chain is composed of a vast number of stakeholders from the public and private sectors. The public sector is comprised of national and local government offices that craft, implement, and regulate policies related to the supply chain. Moreover, the government is also tasked with the construction and maintenance of major supply chain infrastructures like roads, bridges, railways, seaports, and airports. On the other hand, the private sector operates supply chain-related enterprises such as trucking services, terminal operators, cargo handling service providers, warehouse operators, among others.

While there has been sufficient attention given to transport infrastructure and services, there is only a limited number of studies with regards to warehouse and storage sector in the Philippines. The study hopes to provide an in-depth analysis of the Philippine warehouse and storage sector in support to its further development and growth.

The warehouse and storage sector play an essential role in local and global supply chain since it serves as a consolidation point for cargoes, commodities, and products. Warehouse and storage facilities also act as distribution center for commodities bound for end users. Warehouses also function as storage area for buffer stocks to ensure a steady supply of commodities and stability in its prices. Other warehouse facilities are utilized as fulfillment centers where in orders are processed and packed before shipment to customers. Outside the Philippines, the warehouse and storage sector perform ancillary functions related to financing. In this scenario, banks and other financial institutions can issue a loan to a borrower using a warehouse receipt certified by accredited warehouses.

The growth in domestic and international trade as well as the increase in e-commerce has generated higher demand for warehousing and storage services. Across the globe, there has been a dramatic increase in warehouse space to support the growth on e-commerce in the past two years. In India, 40 million square foot of warehouse space was completed in 2021 to support the rise of e-commerce. The United Kingdom Warehouse Association (UKWA) reported that there was a 32 percent increase in the total warehouse space over the past six years due to e-commerce and BREXIT[5]. The case is also the same in ASEAN member states, including the Philippines. There has been a significant growth in warehouse because of e-commerce. Moreover, there is a shift in the profile of client from retailers to third-party logistics (3PLs) service provider.

Private investors have also noticed the increase in demand and began to look for opportunities to invest at the sector. To guide possible investors, the Department of Trade and Industry, with the assistance from the United States Agency for

[5] The Size and Make-up of the UK Warehousing Sector – 2021 (United Kingdom Warehouse Assoc. and Savills).

International Development - Delivering Effective Government for Competitiveness and Inclusive Growth (USAID – DELIVER), aims to conduct a study on the warehouse and storage sectoral landscape in the Philippines to identify pertinent regulations, understand the current market, determine sectoral gaps, areas for improvement, as well as investment opportunities.

B. OBJECTIVES AND SCOPE

The main objective of the study is to provide the Philippine government with a document that provides a clear picture of the local warehouse and storage sector. Specifically, the study i.) identify the types and number of warehouse and storage facilities operating in the country, ii.) present the regulatory framework that governs the sector, iii.) assess the demand and supply for warehouse and storage services iv.) identify gaps and issues faced by stakeholders, and finally, v.) propose recommendations to help resolve the gaps and issues faced.

With respect to the scope, the study covered the industrial and commercial warehouse and storage facilities. Facilities under this classification require the most amount of investment, which includes land, infrastructure, equipment, and information technology system. The study also included warehousing and storage facilities owned and operated by the government, which could be subjected to public-private partnership (PPP) due to the growing demand for storage space in prime locations, particularly in Metro Manila, Metro Cebu, and in agricultural areas.

C. METHODOLOGY

Multiple research methods were adopted to gather more information and provide a better picture on the Philippine warehousing and storage sector.

The project team did a thorough review of related literature (RRL) regarding Philippine warehousing and storage sector, despite limitations in the number of studies. Relevant laws and regulations related to the sector were also collected and used as references. The RRL analysis allowed the study to benchmark the local warehouse and storage sector with select countries, including our ASEAN counterparts.

The team also gathered data from various national and local government offices and collated information on warehouses and storage facilities owned and operated by the national agencies. National Food Authority (NFA), Food Terminals Inc. (FTI), Philippine Postal Office (PHILPOST), Bureau of Customs (BOC), Philippine Ports Authority (PPA) are just a few government entities that owned and operate storage facilities. Moreover, certain government offices maintain a database of private - commercial storage facilities. As an example, the Bureau of Customs has a database of custom bonded warehouses. The Department of Agriculture has an inventory of cold storage facilities catering to agricultural products while the Philippine Economic Zone Authority (PEZA) has a list of warehouse and logistics facilities serving the economic zones. These information sets were aggregated to generate an inventory of warehousing and storage facilities across the country.

Furthermore, the study team also gathered information from private entities. Financial reports for warehousing, storage, and logistics operators were also collected from the Security and Exchange Commission (SEC) to understand the cost and revenue centers of the business.

Key stakeholder interviews (KSI) and focus group discussions (FGD) with warehouse and storage facility owners and operators, logistics service providers, user of warehousing and storage services, industry associations, and real estate brokerage companies were also conducted as part of data gathering. Regional consultations were organized to gather more inputs from stakeholders outside Metro Manila. These interviews and consultative discussions allowed the study team to further understand the nature of business, identify gaps and issues, gauge sectoral outlook, and solicit recommendations to improve the sector coming from practitioners across the country.

Finally, the study team conducted a survey to get more information from the private commercial warehouse owners and operators. The survey gathered information such as the size, type, capacity, utilization rate, equipment, and content of warehouses and storage facilities. Moreover, the survey also captured the rental rate for facilities that are for lease.

SECTION II

SITUATIONAL ASSESSMENT

A. LOGISTICS IN THE PHILIPPINES

Logistics, in simple terms, is the movement of an object from point A to point B quickly, timely, and reliably. Businesses deploy logistics strategies with the primary objective of delivering the right products to the customers at the right time and place and the least possible cost. Supply chains, however, are constantly faced with challenges. In order to minimize the impact of these challenges, businesses need to develop logistics strategies depending on specific products, customers, or geographic locations enabling them to adapt to market changes while maintain efficiency.

Based on a 2017 study conducted by the World Bank (WB) and the Department of Trade and Industry (DTI), the cost of logistics accounts for 27 percent of the revenues of manufacturing firms in the Philippines. Compared to Indonesia (21%), Vietnam (16%), and Thailand (11%), this put Philippine-based manufacturers at a disadvantage. The high transport and logistics cost disproportionately affects smaller enterprises as they operate on a smaller scale and usually face high transport and logistics cost. Table 1 below shows the transport and logistics cost for manufacturing firms based in the Philippines and select ASEAN nations.

Table 1: Transport and Logistics Cost as a Portion of Sales (2017)

	PH	VN	ID	TH
Transport	10.71%	7.04%	8.81%	5.57%
Warehousing	5.20%	3.78%	3.45%	2.49%
Inventory Carrying Cost	8.78%	4.00%	7.19%	2.04%
Logistics Administration	2.47%	1.48%	1.95%	1.01%
Total Logistics Cost / Sales	**27.16%**	**16.30%**	**21.40%**	**11.11%**

SOURCE: DTI and WB 2017

Among the selected ASEAN states, the Philippines has the highest percentage cost of transport and logistics as a portion of sales. Despite being an archipelagic state with more islands compared to the Philippines, Indonesia still has lower transport and logistics cost as part of sales compared to the Philippines at 21.40 percent.

Transport cost gets the most attention from government and private sectors stakeholders since it is the single biggest contributor to total logistics cost. However, it is also important to focus on the cost items incurred while the goods are in storage—warehousing cost, inventory carrying cost, and part of the logistics administration cost. In fact, warehousing cost and inventory carrying cost, both incurred at the warehouse, already comprise 11.25 percent of the cost of goods sold in the Philippines, a figure higher than transport cost. Despite of this, only limited attention is given to improve the competitiveness in warehouse and storage services.

Table 2: Transport and Logistics Cost as a Portion of Sales (2017, 2020)

	2017	2020
Transport	10.7%	7.6%
Warehousing	5.2%	3.5%
Inventory Carrying Cost	8.8%	6.7%
Logistics Administration	2.5%	3.4%
Other Logistics Cost	-	4.3%
Total Logistics Cost	**27.2%**	**25.5%**

SOURCE: DTI and WB 2017, 2020

Table 2 shows the most recent transport and logistics cost study by DTI (2020) compared to the 2017 edition. While transport and logistics cost remain high as a percentage of sales, there is a slight as overall total logistics cost went down from 27.2% (2017) to 25.5% (2020).

Another indicator of logistics service performance in the Philippines is the World Bank's Logistics Performance Index or LPI. The index is a benchmarking tool developed to identify the area of improvement per country in terms of logistics efficiency and competency. Moreover, the LPI allows government officials and policy makers to compare logistics performance across 160 nations. It evaluates a country's logistics ecosystem based on both quantitative and qualitative measures. According to the latest WB LPI 2018, the Philippines ranked 60th out of 168 nations. This ranking showed an improvement in logistic performance over two time periods. However, this is a far cry compared to the country's evaluation in 2010 where in the Philippines was ranked at 44th. Customs, infrastructure, and logistics competence are the main weak points of the Philippines in terms of logistics performance.

Table 3: Philippine Overall LPI Ranking from 2010 to 2018.

Year	LPI Rank	LPI Score	Customs	Infrastructure	International Shipments	Logistics Competence	Tracking & Tracing	Timeliness
2010	44	3.14	2.67	2.57	3.40	2.95	3.29	3.83
2012	52	3.02	2.62	2.80	2.97	3.14	3.30	3.30
2014	57	3.00	3.00	2.60	3.33	2.93	3.00	3.07
2016	71	2.86	2.61	2.55	3.01	2.70	2.86	3.35
2018	60	2.90	2.53	2.73	3.29	2.78	3.06	2.98

SOURCE: World Bank

Among ASEAN member states, the Philippines ranks 6th overall at 60. Our competitors for Foreign Direct Investment (FDI), particularly Thailand, Vietnam, Malaysia, and Indonesia have better ranking than the Philippines in terms of logistics efficiency.

Table 4: ASEAN Member States (AMS) 2016 and 2018 LPI Ranking

Country	2016 Ranking	2018 Ranking	2018 AMS Ranking
Singapore	5	7	1st
Thailand	45	32	2nd
Vietnam	64	39	3rd
Malaysia	32	41	4th
Indonesia	63	46	5th
Philippines	71	60	6th
Brunei Darussalam	70	80	7th
Lao PDR	152	82	8th
Cambodia	73	98	9th
Myanmar	113	137	10th

SOURCE: World Bank LPI 2018

While there are improvements in the logistics efficiency perception in the Philippines between 2016 and 2018 (from 71st to 60th), the pace of improvement is not a par with our ASEAN counterparts. As an example, Vietnam jumped 25 spots up, Indonesia improved its ranking by 17 places while Thailand gained 13 places up in the ranking.

Despite the COVID-19 pandemic, the Philippine logistics sector is performing relatively well compared to other industries. The inability of people to move around given the quarantine and travel restriction has boosted the need for logistics services. There has also been a shift in property requirement from retail space to industrial warehouse space due to an increase demand for warehousing and logistics need brought about greater e-commerce transactions. It has been reported that the Philippine logistics sector has a forecasted growth rate between 8.2 percent to 8.8 percent up to 2024 and projected to become a PHP 1 trillion market by 2023[6].

B. CONTRIBUTIONS TO THE ECONOMY

- **Sector Definition.** Based on the 2009 Philippine Standard Industrial Classification (PSIC), it defines warehousing as the operation of storage and warehouse facilities for all kinds of goods, operation of grain silos, general merchandise warehouses, refrigerated warehouses, storage tanks, etc.[7] The sector also includes storage of goods in foreign trade zones and blast freezing and excludes parking facilities for vehicles, operation of self-storage facilities, and rental of vacant spaces.

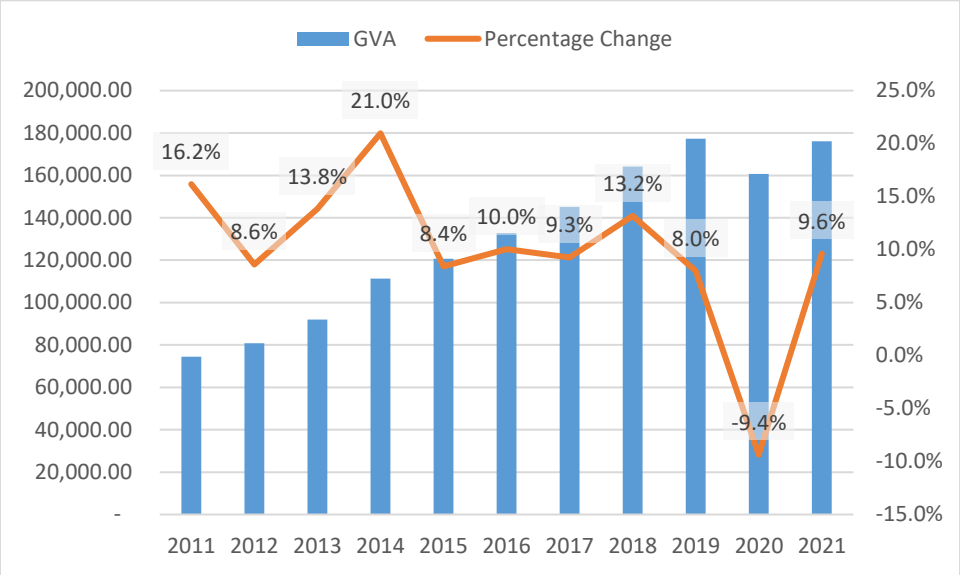
- **Gross Value Added.** The warehouse and storage sector belongs to the transport and storage industry under the National Accounts of the Philippines. It is one of the five accounts that make up transport and storage industry along with land transport, water transport, air transport, and postal & courier activities. Among the five, warehouse and storage comprised 30.9 percent of the industry's gross value added.

[6] Market holds steady amidst COVID-19, September 3, 2020, Inquirer.net, https://business.inquirer.net/306460/philippine-logistics-and-warehousing-market-holds-steady-amidst-covid-19
[7] 2009 Philippine Standard Industry Classification (PSIC), https://psa.gov.ph/classification/psic/

Over the past decade, the warehouse and storage sector experienced growth until 2020. From 2011 to 2019, the sector grew at an average rate of 12 percent per year. However, the sector experienced a steep decline in 2020, the first year of the COVID-19 pandemic. Compared to 2011 figures, GVA increased 137 percent indicating that the sector is healthy and growing.

The warehouse and storage sector GVA reached 176.1 billion pesos in 2021, which is almost at the same value in 2019 (177.9 billion pesos). The sector was quick to recover during the COVID-19 pandemic. Over the past two years, the dramatic growth of e-commerce has given the sector a better outlook and expects a more significant contribution to the economy despite the persisting pandemic.

Figure 1: Warehousing and Storage GVA in Million PHP (2010 – 2020)



SOURCE: Philippine Statistics Authority (PSA)

- **Employment Generation.** Based on the most recent Census of Philippine Business and Industry (CBPI) in 2018, PSA was able to connect to 204 warehouse and storage establishments. The total employment generated from the 204 warehouse and storage facilities reached 11,913 direct employees and 1,793 indirect employees through sub-contract agreements. On average, each facility was able to generate 58.4 direct jobs. Moreover, the warehouse and storage sector generated employment that consists of 5.9 percent of the total employment created under the transport and storage industry.

Table 5: Selected Statistics for Transport and Storage Establishments based on 2018 CPBI

2009	Industry	Number of Establishments	Total Employment	Total Revenue

PSIC Code	Description	Value	Share to Total (%)	Value	Share to Total (%)	Value	Share to Total (%)
H	**Transport and Storage**	3,377		206,024		738,581,074	
H491	Transport via railways	s	s	s	s	s	s
H492	Transport via buses	290	8.6	31,616	15.4	22,256,110	3.0
H493	Other land transport	1,081	32	31,795	15.4	36,614,768	5.0
H501	Sea and coastal water transport	162	4.8	19,934	9.7	60,282,849	8.2
H502	Inland water transport	38	1.1	875	0.4	1,793,977	0.2
H511	Passenger air transport	33	1.0	14,021	6.8	291,886,101	39.5
H512	Freight air transport	s	s	s	s	s	s
H521	Warehousing and storage	204	6.0	11,913	5.8	15,702,522	2.1
H522	Support activities for transportation	1,443	42.7	74,426	36.1	279.248,313	37.8
H532	Courier activities	122	3.6	18,393	8.9	27.690,233	3.7

SOURCE: 2018 CPBI, Philippine Statistics Authority

C. TYPES OF WAREHOUSES IN THE PHILIPPINES

There are a variety of warehouses operating across the globe as well as in the Philippines. Structurally, warehouses may look the same. However, despite the same look form the outside, warehouses have different classification based on its type of ownership, function, equipment, and geographic area.

- **By Ownership.** In the Philippines, owning a warehouse facility (land and infrastructure) is limited to Filipino citizens or Filipino-owned corporations with a minimum equity share of 60 percent based on the Philippine Constitution. As such, warehouses in the Philippines can be privately-owned by a Filipino citizen or corporation or publicly owned by the Philippine government. Under private warehouses, there are two types - *private non-commercial* and *private commercial*. On the other hand, there are also government-own or public warehouses.

  While land ownership is limited to Filipino citizens or Filipino-owned corporations, warehouse operation and provision of logistics services is no longer subject to ownership restrictions due the passage of the Republic Act No. 11659, otherwise known as the Philippine Public Service Act of 2022. The passage of the law will allow foreign-owned warehouse operations even outside economic zones.

- **By Function.** There are also different types of warehouse and storage facilities based on its function. The most common are the *general warehouses*. These facilities store a variety of domestic products apart from regulated items. Unfortunately, there is no centralized database for general warehouses in the Philippines. As such, data and visibility regarding general warehouses is only limited. There are also *bulk storage facilities* that specializes in a loose cargo, which can be dry or wet. Fuel depots and grain silos are just examples of bulk storage facilities.

  Customs bonded warehouses (CBW) are legally defined in the Philippines[8] as warehouse facilities licensed by the Bureau of Customs (BOC) to import, receive, and store, without payment of duties and taxes and under bond, goods, raw materials, accessories, and packaging materials, either for manufacture into

[8] Bureau of Customs CAO 13-2019

finished products for export or storage for the account of authorized end users of clients. Exporters utilize customs bonded warehouse to save on duties and taxes. Importers, on the other hand, use such facilities to consolidate and store their imported products prior to release. Furthermore, the Customs Modernization and Tariff Act (CMTA) further classified customs warehouses into different types and sub-types.

Table 6: Types of Warehouses and Storage Facilities in the Philippines

	Classification	Description
By ownership	Private Commercial	*Private commercial warehouse and storage facilities* are privately owned and operated facilities that provide storage services to the public after obtaining necessary government permits and certifications.
	Private Non-Commercial	*Private non-commercial warehouses and storage facilities* are owned or under a long-term lease by manufacturers or traders for the safe keeping and storage of their own commodities. Typically, they are used by firms to stabilize supply of their products and ensure enough stock for distribution. Although it involves significant capital investment, it provides greater flexibility and control in utilization, stock-keeping costs, and operations.
	Public / Government	*Public or government warehouse and storage facilities* are owned, managed, and controlled by the government or its instrumentalities at the national or local level. These warehouses cater primarily to the storage services needs of the government and public, including private enterprises.
By Function	Bulk Storage	Bulk storage facilities are used to keep unpacked products and materials in high volumes such as petroleum, oils, and grains.
	Customs Bonded	*Customs bonded warehouses* are generally situated near international gateways (seaports and airports) and operate under the control and supervision of government agencies, particularly the Bureau of Customs.
	General Merchandise	General warehouses are facilities that are used to storage all type of products (outside regulated items) owned by different firms.
	Special Commodity	Special commodity facilities are used to store sensitive agricultural products (rice, tobacco, and sugar) and other controlled commodities (fertilizers and pesticides).
	Temperature Controlled	Temperature controlled facilities are used to keep products and materials that require controlled temperatures such as perishable food, pharmaceuticals, or some chemical materials.

Table 7: Customs Bonded Warehouse and Storage Classification based on CMTA

A. Customs Bonded Warehouses	
1. Manufacturing	
	i. Miscellaneous customs bonded warehouse
	ii. Customs common bonded warehouse
	iii. Industry-specific bonded warehouse
2. Non-Manufacturing	
	i. Public bonded warehouse
	ii. Private bonded warehouse
	iii. Other customs facilities

B. Customs Facilities and Warehouses	
1. Container yard	
2. Container freight station	
3. Seaport warehouse	
4. Airport warehouses	

Customs bonded warehouses are regulated by the Bureau of Customs (BOC). Private customs bonded warehouses need to acquire BOC accreditation prior to operation. Across the Philippines, there are a total of **143 CBW**, most of which are located near international gateways.

Table 8: Customs Bonded Warehouse Distribution across the Philippine Regions

Region	No. of CBW	% Share
NCR	86	60.1
1 - Ilocos Region	-	-
2 – Cagayan Valley	-	-
3 – Central Luzon	1	0.7
4A – CALABARZON	4	2.8
4B – MIMAROPA	-	-
5 – Bicol Region	-	-
6 – Western Visayas	-	-
7 – Central Visayas	26	18.2

Region	No. of CBW	% Share
8 – Eastern Visayas	26	18.2
9 – Zamboanga Pen.	1	0.7
10 – Northern Mindanao	5	3.5
11 – Davao Region	8	5.6
12 – SOCCSKSARGEN	10	7.0
13 – CARAGA	-	-
CAR	-	-
BARMM	-	-
TOTAL	**143**	**100**

SOURCE: Bureau of Customs

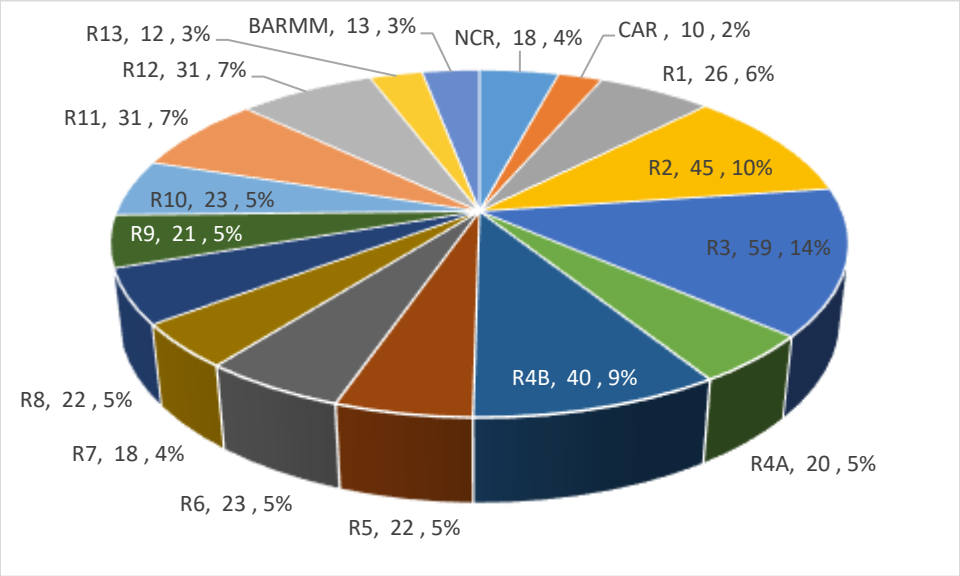
- **By Commodity**

Special commodity facilities are designed and used to store certain products, particularly sensitive agricultural goods. In the case of the Philippines, there are special commodity warehouse for sugar, grains, fertilizers, and pesticides. As an example, the Sugar Regulatory Authority (SRA) requires raw or refined sugar to be stored in SRA registered warehouses[9]. On the other hand, the National Food Authority (NFA) has warehouses across the country that only store grains. NFA operates 434 grain warehouses across the country (2017) and oversees 4,401 grains warehouse owned and operated by grain-related enterprises (2019). Out of 434 warehouses that NFA operates, 345 are owned

[9] As of August 2019, there are 39 accredited SRA warehouses.

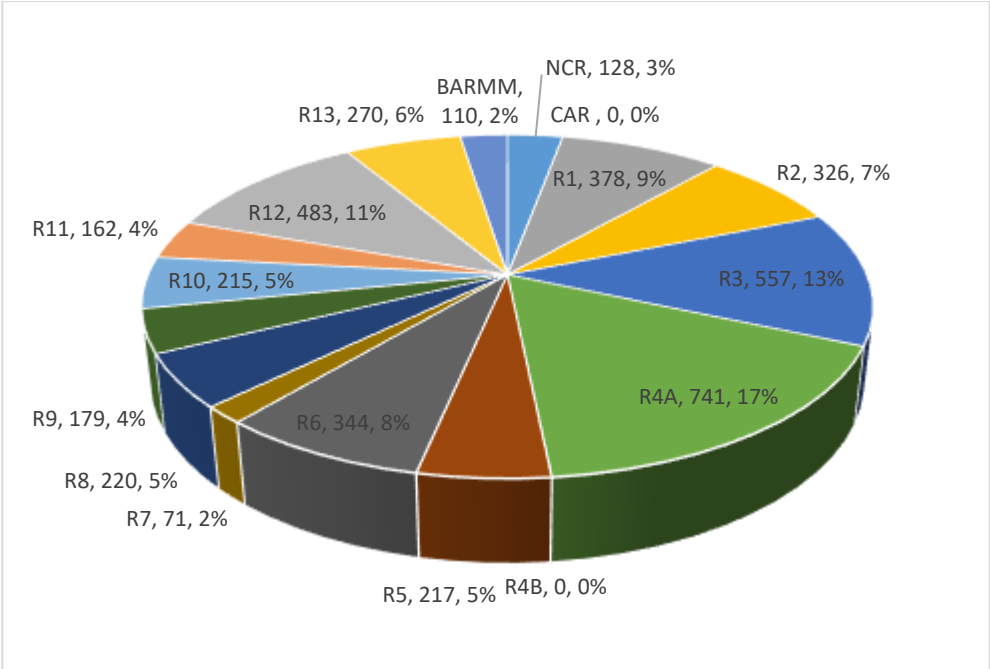
while 89 are leased. The Fertilizer and Pesticide Authority has 814 accredited fertilizer and pesticide warehouse across the Philippines, 41 percent of which is located Northern Mindanao (R10) and Davao Region (R11).

Figure 2: NFA Grains Storage Facilities Distribution across Philippine Regions



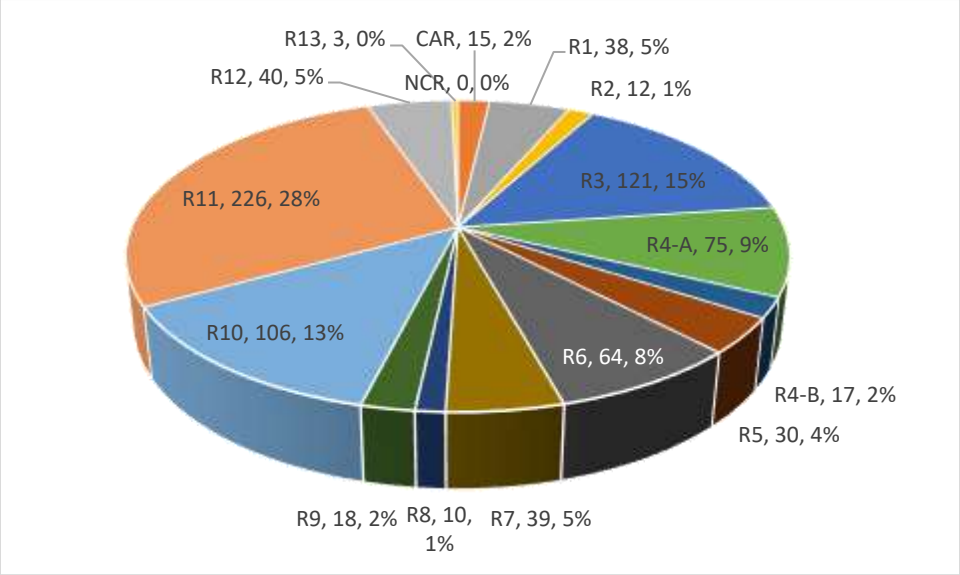
SOURCE: National Food Authority (NFA)

Figure 3: List of NFA Grains Enterprise Storage and Warehouse Distribution across Philippine Regions



SOURCE: National Food Authority (NFA)

Figure 4: Fertilizer and Pesticide Storage and Warehouse Distribution across Philippine Regions



SOURCE: Fertilizer and Pesticide Authority (FPA)

There are *temperature-controlled* or cold storage warehouses (CSW) that have special equipment and assets dedicated to the storage, preparation, and distribution of products at very specific temperature. There are a variety of temperature-controlled warehouses (ambient, cool, refrigerated, and frozen) depending on the temperature range it can provide. Based on the records of the National Meat Inspection Services (NMIS), Bureau of Fisheries and Aquatic Resources (BFAR), and Bureau of Plant Industry (BPI), there are a total of 274 cold storage facilities across the Philippines, 33.9 percent of which is in the National Capital Region.

Table 9: Temperature Controlled Storage and Warehouse Distribution across Philippine Regions

Region	No. of CSW	% Share
NCR	93	33.9%
1 - Ilocos Region	3	1.1%
2 – Cagayan Valley	3	1.1%
3 – Central Luzon	40	14.6%
4A – CALABARZON	46	16.8%
4B – MIMAROPA	1	0.4%
5 – Bicol Region	4	1.5%
6 – Western Visayas	12	4.4%
7 – Central Visayas	22	8.0%

Region	No. of CSW	% Share
8 – Eastern Visayas	8	2.9%
9 – Zamboanga Pen.	5	1.8%
10 – Northern Mindanao	8	2.9%
11 – Davao Region	10	3.6%
12 – SOCCSKSARGEN	14	5.1%
13 – CARAGA	5	1.8%
CAR	0	0.0%
BARMM	-	-
TOTAL	**274**	**100**

SOURCE: BPI, BFAR, and NMIS

While most warehouse and storage facilities can be categorized by function, there are special facilities operating within Philippine Economic Zones Authority (PEZA) called e*cozone logistics service enterprise* (ELSE). Warehouses and storage facilities operating under the ELSE category need to locate within

an economic zone and undergo PEZA accreditation. A minimum paid-up capital of 200,000 USD[10] is required by the PEZA for any warehouse and logistics service provider under the ELSE category. Moreover, they can only cater to economic zone locators and are prevented to tap the local market outside the economic zones.

Table 10: Ecozone Logistics Service Enterprise Distribution across Philippine Regions

Region	No. of ELSE	% Share	Region	No. of ELSE	% Share
NCR	16	3.12	8 – Eastern Visayas	1	0.19
1 - Ilocos Region	-	-	9 – Zamboanga Pen.	-	-
2 – Cagayan Valley	-	-	10 – Northern Mindanao	2	0.39
3 – Central Luzon	6	1.17	11 – Davao Region	-	-
4A – CALABARZON	434	84.60	12 – SOCCSKSARGEN	1	0.19
4B – MIMAROPA	-	-	13 – CARAGA	-	-
5 – Bicol Region	-	-	CAR	4	0.78
6 – Western Visayas	-	-	BARMM	-	-
7 – Central Visayas	49	9.55	**TOTAL**	**513**	**100**

SOURCE: Philippine Economic Zone Authority (PEZA)

Based on the table above, most of the ELSE are operating in CALABARZON since there are a lot of economic zones located in Region 4A. Out of the 513[11] total number of ELSE, 434 (84.6 percent) are situated in Cavite and Laguna provinces. Central Visayas has the second largest concentration of ELSE operators with 49, most of which are in the Mactan Economic Zones in Cebu Province.

Other special economic zones such as Authority of Freeport Area of Bataan (AFAB) and Subic Bay Metropolitan Authority (SBMA) have their own inventory of warehouse and storage facilities and enterprises. As of 2021, AFAB has three (3) active warehouse enterprises while SBMA has nine (9).

D. MARKET CONDITIONS

- **Market Supply.** Like the archipelagic islands of the Philippines, the warehouse sector is highly fragmented. While there are corporations that own and operate multiple facilities, most facilities are still owned by small and medium enterprises with one warehouse. As an example, in the highly specialized cold storage warehouses, 178 out of 274 facilities (65 percent) are owned and operated by an enterprise with only one facility. The rest are split up across different corporations with multiple cold storage warehouses spread across the country.

  Based on the various government warehouse and storage inventories, there are at least 6,579 registered facilities in the Philippines. However, it is important to note that general warehouses are not included since there is no consolidated registry for such facilities. As such, the number of warehouses in the Philippines could be

[10] PEZA Board Resolution No. 02-057
[11] PEZA List of Operating Registered Enterprise as of Nov. 15, 2021.

more than the registered number. Among the registered facilities, 4,401 are private grains warehouses (66.9 percent), which mainly store rice products.

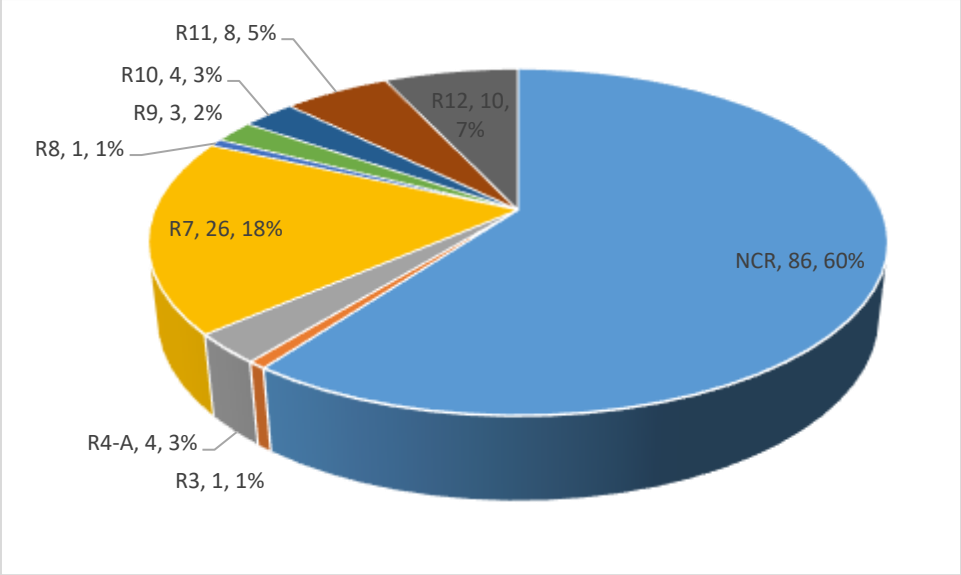
Table 11: Inventory of Philippine Warehouse and Storage Facility based on Type

Region	CBW	CSW	Grains Public	Grains Private	ELSE	Fertilizer and Pesticide
NCR	86	93	18	128	16	0
CAR	0	0	10	0	4	15
R1	0	3	26	378	0	38
R2	0	3	45	326	0	12
R3	1	40	59	557	6	121
R4-A	4	46	20	741	434	75
R4-B	0	1	40	0	0	17
R5	0	4	22	217	0	30
R6	0	12	23	344	0	64
R7	26	22	18	71	49	39
R8	1	8	22	220	1	10
R9	3	5	21	179	0	18
R10	4	8	23	215	2	106
R11	8	10	31	162	0	226
R12	10	14	31	483	1	40
R13	0	5	12	270	0	3
BARMM	0	-	13	110	-	-
SUB-TOTAL	143	274	434	4,401	513	814
TOTAL	6,579					

SOURCE: NMIS, BFAR, BPI, NFA, FPA, BOC, and PEZA

Geographical concentration of warehouse and storage facility greatly vary depending on the type of service. General warehouses are spread across the country. Although there is no consolidated database for general warehouses, industry experts feel that they are dispersed across the Philippines. As for customs bonded warehouses, most of the facilities are in National Capital Region since the country's main international gateways – Manila International Airport and Manila International Port – are both located in the capital. Out of the 143 CBW, 86 (60 percent) are operating in the National Capital Region. Cebu City has the second highest number of customs bonded warehouse (26) since it is also an international gateway and an export manufacturing hub.

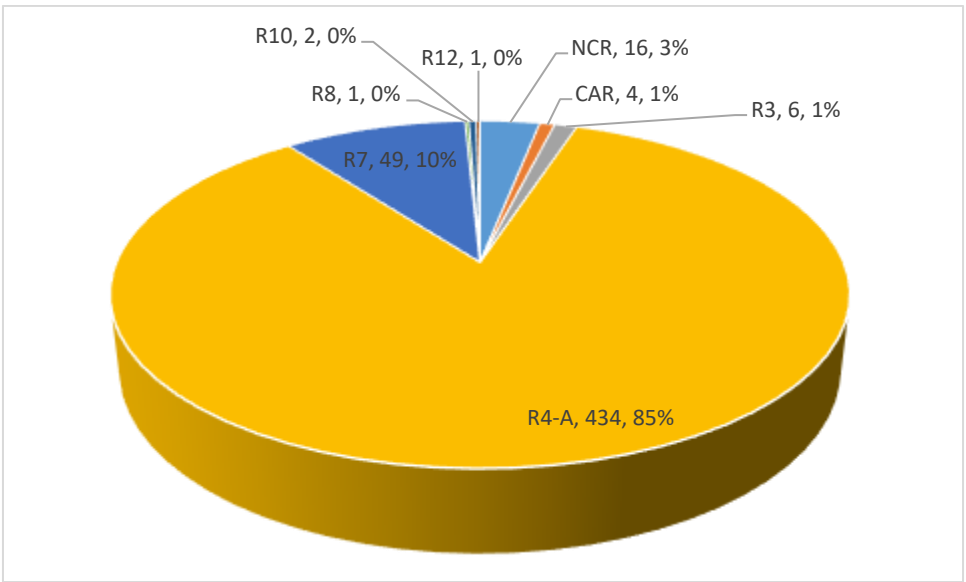
Figure 5: Distribution of CBW across the Philippine Regions



SOURCE: Bureau of Customs (BOC)

ELSE warehouses, which caters to economic zone locators under PEZA, are mostly situated in Region 4A since a majority of the economic zones operate in the area. As of November 2021, there are 434 ELSE facilities (84.6 percent) in Region 4A and 49 in Mactan Cebu (10%).

Figure 6: Distribution of ELSE Facilities across the Philippine Regions



SOURCE: Philippine Economic Zone Authority (PEZA)

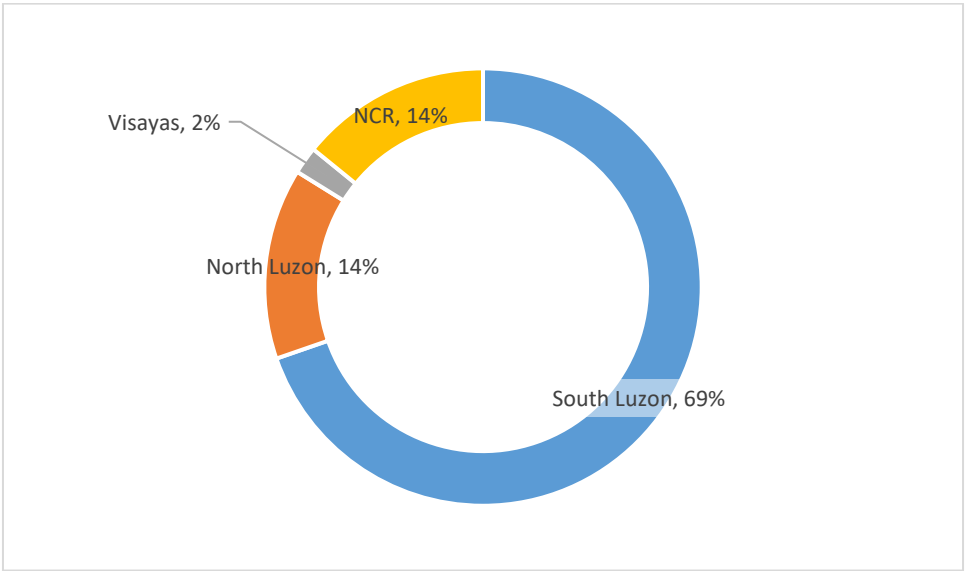
Warehouse and storage facilities for fertilizers and pesticides are situated in key agricultural areas in the Philippines, including Region 3, 10, and 11. There is no fertilizer and pesticide warehouse in NCR since the region has little agricultural activity and, more importantly, for health and safety reasons.

Prior to the pandemic, the real estate prices within Metro Manila have rapidly increase over the past 10 years. Consequently, old warehouse and storage facilities in the economic capital have been converted into mixed use developments, mainly commercial and residential spaces. This forced warehouse and storage owners and operators to relocate outside in the nearby regions such as Region 3 (Pampanga and Bulacan) and Region 4A (Cavite and Laguna) leading to the creation of new warehouse clusters.

The outlook for the warehouse and storage sector is positive despite the COVID-19 pandemic. The growth in e-commerce transactions created a higher demand for warehouse and storage facilities in the National Capital Region[12]. However, the exorbitant real estate prices have prevented the market from rapidly developing new warehouse and storage space in NCR. This problem, however, has led to the creation of new business models such as micro-warehouses, multi-level warehousing, and micro-fulfillment hub, all of which catering to e-commerce trade.

In a study prepared by KMC Savills in 2021, the real estate firm estimated that bulk (69 percent) of the county's available warehouse supply is situated in Southern Luzon. The data gather from the various government offices supports this finding. The Cavite, Laguna, and Batangas (CALABA) corridor has a significant number of warehouse facilities of different types.

Figure 7: Share of Available Supper of Warehouse in the Philippines (1st Quarter of 2021)[13]



SOURCE: KMC Savills

[12] KMC Savills Industrial and Logistics Report (May 2021)
[13] Value may not tally to 100 percent due to rounding up.

Figure 8: Aerial Shot of Mandaluyong Warehouse District (April 2004)

SOURCE: Google Earth

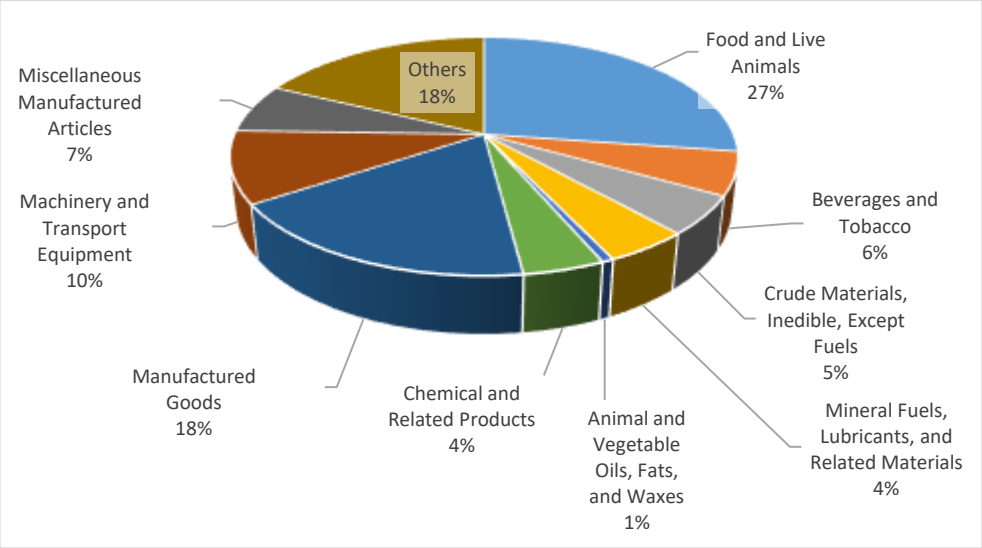
Figure 9: Aerial Shot of Former Mandaluyong Warehouse District (November 2020)

SOURCE: Google Earth

Figure 5 and Figure 6 show the dramatic change in real estate landscape in Metro Manila, particularly in the Mandaluyong warehouse district. In 2004, most of the structures in Barangay Highway Hills, Mandaluyong were warehouse and storage facilities. The increase in demand for residential and commercial spaces near central business districts lead to the conversion of warehouse into mixed used buildings, particularly condominiums.

- **Market Demand.** The demand for warehouse service stems from the trade and movement of commodities across the country. Based on the Philippine Statistics Authority (PSA), a total of 16.22 million metric tons of goods were traded in 2020, 27 percent lower than the previous year. Bulk of the commodities traded were classified as *food and live animals* (4.43 million metric tons, 27 percent). This explains the high number of Department of Agriculture warehouse and storage facilities that are specifically designed to accommodate such types of commodities. The second most traded type of commodity was *manufactured goods*, which also includes manufactured export products. A total of 2.89 million metric tons of manufactured goods were moved last year 2020 which accounts for 18 percent of total volume. The demand for these products indirectly creates demand for warehouse and storage services to ensure the timely and ample supply of commodities to consumers.

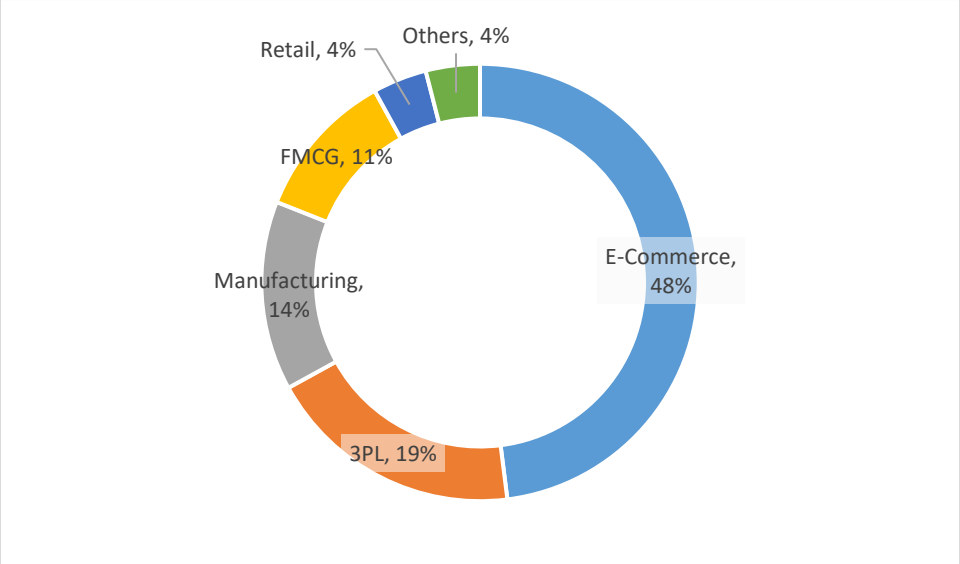
Figure 10: Quantity of Domestic Trade by Type of Commodity (in MT)



SOURCE: Philippine Statistics Authority (PSA)

The global pandemic created a shift in demand. Prior to the pandemic, retail companies have high demand for warehouse space to store their products. However, the onset of the pandemic resulted to the boom of e-commerce here in the Philippines. As such, e-commerce companies and 3PL service e-commerce firms are now generating most of the demand of warehouse services. A study by KMC Savills showed that 48 percent of the total demand came from e-commerce activities followed by 3PL companies (19 percent), some of which are fulfilling e-commerce transactions.

Figure 11: Percentage Distribution of Warehouse Demand in the Philippines (1st Quarter, 2021)[14]



SOURCE: KMC Savills

The rising demand from e-commerce establishments have generated a unique need for smaller spaces utilized as fulfillment hubs. The study from KMC Savills revealed that e-commerce establishments can get a storage space as small as 88 square meters for fulfillment centers and as big as 35,000 square meters for sorting hubs. The same study also presented the demand from other market segments – 3PL, manufacturing, retail, FMCG, and others.

Figure 12: Warehouse and Storage Demand per Sector (1st Quarter, 2021)

SOURCE: KMC Savills

[14] Value may not tally to 100 percent due to rounding up.

E-commerce has started to expand into markets outside NCR. The demand for warehouse and storage space has increased in those areas. Further, e-commerce firms would need to establish fulfillment centers and regional sorting hubs outside of Metro Manila to address the increase in transactions and cargo movement in the regions.

A research prepared Forrester Research and CBRE in 2018 reported that an incremental USD 1 billion increase in e-commerce sales will need an additional 1.25 million square foot or 116,000 square meters of distribution space to support growth[15]. Based on the growth estimates, a USD 14 billion e-commerce growth by 2025 in the Philippines will need 1.62 million square meters of storage space. This would require an additional USD 984 million worth of investment in the local storage and warehouse sector just to accommodate e-commerce expansion by 2025. To add, the Logistics Services Roadmap Study (2019) prepared by DTI estimated the need for an additional PHP 350 billion investment for conventional warehouse and cold storage facilities.

- **Market Structure.** As mentioned earlier, the warehouse and storage sector in the Philippines is fragmented. It is fragmented in terms of location since there is no singular warehouse district along regions. Aside from facilities inside economic zones, warehouse and storage structures seem to be dispersed from one another. This prevents the formation of a large logistics corridor that can be complemented with proper road infrastructure. Instead, the Philippines has pockets of warehouses and storage facilities scattered without appropriate infrastructure to support the movement of heavy trucks.

  The sector is also fragmented in terms of ownership. There are a lot of warehouse and storage facility operators across the country. There is no firm or group of firms that have control over most of the industry's total floor area. Even in the highly specialized sub-sector of cold storage facilities, there are still many operators that manage only a single facility. Despite the presence of corporation with multiple facilities, there seems to be competition along the industry. However, there are a few instances where a specialized storage facility does not have any competition in a particular area due to insufficient market size.

  The industry has number of associations based on the type of service offered. There is the Customs Bonded Warehouse Operators Confederation Inc. (CBWOCI) that represents CBW operators. CBWOCI was initially established solely for garments bonded warehouse operators but later expanded its membership to include other types of CBWs. There is also the NAIA Customs Bonded Warehouse Operators Council (NCBWOC) that is made up of air-cargo CBW operators serving the Ninoy Aquino International Airport (NAIA). For the cold storage warehouses, there is the Cold Chain Association of the Philippines (CCAP). In addition to cold storage warehouse operators, the association also includes food processors, refrigerated transport, and food distributors.

Figure 13: List of Industry Associations

[15] Forrester Research and CBRE (2018).

Industry Association	Membership
Customs Bonded Warehouse Operators Confederation Inc.	CBWs operators
NAIA Customs Bonded Warehouse Operators Council	Air cargo CBW operators at NAIA
Cold Chain Association of the Philippines	Cold storage warehouse operators
Association of Off-Dock CFS Operators of the Philippines	Customs facilities and warehouses

Unfortunately, there is no association for general warehouses operators unlike in the United Kingdom (UK) where in there is a strong industry association for warehouse owners and operators called United Kingdom Warehouse Association (UKWA). At present, UKWA has more than 800 members and 100 associate members. The thrust of the trade organization is to protect and advance the interest of its members, support business development, and promote industry best practices. Moreover, UKWA has a listing of available warehouse and storage spaces among its member firms. It would be ideal if local general warehouse operators form an industry association, like UKWA, to create visibility for its members and allow formal dialogue between government and general warehouse stakeholders.

Table 12: Monthly Warehouse Rental Rate (3rd Quarter, 2020)

Location	Indicative Monthly Rent per SQM (PHP)	
	Minimum	**Maximum**
Metro Manila	-	-
Las Pinas	150	650
Makati	340	920
Mandaluyong	270	750
Manila	300	750
Muntinlupa	230	500
Paranaque	140	470
Pasig	150	670
Quezon City	110	700
Taguig	200	400
Valenzuela	100	710
Subic	170	250
Clark	150	260
Cavite	120	420
Laguna	130	330
Batangas	130	300
Cebu	130	250
Davao	160	210

SOURCE: Colliers, Cushman and Wakefield

Warehouse rental prices vary depending on the location. In key areas like Makati, Manila, and Mandaluyong, monthly rates per square meters are high. This is caused by the high demand for storage space in key location as well as the limited storage space in valuable real estate. Outside Metro Manila, prices are more affordable. As such, Cavite and Laguna have become popular destination for clients seeking more affordable rental rates.

The growth of e-commerce is expected to push rates higher in urban areas. To limit the effects, the sector is finding innovative ways to provide solutions to the needs to e-commerce firms. One solution is the creation of vertical warehousing solution that suitable in highly dense urban areas like Metro Manila. This solution provides significant storage space despite the small footprint in terms of land area.

E. REGULATORY ENVIRONMENT

- **Land and Enterprise Ownership.** Land ownership in the Philippines is limited to Filipino citizens and corporations or partnerships with at least 60 percent of shares owned by a Filipino based on the Philippine Constitution. The 60-40 rule limits the land ownership of any foreign entity. However, foreign enterprise can operate logistics facilities in the Philippines where in the land and/or facility is under a long-term lease.

  At present, there are already a handful of international logistics companies managing their own warehouses in the Philippines. In recent years, prominent international warehouse operators, have already established their presence in the Philippines such as DHL Supply Chain, DB Schenker, CEVA Logistics, Yusen Logistics, DSV, Rhenus Logistics, Expeditor, and others. Some of which are fully owned by foreign nationals.

- **General Regulations.** In the Philippines, there is no dedicated legislation or regulation that provides a singular legal framework for the entire warehouse and storage sector. There are general regulations such as the Local Government Code of 1991, National Building Code of the Philippines, and Revised Corporation Code of the Philippines that affect the sector. Through the Local Government Code, warehouse and storage facility operators must acquire the necessary business permits and licenses required by the local government. Moreover, the code also empowers the local government to enforce zoning regulations within its jurisdiction. As such, warehouse and storage facilities can only be constructed in land classified as industrial land. The National Building Code provides the necessary building standards for warehouse and storage facilities. Operators need to adhere to the building code and follow the basic technical specifications when constructing a warehouse and storage facility.

  Meanwhile, the Revised Corporation Code of the Philippines is the law that governs the establishment of stock and non-stock enterprises. It provides the guidelines for establishing a corporation and it defines corporate powers. Incorporated warehouse and storage facility operators must adhere to the Revised Corporation Code, including documentary and reporting requirements.

  While several general regulations cover the sector, there is no specific regulation for warehouse and storage facilities. Interestingly, Act No. 3893, as amended by Republic Act No. 247, mandates the registration of all warehouse and storage facility under the Department of Trade and Industry (DTI). However, this longstanding legislation seems to be unimplemented by the trade department. On

the other hand, there are a lot of specific regulations issued by different government departments and their attached agencies focusing on the conduct of services offered by warehouses and storage facilities and the type of product they can accommodate.

- **Specific Regulations.** The Department of Agriculture (DA) has released Administrative Order 21-2011 and Administrative Circular 01-2021 that mandates the mandatory accreditation of all cold storage warehouses (CSW) for agricultural and fisheries products. NMIS, BFAR, and BPI all register and accredit cold storage facilities that service meat products, aquatic products, and plant products.

  Section 13 of National Grains Authority Act (Presidential Decree No. 04) also gives DA the power and authority to register and license warehouse and storage facilities in the grains sector. At present, the National Food Authority (NFA) has an inventory of all grains warehouse it operates, either owned or leased, as well as all grains warehouses owned by traders, rice mills, and other grains-related enterprises.

  Presidential Decree No. 1144 created the Fertilizer and Pesticide Authority (FPA) under the Department of Agriculture. The decree authorized FPA to register warehouse and storage facilities that cater to fertilizer and pesticides. As of October 2021, there are 831 fertilizer and pesticide warehouses registered with the FPA.

  The Bureau of Customs regulates customs bonded warehouses (CBW) by virtue of the Customs Modernization and Tariff Act (CMTA). To operationalize CMTA sections related to CBWs, the bureau has also issued Customs Administrative Orders (CAO) 09-2019, 13-2019, and 01-2022. These three CAO serve as guidelines in the accreditation, operations, monitoring, and reporting of CBW in the Philippines.

Table 13: Warehouse and Storage Sector Relevant Regulations

Type of Facility	Law and Regulations	Enforcing Institution
All warehouses and storage facilities	Local Government Code (RA No. 7160)	Local government units
	National Building Code of the Philippines (PD No. 1096)	Local government units
	Revised Corporate Code (RA No. 11232)	Securities and Exchange Commission (SEC)
	Fire Code of the Philippines (RA No. 9514)	
	Occupational Safety and Health Standards Law (RA 11058)	Department of Labor and Employment (DOLE)
	Act No. 3893, as amended by RA No. 247	Department of Trade and Industry (DTI) – Fair Trade and Enforcement Bureau (FTEB)
Customs bonded warehouse and storage facilities	Customs Modernization and Tariff Act (RA No. 10683)	Bureau of Customs
	CAO 09-2019	Bureau of Customs
	CAO 13-2019	Bureau of Customs
	CAO 01-2022	Bureau of Customs
	Meat Inspection Code of the Philippines (RA No. 9296)	National Meat Inspection Service (NMIS)

Temperature-controlled warehouse and storage facilities	Philippine Fisheries Code (RA No. 8550)	Bureau of Fisheries and Aquatic Resources (BFAR)
	Executive Order 116 s.1987	Bureau of Plant Industry (BPI)
Ecozone Logistics Service Enterprise (ELSE) Warehouses	Special Economic Zone Act / RA7616	Philippine Economic Zone Authority (PEZA)
	BR 97-366 (Guidelines for the Registration and Operation of Ecozone Facilities Enterprises Engaging in Warehouse Operations)	
	BR 02-057 (Amending BR 97-366)	
	BR 10-056 (Amending BR 02-057)	
General Bonded Warehouse	Act No. 3893, as amended by RA No. 247	Department of Trade and Industry – Fair Trade Enforcement Bureau (FTEB)
Commodity Specific Regulations		
Fertilizers and Pesticides	PD No. 1144	Fertilizer and Pesticide Authority (FPA)
Sugar	Executive Order No. 18 s.1986	Sugar Regulatory Administration (SRA)
	Sugar Order No. 06 (2011 – 2012)	
	Sugar Order N0. 08 (2013 – 2014)	
Grains	PD No. 4, as amended by PD No. 1770	National Food Authority (NFA)
Controlled Chemical	PD No. 1866	Philippine National Police (PNP) – Firearms and Explosives Office
Controlled Substances	RA No. 9165	Philippine Drug Enforcement Agency (PDEA)
Pharmaceutical Products	RA. No. 9711	Food and Drug Administration (FDA)

The Special Economic Zone Act (Republic Act No. 7916) created the Philippine Economic Zone Authority (PEZA). Part of the legislation is the registration of all enterprises and locators operating within the economic zones. As such warehouse and logistics service providers within the economic zone must register with ecozone authority. To provide more detail, PEZA released Board Resolution (BR) No. 97-366 entitled *Guidelines for Registration and Operations of Ecozone Facilities Enterprise Engaging in Warehouse Operation*. This resolution was eventually amended with BR No. 02-057, which lowered the minimum paid-up capital for warehouse enterprise from two million USD to 200,000 USD. This resolution resulted to the increase of warehouse and storage investors in PEZA-owned economic zones due to lowered barriers to entry.

In the same manner, other economic zones outside PEZA[16], under their own charter, grant them the power to accredit and register warehouse operators in their own jurisdiction.

- **Relevant Standards.** The national government has developed standards for warehouse and storage facilities. These standards serve as a guide, but, more importantly, it is also there to protect public health, safety, and general welfare. There are various national standards develop that is related to warehousing. The table below list some of the standards related to the construction and operation of select warehouse and storage facilities.

[16] Clark Economic Zone Authority (CEZA), Subic Bay Metropolitan Authority (SBMA), and Authority of Freeport Area of Bataan (AFAB).

Table 14: Standards related to Warehouse and Storage Sector

Standards / Code	Title	Scope
PNS/PAES 419:2015	Agricultural structures – Warehouse for bag type storage of grains	This standard specifies the functional requirements for warehouses for bag type storage of grains. It does not include storage for seeds.
PNS/BAFS 193:2017	Good warehousing practices for bagged grains	This covers warehouse design and warehousing practices relevant to handling, storage, and transport of bagged grains, specifically for food and feed consumption. It also considers the provisions of the Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) to ensure food safety, quality of produce and worker's health, safety, and welfare.
PNS/BAFPS 20:2008	Good agricultural practice for corn	This Code of Good Agricultural Practices for Corn herein referred to as GAP Corn is a set of consolidated safety and quality standards formulated by the Department of Agriculture (DA) for the production, harvesting and on-farm post-harvest handling and storage of corn.
PNS/BAFS 141:2019	Code of good agricultural practices for rice	The Code of Good Agricultural Practices for Rice (GAP for Rice) is a set of 4 consolidated safety and quality standards covering the production, harvesting and farm post-harvest handling and storage of rice.
FDA D.O. No. 2013-002 7	Adoption and Implementation of the World Health Organization Annex 5 Guide to Good Distribution Practices (GDP) for Pharmaceutical Products, and Annex 9 Guide to Good Storage Practices for Pharmaceuticals	This Order applies to FDA and Drug Establishments and Retailers

SECTION III

FINDINGS AND RESULTS

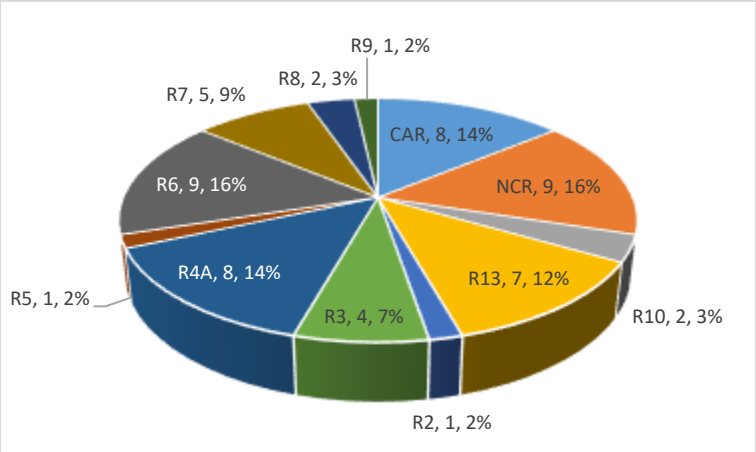
A. LOCAL SURVEY RESULTS

A survey, on behalf of the Department of Trade and Industry, was conducted to gather more information about the warehouse and storage sector. The survey questionnaire was distributed to different warehouse and storage facility owners and operators across the country to determine the sector's current state in terms of ownership, type of operation, capacity, services offered, type of commodities served, technology adopted, equipment available, and others. The information gathered through the survey hopes to provide the Department of Trade and Industry with the information to help key policy makers to develop and implement responsive project, activities, and programs for the development of the sector. At the end of the survey, there were 57 respondents.

Distribution of Survey Respondents

With assistance from DTI Regional Operations Group (DTI-ROG) and the DTI Regional Offices, the survey was able to get respondents from various regions of the Philippines. Out of the limited number of respondents, most came from National Capital Region (16%), Region 6 (16%), Region 4A (14%), and Cordillera Autonomous Region (14%).

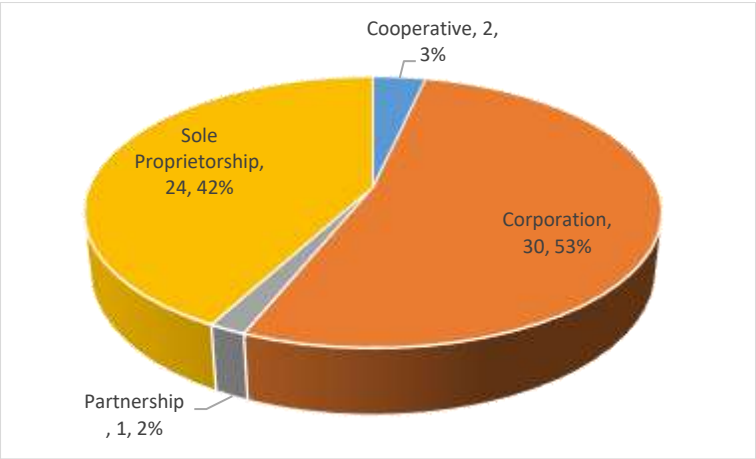
Figure 14: Distribution of Survey Respondents per Region



Business Size and Structure

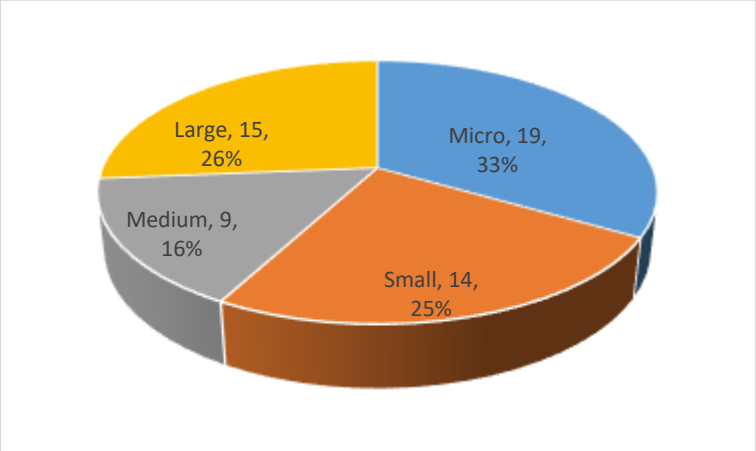
Part of the survey is determining the business structure and business size of the different warehouse and storage enterprises. The survey result showed that most of the facilities are corporations (53%). However, a significant number remain as sole proprietorship (42%).

Figure 15: Type of Business Structure



There was a good distribution survey correspondents across different business sizes. To note, not all large enterprises are already incorporated. There are still some that remain under sole proprietorship.

Figure 16: Business Size

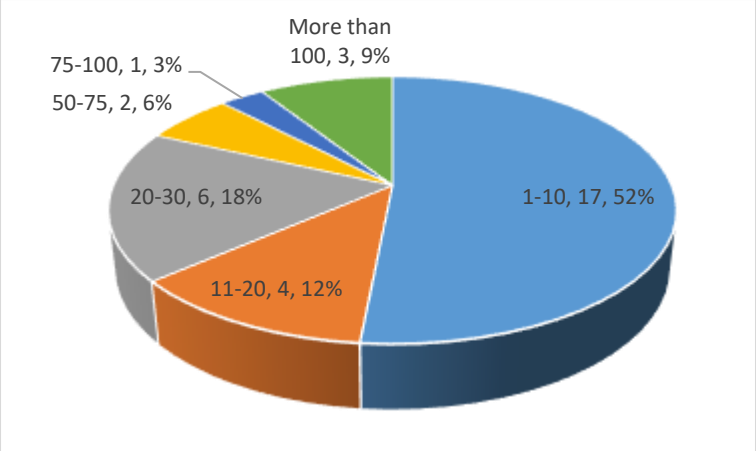


Based on the survey, the average warehouse capacity in terms of area is 3,099 square meters with the largest at 25,000 square meters. In terms of volume, the average capacity is at 2,032 metric tons, with the largest at 21,000 metric tons.

Number of Employees

Most of the survey respondents (52%) operate their warehouse with 10 or less employees. On the other hand, there are six firms that employ 75 or more employees, five of these six facilities are cold storage warehouses operated by large firms.

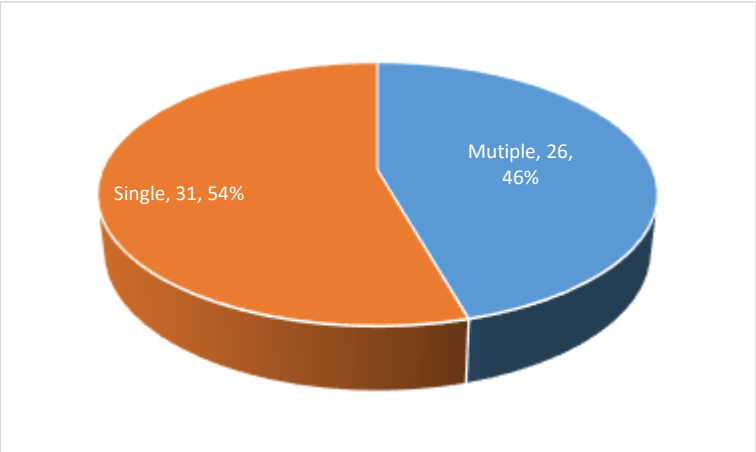
Figure 17: Number of Employees



Services Offered

Warehouse and storage facilities can offer other services aside from providing cargo space. Some of operators offer value added services to their clients. Out of the 57 correspondents, 54 percent only offered storage services. On the other hand, 46 percent were offering other services in addition to storage. Among the various add on services, pick and pack, cross docking, and inventory management were the most common. Some specialized facilities also offered food processing and blast freezing.

Figure 18: Number of Services Offered



Technology and Equipment Utilization

The local warehouse and storage sector have already utilized basic warehousing technology. Out of the 57 correspondents, 32 utilize warehouse management system (WMS). A WMS helps owners and operators inventory visibility that allow them to manage their facility more efficiently. Moreover, it helps operators to maximize valuable space, labor, and equipment. Despite the availability of WMS in software as a service (SaaS) model, only 56 percent of the warehouse operators are utilizing WMS in their own facility. Aside from WMS, another technology that is commonly adopted by local warehouse operators are RFID or QR scanners. There are 18 survey

correspondents that either utilize QR or RFID code scanners. More advanced technology is also present in the local warehouse and storage sector albeit in a limited number. Three survey correspondents, all large corporations, have already invested in automated picking system.

The survey found that the local warehouse and storage facilities employ various types of equipment to improve operational efficiency and productivity. Most common equipment and tools that were used include racks and shelves to expand the facilities storage capacity. A lot of operators utilized forklift, hand pallet trucks, reach trucks, scissor lift, hydraulic lifts, and stackers during operations to physically move cargoes inside the facility and improve throughput. There are also operators with loading and unloading bays fitted with dock levers to facilitate the ingress and egress to cargoes between the storage facility and transport vehicle. Other also have special packing equipment like strapping and banding equipment and stretch wrap machine.

Figure 19: Common Warehouse and Storage Equipment

Hand Pallet Truck

Forklift

Racks and Shelves

Loading Bay

Issues and Concerns

One of the main concerns that was often raised in the survey, across business size, is the need to simplify documentary requirements and processes in acquiring permits and licenses. Warehouse operators must go through local and national government units to secure necessary documents before being allowed to operate. Furthermore, depending on the type of operation, the number of government offices to engage and the number of permits to secure can increase. As an example, a cold storage warehouse needs to secure accreditation from DA offices while a general warehouse does not. A customs bonded warehouse needs to secure its license from

BOC unlike grains storage facilities. The number of documentary requirements can be overwhelming and can cause delays in the development and operationalization of new facilities.

In addition to red tape, respondents were looking for incentives to encourage further investment in their facilities. There is a current drive to promote green technology across the industries. There are warehouse and storage operators that are willing to invest in green technology such as solar panels. However, such investment would entail cost. To augment such cost, stakeholders are asking for possible incentives to make warehouse and storage operations more sustainable.

Lastly, majority of the respondents (52%) were not familiar with the Warehouse Receipts Law and the business opportunities it can provide to warehouse operators. There is a need to provide further information to warehouse operators about the existing law and its impact to their business as well as to their client's access to finance. More surprisingly, 75 percent of the respondents expressed willingness to learn more about warehouse receipt law and explore possible inclusion in their current business model.

B. BENCHMARKING WITH SELECT NATIONS

This section of the report aims to present the regulatory framework of the warehouse and storage sector in select ASEAN nations. The warehouse and storage regulatory environment greatly vary from one country to another, depending on the country's development priorities.

Regulatory Framework

Table 15: Matrix of Warehouse-related Regulation across Select ASEAN Member States

	Land Ownership	Sector Specific Law	Foreign Ownership	Others
Philippines	Philippine Constitution - Only natural persons and/or Filipino owned firm (with at least 60% Filipino equity) are allowed to own land.	No singular legal framework to govern the warehouse and storage sector. Product Specific Regulations • Customs Modernization and Tariff Act (RA No. 10638) • Meat Inspection Code of the Philippines (RA No. 9296) • Philippine Fisheries Code (RA No. 8550) • Special Economic Zone Act (RA No. 7616) • Act No. 3893, as amended by RA No. 247 • Local Government Code (RA No. 7160)	The issuance of Public Service Act (RA No. 11659) has lifted foreign equity restrictions in warehouse and storage services. As such, no foreign equity requirement for warehouse and storage services.	LPI Rank - 60
Brunei Darussalam	Land Code (Chapter 40) - Only natural persons are allowed to purchase and own land. Land Acquisition (Chapter 41) • Incorporated firms, whether local or foreign		No foreign equity requirement for warehouse and storage services.	LPI Rank - 80

	owned, can only lease land up to 60 years.			
Indonesia	Law No. 5 of 1960 on Basic Agrarian Provisions • The Indonesian governments owns all the land. • Foreigners cannot own land, but they can acquire land use rights form the Indonesian government	Ministry of Trade Regulation No. 09 / 2014 (Warehouse Arrangement and Development) • Warehouses must be registered with the Ministry of Trade • Registration mandatory and valid for 5 years	Regulation of the President of the Republic of Indonesia, Number 44, Year 2016 • Foreign ownership in the warehousing sector is only limited to **67 percent**.	LPI Rank – 46 50,660 warehouse operators in 2016.
Malaysia	National Land Code 1965 • Foreigners can 100 percent own real estate in Malaysia except for agricultural land • Property value must be more than 1,000,000 RM • Foreign entities must also acquire state approval before purchase	No harmonized legal framework for the warehousing sector. • Ordinary Warehouse License can be acquired with the local authority • Public Bonded Warehouse must apply license with Malaysian Royal Customs Department.	Ordinary warehouse – no equity condition imposed by the Royal Malaysian Customs Department Public bonded warehouse – Minimum of 30 percent local equity. Up to **70 percent foreign**. Private bonded warehouse – no equity condition imposed by the Royal Malaysian Customs Department	LPI Rank – 41 A public bonded warehouse must have minimum paid up capital of 1,000,000 RM for critical goods and 250,000 RM for non-critical goods as well as 50,000 sq.ft. for critical goods and 20,000 sq.ft. for non-critical goods. A private bonded warehouse must have minimum paid up capital of 150,000 RM for critical goods and 100,000 RM for non-critical goods. Private bonded warehouse must have a minimum value of good warehouse at 5,000,000 RM for critical goods and 2,000,000 RM for non-critical goods
Singapore	Foreign entities can freely acquire, hold and dispose of non-residential property such as industrial properties and commercial properties without any restriction. Foreign entities can also lease industrial land from the Singapore Land Authority (SLA).	Customs regulations • A licensed warehouse (bonded warehouse) must apply license from Singapore Customs • A licensed warehouse may be the entire premise or a part of the warehouse.	No foreign equity requirement for warehouse and storage services.	LPI Rank – 7 In Singapore, goods can be kept in warehouses licensed by the Singapore Customs for an indefinite period, with the duty and Goods and Services Tax (GST) suspended
Thailand	Foreign businesses and citizens are not permitted to own land in Thailand unless the land is on government-approved industrial estates. However, companies that are more than 50% Thai-owned may legally own land. An exception to the rule relates to projects approved by the Board of Investment. A promoted company with 50% or more of its shares held by foreigners may apply for land ownership by submitting the appropriate forms to the Thai Board of Investment	Bonded Warehouses under the Customs Act BE 2560 • Bonded warehouse must acquire license from Thai Customs • Types of bonded warehouses under Customs Act include: • Bonded Warehouse of Manufacturing Type; • Bonded Warehouse for Vessel Repair or Construction; • Bonded Warehouse of General Type; • Bonded Warehouse of General Type for Goods Demonstration or Exhibition; • Bonded Warehouse of General Type for Oil Storage; • Bonded Warehouse of Duty Free Shop Type; • Bonded Warehouse Zone for Free Trade; and • Bonded Warehouse for Storage of Duty Free Goods.	Foreigners need a foreign business license (FBL) to operate in Thailand. Foreign company can only have a maximum **of 49 percent** ownership to obtain FBL.	LPI Rank - 32 In Thailand, pursuant to Article 107 of the Customs Act, B.E. 2560 (2017), to hold cargo in bonded warehouses for longer than 30 days, a permission is required.

Vietnam	Law No. 45/2013/QH13 on Land • Only the state can own land. Private persons and entities, including foreigners, can only acquire Land Use Rights (LUR) for a maximum of 50 years.	Article 62 of the Customs Law 2014 (No 54/2014/QH13) • To open a bonded warehouse, an applicant must apply to the General Department of Customs for a license. Decree No.68/2016/ND-CP regarding Conditions for Duty-Free Business, Warehouses, Sites for Customs Clearance, Customs Inspection and Supervision • The decree provides guidelines in setting up customs bonded warehouses • CBW must have a minimum area of 1,000 SQM and a minimum storage volume of 1,000 cubic meters. Law No. 54/2014/QH13 on Customs • Pursuant to Article 61 of Law No. 54/2014/QH13, items can only be kept in bonded warehouses for one year, renewable for one more year. Decree No. 163/2017/ND-CP • Provide investment guidelines in logistics services	Decree No.163/ND-CP • foreign investors are allowed **100 percent** ownership in storage and warehouse services.	LPI Rank – 39 Surface Requirements - Bonded warehouses and warehouses for parcel delivery and express-delivery operations must be at least 5 000 SQM, including ancillary service areas. Warehouse area should be no less than 1,000 SQM

Construction Cost

Turner and Townsend, a multi-national project management company, developed a warehouse construction index to present the relative development cost of a warehouse[17] with similar specifications across different economies. In their latest Warehouse Construction Cost Index (2021), Philippines can develop a warehouse at 77 percent of the cost compared to the benchmark. However, compared to other development ASEAN states, the Philippines relatively more expensive. In Jakarta, it only cost 65 percent to develop a warehouse with similar specifications as the benchmark reference. More surprisingly, a similar warehouse could be constructed at a third of the cost. Unfortunately, the index does not elaborate the main factors that resulted to cost difference.

Table 16: Warehouse Construction Cost Index

Country	Warehouse Construction Cost Index	
	2020	**2021**
Singapore	1.69	1.24
UK Midlands	*1.00*	*1.00*
Manila	0.77	0.75
Jakarta	0.66	0.65
Kuala Lumpur	0.62	0.62
Ho Chi Minh	0.37	0.36

SOURCE: Turner and Townsend Warehouse Cost Index (2020, 2021)

[17] Benchmark reference is a warehouse constructed in Midland UK.

To provide more information in warehouse construction cost, Arcadis regularly prepares a construction handbook for select locations across Asia, including Manila. Benchmark warehouse construction cost ranges from 519 USD to 584 USD in the Philippine capital. Compared to the construction cost in Kuala Lumpur and Ho Chi Minh, Manila most expensive. Construction cost in Bangkok is almost the same in Manila. The only ASEAN city that is clearly more expensive than Manila is Singapore where warehouse construction cost ranges from 760 USD to 930 USD per square meter.

Table 17: Warehouse Construction Cost per SQM in USD

City / Country	Warehouse Construction Cost per SQM in USD (2020)	
	Low	High
Singapore	760	930
Kuala Lumpur	315	435
Bangkok	534	668
Manila	519	584
Ho Chi Minh	312	393

SOURCE: Arcadis – Philippine Construction Handbook (2020)

Aside from the cost of construction, it is also important to take note the time and cost related in securing construction permit for buildings. In the most recent World Bank – International Finance Corporation (WB-IFC), the report evaluated the time and cost it takes to secure a construction permit for a warehouse across different economies. The result showed that it takes 120 days to secure all the permits in the Philippines and it cost 2.3 percent of the total project. Among the select ASEAN nation, the Philippines is more competitive compared to Indonesia in terms of time and cost. However, other ASEAN members states have time or cost advantage compared to the Philippines. Malaysia and Thailand.

Table 18: Number of Days and Percentage of Cost to Acquire Warehouse Construction Permits

City / Country	Dealing with Construction Permits (2020)	
	Time (Days)	Percentage of Cost (%)
Indonesia	200.1	4.5
Malaysia	41.0	1.3
Philippines	120	2.3
Singapore	35.5	3.3
Thailand	113	0.6
Vietnam	166	0.5

SOURCE: World Bank – International Finance Corporation (WB – IFC)

Rental Rates

Warehouse and storage rental rate vary depending on the location. The same holds true comparing rental rates across different key ASEAN cities. In the Philippines, there is a dramatic difference between Manila rental rates (14.64 USD) and areas outside the country's capital, specifically Cavite and Laguna (2.34 USD – 8.20 USD). Compared to our ASEAN neighbors, warehouse rate in the Philippines tends to be at the high side. Hanoi and Ho Chi Minh are the only cities with higher rental rate compared to Manila. Meanwhile, rental rates in key cities in Thailand and Malaysia are more affordable despite being a developing economy like the Philippines.

Table 19: Warehouse Rental Rate in Select Nations

Country	Warehouse Rental Rate (2021)
	(USD, SQM / Month)
Jakarta	6.21
Tangerang	4.53
Bogor	3.97
Kuala Lumpur	0.56 – 3.12
Bangkok	4.67
Ho Chi Minh	15.4
Hanoi	11.85
Manila	5.85 – 14.64
Cavite	2.34 – 8.20
Laguna	2.54 – 6.44
Note: For comparability, unit of Measurement was converted to SQM per Month while Currency denomination was converted to USD	

SOURCE: Cushman and Wakefield

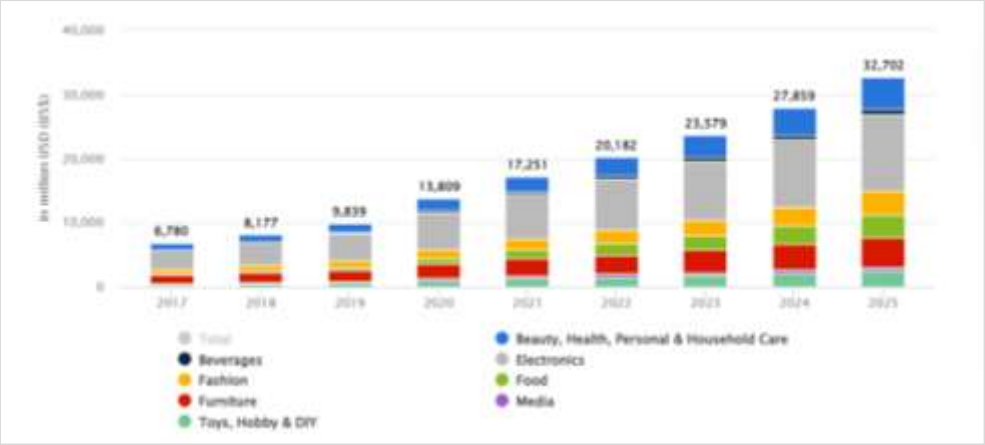
C. DOMESTICE AND INTERNATIONAL TRENDS

The warehouse and storage sector has undergone dramatic changes with the adoption of digital technology, automation, and growth in e-commerce. More recently, the COVID-19 pandemic has accelerated the use technology to reduce face-to-face interaction while improve efficiency to address the growth of e-commerce. The difficulties brought about current market conditions has also resulted to the development and adoption of new business models in the sector. While tradition warehousing is still alive and well, the evolution of warehouse and storage services has made the sector more dynamic and more responsive to the changing times.

E-Commerce Expansion and Shift in Warehouse and Storage Client Portfolio

E-commerce has fuel dramatic changes and growth in the warehouse and storage sector. It has long been popular in developed economies like the United States of America and China. It was only in the last five years that e-commerce picked up here locally.

Figure 20: Estimated and Projected E-commerce Revenue in the Philippines (2017 – 2025)



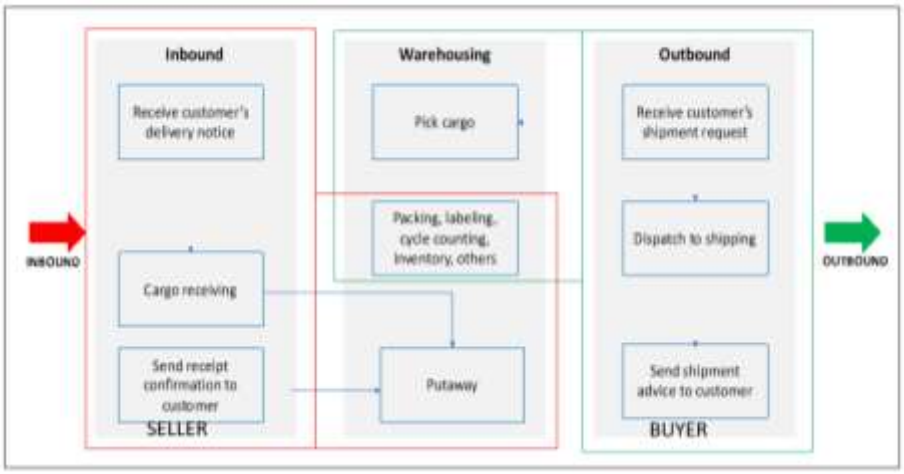
SOURCE: Statista

The increase in e-commerce transactions generated a higher demand for warehouse and storage services from e-commerce companies and third-party logistics providers (3PLs). This trend has resulted to a shift in client portfolio for Metro Manila-based general warehouse operators from retailers to e-commerce firms and 3PLs, some of which are also handle e-commerce clients. This trend is expected to continue as e-commerce become more ingrained into the lives of Filipino consumers.

Exchange Centers / Fulfillment Centers

To service the spike in e-commerce sales, there has been a greater demand for warehouse and storage space e-commerce fulfillment service. Product fulfillment centers are distribution centers or warehouses that directly connect with final customers. This part of the supply chain covers receiving and storing goods, processing orders, picking items, packing goods for shipping, and transporting the items to the customer's destination. With the massive volume of goods and transactions processed daily, computerized information systems and tasks automation are increasingly critical in fulfillment center operations.

Figure 21: Fulfillment Center Process Flow

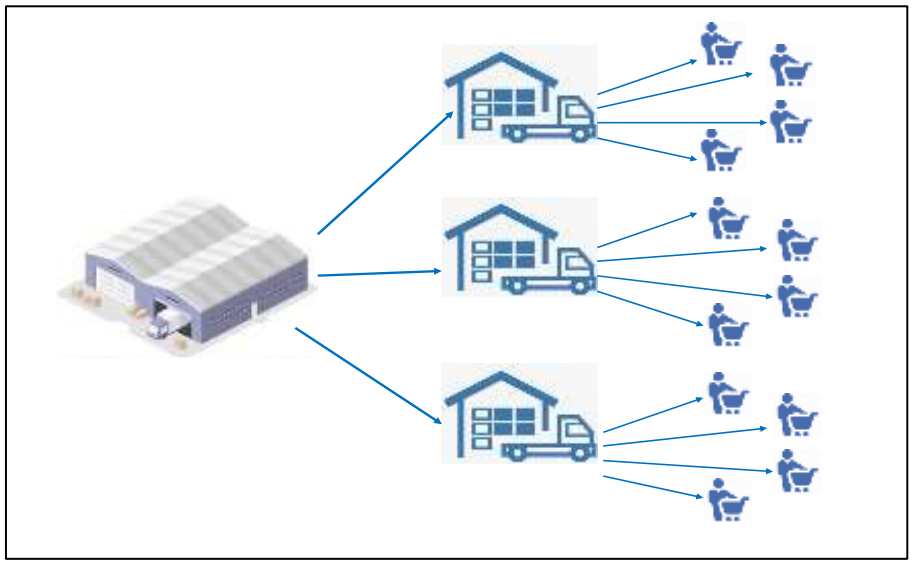


Lazada, one of the biggest e-commerce platforms in the Philippines, operates a fulfillment center in Cabuyao, Laguna in a 54,000 square meter warehouse. It is Lazada's biggest fulfillment center in Southeast Asia. The e-commerce giant plans to build another fulfillment center in Clack, Pampanga to cater to cope with the growing demand. At present, the company has three fulfillment centers – Laguna, Cebu, and Davao – as well as 50 logistics hubs across the country.

Micro-warehouses

As e-commerce businesses aggressively bring products closer to the end customers, it gives rise to a new concept of running small-scale warehouse facilities at accessible locations to serve as micro-fulfillment centers or warehouses. Depending on the operation scale, these micro warehousing facilities can either have dedicated storage buildings or lease out spaces at corporate complexes or commercial business centers. Micro fulfillment primarily aims to optimize the efficiency and speed of online order fulfillment and take the retailers' load in storing and managing inventory. The idea is patterned from the hub-and-spoke distribution model where regional distribution centers (DCs) act as hubs and the micro fulfillment centers (MFCs) work as spokes placed within the proximity of the urban population centers. Aside from shortening the last-mile delivery distance, the micro fulfillment strategy also provides an option for in-store pick up for the customers.

Figure 22: Micro fulfillment Hub and Spoke Model



SOURCE: Colliers

During the height of the pandemic, mall operators were offering their retail spaces as micro-warehouses due to the high vacancy rate and retail slump. In 2020 and 2021, vacancy rates reached 14 percent while rental rates dropped significantly due to a dramatic decrease in demand. To capture a part of the booming e-commerce business, Ayala Group and SM Group offered parts of their retail space in malls as a mini-warehouse or mini-fulfillment areas to e-commerce enterprises.

Multi-level Warehousing

Multi-level (also called multi-story) warehouse concept has gained popularity in the past couple of years to address e-commerce last-mile fulfillment needs. The escalating lease rate of urban property, close access to multi-modal shipping networks, and a dense population that typically order products online and expect it delivered no later than the next day, are among the characteristics that push for establishment and operations of these vertical warehouse structure within the city. Property developers are likewise upgrading the aging urban warehouse ecosystem, which is mostly made up of obsolete structures not configured for modern-day fulfillment.

For example, both Makati and Mandaluyong boast superior accessibility which enable landowners and lessors to command higher lease rates for warehouses in the area. The Marajo Group recently introduced Space Solutions[18] in Makati, which is a newly built multi-level storage facility that maximizes the land where the structure is presently erected. Offering 900 sqm of prime space at the ground floor and as much as 1,228 sqm per floor (upper floors), the five-story storage facility can offer a total leasable space of almost 6,000 sqm.

Co-warehousing

This concept follows the popularity of co-working spaces where it allows different companies to come together and work under one roof, providing flexibility in terms of cost and utilization, rather than renting larger spaces on their own. Co-warehousing allows multiple companies to share common warehouse space and allow them to find and pay for the space that will work well for their requirements. They can pick and choose the area of warehouse space they need and the time they need it. This is particularly helpful for small businesses and startups.

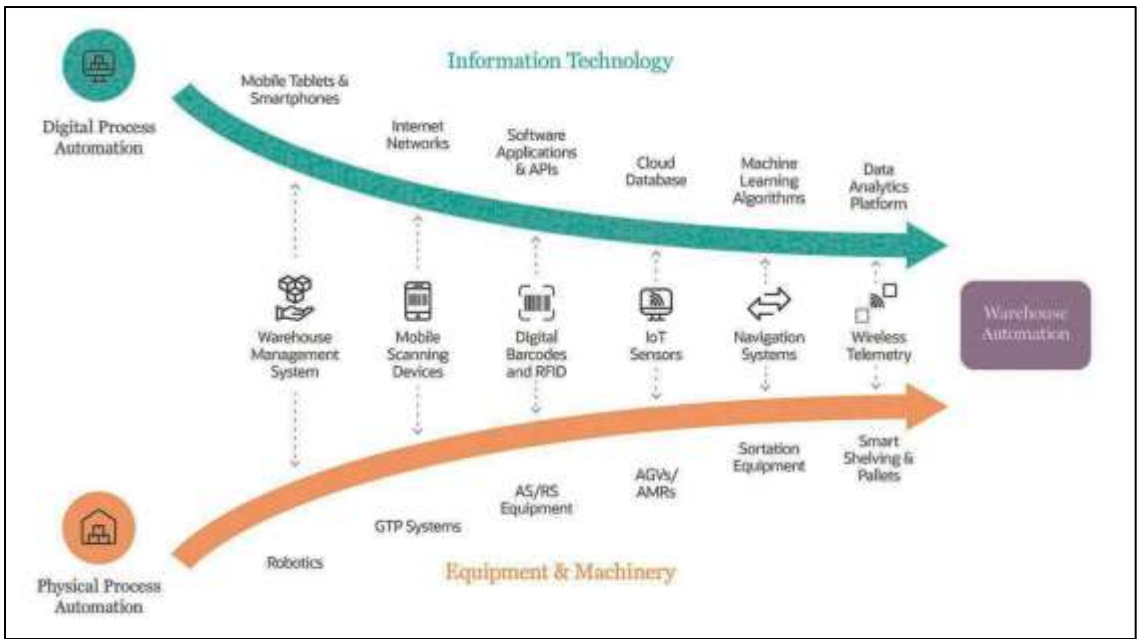
Warehouse operators offering co-warehousing services also integrates technology in their service offering such real-time inventory management, virtual facility inspection and inventory count, pick and pack, distribution, and track and trace.

Digital Transformation and Automation

With advances in computer and robotics technology, many warehouses now have automated capabilities. Machines and tools are used to facilitate order picking, and human order pickers are aided or replaced by robots. An intelligent warehouse uses automation systems and related technologies to receive products, put them away, pick them for orders, ship them, and keep an accurate inventory count. Smart warehouses use technology to increase production, decrease errors, and minimize the number of humans needed to run the warehouse.

[18] Space Solutions by Marajo Group, http://www.marajogroup.com/properties/storage/

Figure 23: Warehouse Automation



SOURCE: Oracle Net Suite

Digital process automation (Figure 4) uses data and software to reduce manual workflows, like mobile barcoding for automatic identification and data capture in inventory management. For physical process automation, one example is automated storage and retrieval systems (ASRS) which are computer and robot-aided systems that can retrieve items or store them in specific locations. ASRS usually comprises predefined areas where machines can follow established routes to get items.

ORCA Launches Automated Cold Chain

In February 2020, ORCA Cold Chain Solutions (ORCA) opened its world-class cold chain storage system. Considered as the Philippines' first ever fully automated cold chain facility, it offers temperature-controlled logistics, warehousing, and pre- and post-storage value-added services to help food businesses and the agriculture industry prolong and maintain the freshness of their produce. Powered by an automated storage retrieval system (ASRS) and a Warehouse Management System (WMS), the Taguig development was awarded Pioneer Status by the Board of Investments (BOI).

ORCA Taguig has approximately 20,000 pallet positions of frozen storage in roughly a hectare footprint that will cater to food and agriculture products. With automation, ORCA Taguig can move up to 4,800 pallets in one day.

Rise of Warehouse and Storage Technology Startups

The integration of digital technology in all aspect of life and business has given rise to digital startups that produce disruptive technology to improve processes in

general. There are startups that have developed digital solutions specifically for the warehouse and storage sector. As a result, productivity and efficiency tools are now readily available for warehouse and storage facility operators.

Instead of procuring software from traditional I.T. firms, digital startups offer products that are more affordable to users. A lot of startups provide software-as-a-serve (SaaS) model to their clients. As such, warehouse owners and operators can avoid huge capital outlay for digitization and modernization. Warehouse management system, sector-specific enterprise resource planning software, and e-commerce fulfillment platform are now offered by Philippine-based digital startups. This makes digital transformation more affordable[19].

Expansion and Consolidation of Warehouse Operators

As mentioned in the earlier parts of the report, the sector is highly fragmented. However, there are recent mergers and acquisitions that result to consolidation of primer warehouse and storage space. Most notably, the Ayala Group has recently expanded their logistics estate in Tutuban, Laguna Technopark, and Lepanto Property in Calamba. The group also acquired warehouse and storage firms over the past years including Technofreeze in Laguna, Megafridge in Cagayan de Oro, and a 64,000 square meter warehouse from Shen Long Property Management and Aibis Land Management in Santo Tomas, Batangas. Through its subsidiary, AC Logistics, the Ayala Group also entered into joint venture agreements with Glacier Megafridge for a cold storage facility in Cagayan de Oro and has acquired 60 percent of AIR21 Group for PHP 6 billion.

While the Ayala Group invested substantial number of resources in its warehouse and storage business, other property developers have followed suit. Filinvest Land is developing its first logistics and industrial park in New Clark City. SM Prime Holdings, on the other hand, acquired majority control in 2GO in 2021 from Chelsea Logistics and Infrastructure Holdings Corp. and increased its share from 30.53 percent to 52.85 percent.

Fast Logistics, one of the leading domestic logistics firms in the Philippines, has also began to expand its business. In 2020, the company partnered with CVC Capital and received two billion pesos of capital in exchange for 40 percent stake. The following year, the company launched its cold chain subsidiary called Fresh by FAST. The new subsidiary opened two new cold chain hubs in Cebu and Cavite.

[19] SaaS can cost as low as 500 pesos per user per month.

SECTION IV

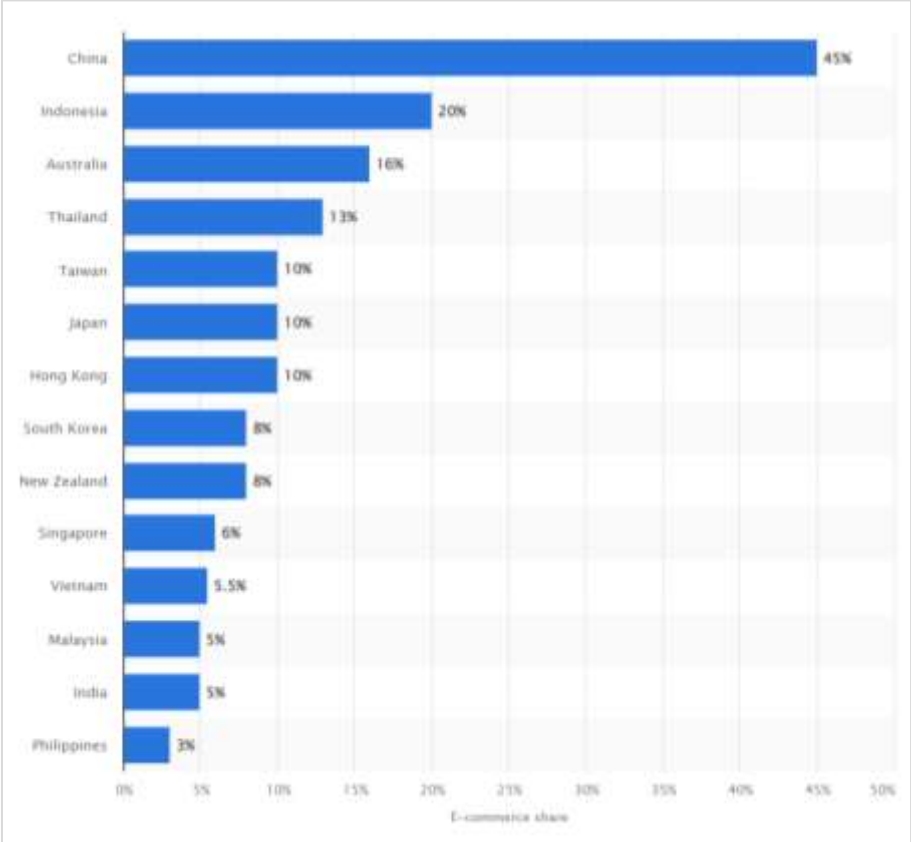
SWOT ANALYSIS

A. STRENGTHS

Growing Market

The Philippine warehouse and storage sector is growing despite the on-going pandemic. One of the main reasons is the increase in e-commerce activity. As consumer demand has shifted from traditional retail to online purchases, the need for warehouses for fulfillment centers and sorting hubs have increased. Moreover, a lot for retail stores have also decided to shift their operations online. This resulted in the reduction in the number of physical stores while transferring their stocks to storage. At present, e-commerce is estimated to generate 20 billion USD of revenue in the Philippines. However, this figure is estimated to increase by more than 50 percent in 2025[20] as the public becomes for familiar and more comfortable with online purchases.

Figure 24: E-commerce Share in Total Retail (2021)



SOURCE: Statista Research Department

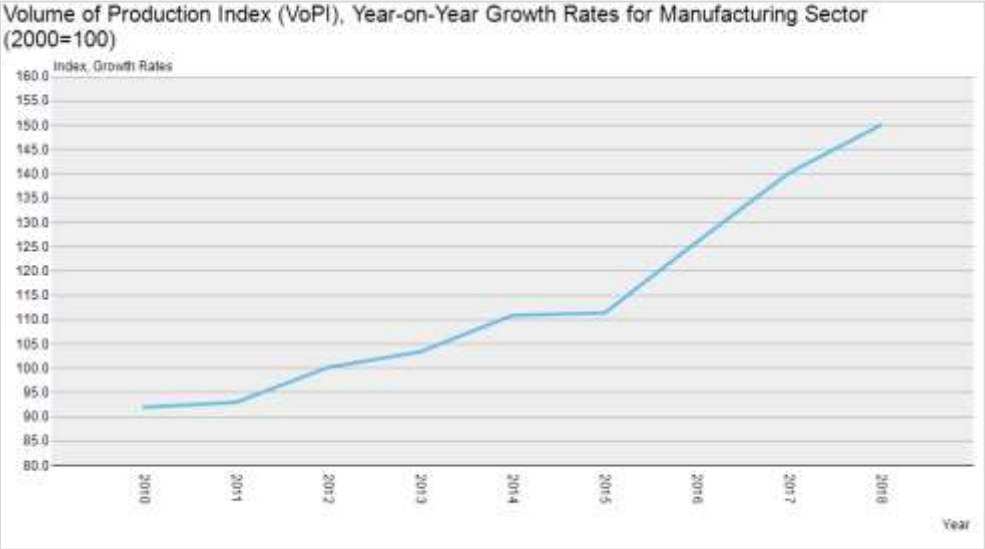
Despite the recent rapid growth in e-commerce, there is still a lot of potential growth locally. Based on a study prepared by Statista, e-commerce in the Philippines

[20] e-Conomy SEA 2021 (Google, Temasek, and Bain & Co.)

only comprised three percent of all retail transactions. Compared to other Asia Pacific nations, e-commerce in the Philippines has still a lot of room to grow. **As it increases its share in total retail in the Philippines, the demand for warehouse and storage facilities will increase with it.**

While e-commerce flourished during the pandemic, the manufacturing sector was initially hit and slumped. However, as the conditions improve and restrictions lifted, the manufacturing sector is poised to make a recovery. The country's manufacturing sector was doing well prior to the pandemic. In fact, the manufacturing volume of production index reached a ten-year high in 2018. However, the growth was disrupted and reduced the country's manufacturing output because of the pandemic. **As the country continues to recover, the manufacturing sector is expected to regain its momentum and increase demand for ancillary services, including warehouse and storage.**

Figure 25: Manufacturing Sector Volume of Production (2010 – 2018)



SOURCE: Philippine Statistics Authority (PSA)

The pandemic compelled some changes in the supply chain practices for some manufacturing firms. Based on discussions with industry experts, there is a current trend wherein **firms have increased raw material buffer stock by at least 30 percent to enhance supply chain resilience and ensure production continuity. Consequently, this move has also increased the demand for storage space, particularly within economic zones.**

Outside e-commerce and manufacturing, there is still a strong demand for cold storage facilities across the Philippines. Space for fresh and manufactured food products are in high demand especially in urban areas. According to industry experts, meat products have the largest requirement for cold storage. Frozen meat products have also become more acceptable to local consumers unlike before. As the population and income increase, the demand for such products is expected to increase as well.

Increased Investments in the Sector

The pandemic did not dampen the spending spree of large corporations in acquiring warehouse and storage assets in the past two years. Ayala Group of Companies have made the biggest and most significant acquisitions recently and has immediately become a major player in the sector. On the other hand, established logistics firms such as Fast Logistics have also made key investments by expanding its business portfolio into cold storage. From 2019 – 2021, the Board of Investments 24 projects related to warehouse and storage sector. Out of the 24 projects, 11 were cold storage facilities, 12 fuel depots, and 1 seed storage facility. BOI estimates that all these projects can generate a total of 2,233 jobs across the country.

Table 20: List of Warehouse Projects Approved by BOI (2019 – 2021)

Year Approved	Company	Project Description	Employment Generated	Ownership
2019	Royale Cold Storage North, Inc.	New operator of cold storage and blast freezing facility in Plaridel By-Pass Road, Plaridel, Bulacan	109	100% Filipino
2019	Allforward Warehousing Inc.	New operator of cold storage facility in Bo. Filomena, Brgy. Calumpang, Gen. Santos City, South Cotabato	12	100% Filipino
2019	Delinanas Development Corp.	New operator of cold storage facility Brgy. Apopong, General Santos City, South Cotabato	45	99.9999% Dutch and 0.0001% Filipino
2019	9G Tyko International Corp.	New operator cold storage and blast freezing facility in Brgy. Communal, Buhangin, Davao City	36	60% Filipino and 40% Chinese (PROC)
2020	Vifel Ice Plant and Cold Storage, Inc.	New operator of cold storage and blast freezing facilities in Tagoloan, Misamis Oriental	39	100% Filipino
2020	7G Tyko International Corp.	New operator of cold storage and blass freezing facility in Brgy. Mansilingan, Bacolod City, Negros Occidental	36	50% Filipino and 50% Chinese (PROC)
2020	Glacier Pulilan Refrigeration Services Corporation	New operator of cold storage and blast freezing facility in Dampol II-B, Pulilan, Bulacan	70	100% Filipino
2020	Glacier Samar Refrigeration Services Corporation	New operator of cold storage and blast freezing facility in Brgy. Matobato, Calbayog, Samar	6	100% Filipino
2020	Royale Cold Storage North Inc.	New Operator of Cold Storage and Blast Freezing Facilityon a Non-Pioneer Status under Agriculture, Fishery and Forestry Listing of the 2017 IPP in Cabuyao, Laguna	337	100% Filipino
2020	Big Blue Logistics Corporation	New Operator of Cold Storage Facility on a Non-Pioneer Status under Agriculture, Fishery and Forestry Listing of the 2017 IPP	60	100% Filipino
2021	The Service Warehouse Corporation	New Operator of Cold Storage and Blast Freezing Facility under Tier 1 of R.A. No. 11534 (CREATE Act) based on the Listing, "Agriculture, Fishery and Forestry," of the 2020 IPP as the transitional SIPP	40	100% Filipino

SOURCE: Board of Investments (BOI)

Improved Adoption od Warehouse and Storage Technology

. The adoption of technology in the business world has been accelerated due to the pandemic. Firms made investments in IT systems to cope up with the changing times. The warehouse and storage sector has also followed the digitization trend to enhance their competitiveness, efficiency, expand business opportunities, and limit the need for human interaction. **Based on the survey conducted by the study team, at least 50 percent of the correspondents utilize warehouse**

management systems. Also, 30 percent of the correspondents already use QR or barcode systems.

Recently, the Bureau of Customs (BOC) has also required the subscription of all customs facilities and warehouses to its unified inventory management system (IMS). The system allows the BOC to monitor the inventory of bonded goods stored in customs facilities and warehouses from its entry up to exit. Moreover, the system promotes transparency and efficiency.

In addition to digitization and automation, some warehouse and storage operators are also adopting green technology as part of their operations. As an example, Cargo Haus has installed solar panels in the facility as far back as 2013. In 2015, Royal Cargo have installed solar panels on top of their facilities. The use of solar energy allowed Royal Cargo to save an estimated four million pesos from their electricity bill on one cold storage warehouse. In addition to Royal Cargo, Glacier Megafridge, Jentec Storage, and LGC Logistics all have used solar energy in some of their respective facilities.

While technology adaption has been slow, the warehouse and storage stakeholders in the Philippines are now utilizing technology and automation. This, in part, allowed the Philippine improved its Logistics Performance Index tracking and tracing sub-indicator from 73 in 2016 to 57 in 2018.,

Improved Infrastructure

The *Build! Build! Build!* Program of the Duterte Administration has brought about investment in infrastructure in general. The Board of Investment (BOI) and International Monetary Fund (IMF) estimated that the Philippine Government's infrastructure spending reached five percent of the Gross Domestic Product (GDP) in 2018 up to 2020[21]. As a result, investment in infrastructure has improved the country's ranking in the Logistics Performance Index in the Infrastructure sub-indicators. From 82 in 2016, the country's infrastructure ranking jumped to 67. While the pandemic has caused some infrastructure delays, the resource poured into transport infrastructure development has been significant.

Modern roads, seaports, and airports have also created new business opportunities for warehouse and storage stakeholders. For example, the Zamboanga International Airport was recently upgraded to international status. Due to this development, Cargo Haus invested in an airport warehouse near Zamboanga International Airport in anticipation of new potential business passing through the international gateway. The creation of new roads connecting Metro Manila to nearby provinces allowed warehouse operators to invest in facilities outside the capital wherein real estate prices are more affordable.

Opportunities for New Warehouse and Storage Services

The dynamic Philippine economy has brought new business opportunities in the warehouse and storage sector. The rise of e-commerce created higher demand

[21] https://www.imf.org/en/News/Articles/2020/02/06/na020620the-philippines-a-good-time-to-expand-the-infrastructure-push

for warehouse space and last mile delivery services. However, fast rising real estate prices in prime locations, particularly in the NCR, has encouraged new business models such as micro-warehouses[22]. Recently, Marajo Group launch Space Solutions, which is a micro-storage firm operating in Metro Manila. The firm has started the development of a 5-story sub-divided storage facility in the heart of Makati City. There is also StorageMart, a micro warehouse that provides self-storage services to individuals and MSMEs. At present, StorageMart has ten facilities across Metro Manila. Other investors can capitalize on the need for storage space in prime locations and invest in such novel business models.

Warehouse receipt is another service that can be offered by warehouse and storage operators. A warehouse receipt is a commercial document, issued by a warehouse operator, that provides evidence of ownership or possession of goods by an entity while stored in a warehouse house. The receipt can be utilized to access finance and serve as collateral for movable assets. The presence of an inventory management system (IMS) and blockchain technology makes the issuance of warehouse receipts easier and more transparent and credible. However, the industry has not utilized digital innovations to offer warehouse receipts.

In the survey conducted by the study team, there are a lot of warehouse operators unfamiliar with the warehouse receipt. However, 75 percent of the respondents expressed willingness to learn more about warehouse receipts. Aside from creating a new business opportunity for warehouse operators, warehouse receipts also help farmers and MSMEs generate liquidity by allowing them access to finance while using their assets stored in the warehouse as collateral.

B. WEAKNESSES

High Price of Real Estate in Metro Manila

The price of real estate in Metro Manila has skyrocketed over the past ten years. Prices in prime locations in the capital region can range from PHP 50,000.00 per square meter to PHP 250,000.00 per square meter due to the demand for mixed-use space. Large property developers have acquired industrial lots and converted them into condominiums, malls, and commercial establishments. Over the past ten years, many warehouses in the country's commercial and economic hub have been converted into residential and commercial establishments. Consequently, warehouse developers and operators started to build new facilities outside Metro Manila, particularly in the provinces of Batangas, Bulacan, Cavite, and Laguna, where property prices are more affordable. Real estate prices in these areas can range from PHP 7,000.00 per square meter to PHP 12,000.00 per square meter. However, there are also lots located inside industrial parks that are priced higher.

Highly Fragmented Market

The local warehouse and storage sector is highly fragmented in many ways. **First, the sector is fragmented in terms of representation.** While there are

[22] *Micro warehouses* are small scale warehouse facilities located in prime locations and highly accessible to end consumers.

associations for cold storage warehouse operators[23] and customs bonded warehouse operators[24], this only covers a very small percentage of operators and facilities. A vast majority of warehouse and storage operators are not affiliated to any sector association. The warehouse and storage stakeholders need to be more organized to promote the sector, protect the interest of stakeholders, and establish best practices in the sector.

Second, the sector is fragmented geographically. The development of warehouses and storage facilities lacks coordination. At present, the establishment of storage facilities is determined by market players, including real estate developers and warehouse owners. However, it would have been better if the government is part of the process. There are instances wherein there are facilities without proper ancillary infrastructure such as roads, power, telecommunications, and water. The development of logistics corridor or warehouse districts would have been ideal to cluster all warehouse house and storage facilities with the government providing all the necessary infrastructures needed by the stakeholders.

Third, the regulatory environment of the warehouse and storage facility is also fragmented. Owners and operators need to get one or multiple permits from different government departments depending on the products or commodities stored within a facility. The Department of Agriculture (DA) regulates facilities that store agricultural products. The accrediting office within DA would differ depending on the type of agricultural product stored in the facility. It is also possible that a warehouse operator must get multiple permits from different accrediting offices under DA if the operator holds different type of agricultural products. Warehouses operating within the economic zone are regulated by their respective economic zone authority. The BOC regulates customs bonded warehouses. In the case of general warehouses, there is no government office that regulates their services. There is Act No. 3893, as amended by Republic Act No. 247, requiring all warehouses to register under the Department of Trade and Industry. However, at present, this regulation is not adequately implemented. The lack of a unified regulatory environment and body makes it more difficult for warehouse and storage operators to secure government permits and licenses. It also prevents the government and stakeholders from having a sector-wide dialogue.

Lastly, the sector's fragmentation has resulted in the sector's lack of visibility. The absence of single and well-prepared warehouse database makes it difficult to potential clients locate available leasable facilities with corresponding specifications. The database handled by the government is not readily available to the public. It does not show if a warehouse and storage facility is for private use or commercial use. It also does not have quality information about the facilities, including capacity, lot area, and available equipment.

Challenging Regulatory Framework

The fragmented regulatory requirements make it challenging for operators to swiftly acquire regulatory permits from the government. To

[23] Cold Chain Association of the Philippines
[24] Customs Bonded Warehouse Operators Confederation Inc. (CBWOCI) and NAIA Customs Bonded Warehouse Operators Council (NCBWOC)

be more specific, the process takes a long time since multiple offices are involved. Aside from registering with the National Government, a warehouse and storage facility owner or operator must secure permits from the local government offices including business permit, sanitary permit, and fire permit. Prior to operation, warehouse operators also need to secure occupancy permit, environmental compliance certificate, and Laguna Lake Development Authority (LLDA) clearance for those located near Laguna Lake.

In addition to the basic requirements, other necessary permits or licenses depend on the product or commodity stored in the warehouse or storage facility. A cold storage warehouse operator needs to secure a license from NMIS if it stores meat products. It needs to obtain a license from BFAR if it accepts fish products. It needs to get a permit from BPI if it keeps plant products. A general warehouse operator, on the other hand, needs to accredit with NFA if it is going to stow grain products such as rice and corn. An operator must secure accreditation from the FPA if it stores fertilizer products. If an operator caters to multiple types of products, then they would need multiple accreditations from various government offices. **There is a need to streamline and simplify the regulatory environment for the warehouse and storage sector without sacrificing the safety and security of the public.**

The issuance of the Customs Modernization and Tariff Act (CMTA) in 2016 has introduced changes in the conduct of business for customs bonded warehouses. Despite its issuance in 2016, there are still provisions of the law, relevant to customs bonded warehouses, that are not yet implemented due to the lack of implementing rules and regulations, through Customs Memorandum Circular. There is a need for BOC to hasten the issuance of implementing rules to address uncertainties with regards to custom bonded warehouse license issuance.

Higher Cost of Doing Business

Compared to select ASEAN nations, the Philippines is relatively expensive in constructing a warehouse and operating a warehouse. Based on Turner and Townsend Warehouse Cost Index, it is more costly to build a warehouse in Philippines compared to Jakarta, Kuala Lumpur, and Ho Chi Minh. Interestingly, it is two times more expensive to build a warehouse, with the same specifications, in Manila than in Ho Chi Minh. Among the ASEAN member states included in the index, Singapore has the highest construction cost which 1.24 times more expensive than the benchmark.

Table 21: Turner and Townsend Warehouse Cost Index, Select ASEAN Nations

Country	Warehouse Construction Cost Index	
	2020	2021
Singapore	1.69	1.24
Manila	0.77	0.75
Jakarta	0.66	0.65
Kuala Lumpur	0.62	0.62
Ho Chi Minh	0.37	0.36

SOURCE: Turner and Townsend Warehouse Cost Index (2020, 2021)

Table 22: Warehouse Construction Cost per SQM, Select ASEAN Nations

City / Country	Warehouse Construction Cost per SQM in USD (2020)

	Low	High
Singapore	760	930
Kuala Lumpur	315	435
Bangkok	534	668
Manila	519	584
Ho Chi Minh	312	393

SOURCE: Arcadis – Philippine Construction Handbook (2020)

In terms of warehouse construction cost on a per square meter basis, the Philippines is in the middle among its ASEAN counterparts. In Manila, building a warehouse costs 519 USD to 583 USD per square meter. Compared to Singapore and Bangkok, construction cost is more affordable in the Philippines. However, compared to Kuala Lumpur and Ho Chi Minh, construction rates for a warehouse on a per meter basis are much lower.

In addition to construction cost, it is also important to look at operating cost, particularly power rates and wages. **The Philippines has one of the highest power rates in ASEAN. Based on a study conducted by KMC Savills, industrial power rate in the Philippines is at 0.19 USD per kilowatt, which is higher compared to Indonesia, Malaysia, Myanmar, and Thailand.** Energy cost is a major concern among cold storage warehouse operators here in the Philippines since it comprises at least 10 percent of their total operating expenses. To address the high energy cost, several major cold storage operators have installed solar panels in their facilities.

In terms of minimum wage, Thailand has the highest minimum wage among the select nations at 324 USD per month. While the Philippines is not the most expensive, Indonesia, Myanmar, and Vietnam have lower labor costs. Based on industry experts, labor cost easily makes up 40 percent of a storage facility's operating expenses.

Table 23: Power and Labor Cost in Select ASEAN Nations

	Electricity per Kilowatt (USD)	Minimum Wage per Month (USD)
Indonesia	0.10	203
Malaysia	0.06	269
Myanmar	0.04	100
Philippines	**0.19**	256
Thailand	0.12	**324**
Vietnam	0.08	253

SOURCE: KMC Savills

Need to Improve Manpower Skills and Knowledge

Logistics competence, one of the sub-components of the logistics performance index, is a weakness of the local warehouse and storage sector. It refers to the skills of logistics service provider employees. Based on the World Bank Logistics Performance Index, Philippines only ranked 69th in the logistics competence sub-indicator.

Table 24: Logistics Competence Sub-Indicator in the LPI

Country	Rank
Singapore	3
Thailand	32
Vietnam	33
Malaysia	36
Indonesia	44
Philippines	69

SOURCE: World Bank – Logistics Performance Index

Based on the LPI, manpower capability is a key factor in the ranking. The country's logistics competence ranking (69th) suggests that further skills development is needed for warehouse and storage practitioners. The Technical Education and Skills Development Authority (TESDA) has developed a Warehousing Services Training Course in 2016. It also issued new training regulations for the warehousing services sector. Unfortunately, there is a need to increase the number of certified training institutions and certified practitioners taking and completing the course.

To further develop logistics competence, the government needs to further promote its warehouse and logistics courses and training modules. Education plays an important role in creating competent and knowledgeable employees in the warehouse and storage sector. As such, development of sector-related curricula would be welcomed. Investing in human capital can further accelerated by offering scholarships or financial support to sector-related courses. Lastly, logistics competence can be further improved by advocacy and public – private dialogue as well as multi-stakeholder collaboration. Unfortunately, stakeholders in the sector are fragmented which makes it challenging to have singular voice during public – private dialogue.

C. OPPORTUNITIES

Relocation of Manufacturing from China to other Countries

Manufacturing wages in China has been increasing over the past years and has eroded their price competitiveness. As average wages in China rise, manufacturers have started to transfer their operation outside of China, particularly in South Asia and Southeast Asia. Labor intensive industries, such as textile, started to transfer their operation to Bangladesh and Vietnam.

In addition to rising labor cost, there is also political consideration that have caused the relocation of manufacturers from China to other nations. The Japanese government have launched a subsidy program for Japanese manufacturing firms to transfer their operations from China to Southeast Asian countries to enhance supply chain resiliency. The Taiwanese firms, on the other hand, have started to relocation their China operations to other countries.

The exodus of production facilities from China to ASEAN is an opportunity for the local warehouse and storage sector. If the Philippines can successfully attract manufacturers to relocate domestically, it will be a boost in business opportunities for warehouse and storage sector. However, the Philippine

government must do its share to promote the country as a prime investment destination and ensure that the basic services in the country are competitive. At present, Vietnam and Thailand have been capitalizing on this opportunity.

Possible inclusion of the Warehouse and Storage Sector in the Strategic Investment Priority Plan

The warehouse and storage sector already plays an important role in the distribution of goods and products in the Philippines. With the growth of the digital economy, the sector will play a more prominent role soon as shopping trend leans toward e-commerce. The sector is also important in ensuring the country's food sustainability and security through cold storage warehouses, grains silos, and dry food storage facilities. The government needs to encourage more investment to address future demand and improve operational efficiency through automation and digitization. To encourage more investments, the DTI may explore the possible inclusion of the sector into the Strategic Investment Priority Plan (SIPP). To do this, a cost-benefit analysis must be done in order to establish whether granting incentives will promote new investments for the sector, and to minimize net losses in tax revenue.

To complement the government's drive for investments, the government should also develop a financing program for logistics services, particularly physical warehouse and storage facilities, cargo handling equipment, process automation and digitization.

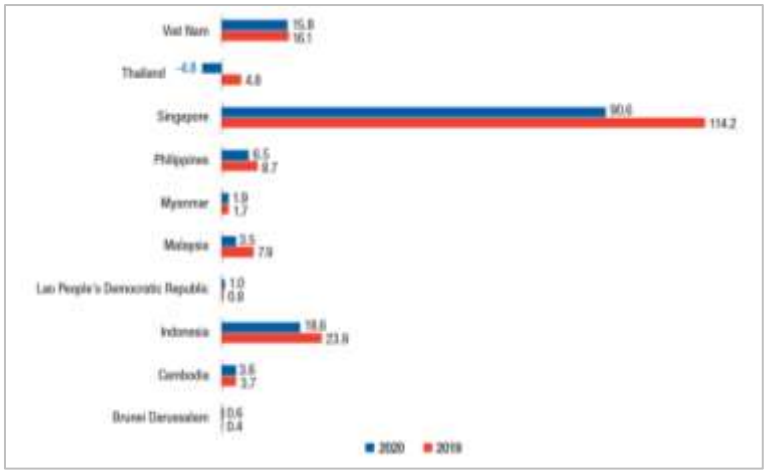
D. THREATS

Better Business Environment in other ASEAN Nations

The Philippines is competing with other ASEAN member states to attract foreign direct investments (FDI), including investors in the manufacturing and logistics sectors. Despite its strengths, the Philippine also has weaknesses that makes the country uncompetitive compared to ASEAN counterparts. **The business environment in other countries is simply a lot better than the Philippines in terms of governance, cost of capital expenses, and input costs.**

Based on the ASEAN Investment Report 2020 -2021, Singapore was able to attract the most FDI among the ASEAN member states. In 2020, FDI inflow reached 90 billion USD while the Philippines was only able to attract 6.5 billion USD. Vietnam and Indonesia, two developing countries in the region, were able to get higher FDIs compared to the Philippines.

Figure 26: FDI flows in ASEAN Member States in 2019 and 2020 (in billions of USD)



SOURCE: ASEAN Investment Report 2020 - 2021

SWOT SUMMARY

Table 25: Summary of Philippine Warehouse and Storage Sector Strengths, Weaknesses, Opportunities, and Threats

Strengths	Weaknesses
• Growing market due to e-commerce and manufacturing • Increased investment in the warehouse and storage sector • Improving adoption of warehouse and storage technology • Improving infrastructure • High level of interest in warehouse receipt law • Increased economic activity and recovery from the pandemic • Opportunities in expanding to other warehouse and storage services	• Price of real estate in prime location has dramatically increased • Fragmented market and lack of market visibility • Challenging regulatory environment • Higher cost in doing business compared to other ASEAN Nations • Manpower skills needs improvement
Opportunities	**Threats**
• Relocation of manufacturing companies in China to ASEAN countries due to high wages • Possible investment incentives granted through the SIPP	• Better business environment in other ASEAN nations

SWOT ACTION PLAN

Table 26: SWOT Action Plan

	Strength	Weakness
Opportunities	S-O	W-O
	• Promote **Warehouse Receipts Law** to warehouse and storage stakeholders. Provide an updated and modernized regulatory framework for warehouse receipts. • Promote the inclusion of the warehouse and logistics sector in the Strategic Investment Priority Plan, through the conduct of a CBA	• Develop a **warehouse association** that includes other warehouse and storage stakeholders. • Develop a **national warehouse database** to provide visibility and information to investors and potential clients. • Promote digitization and automation to improve efficiency and augment relatively high labor cost
Threats	S-T	W-T
	• Continue infrastructure investment program and improve government services. • Improve collaboration between government and stakeholders in developing transport and logistics infrastructure and warehouse districts / logistics corridors • Provide comparable incentives to investors similar to the incentives provided by other ASEAN member states.	• Streamline of government processes • Simplify warehouse and storage regulatory environment. • Improve coordination among government offices regulating warehouses and storage facilities. • Further develop skills to ensure competent warehouse and storage manpower pool

SECTION V

RECOMMENDATIONS

A. PURSUE INVESTMENT IN INFRASTRUCTURE

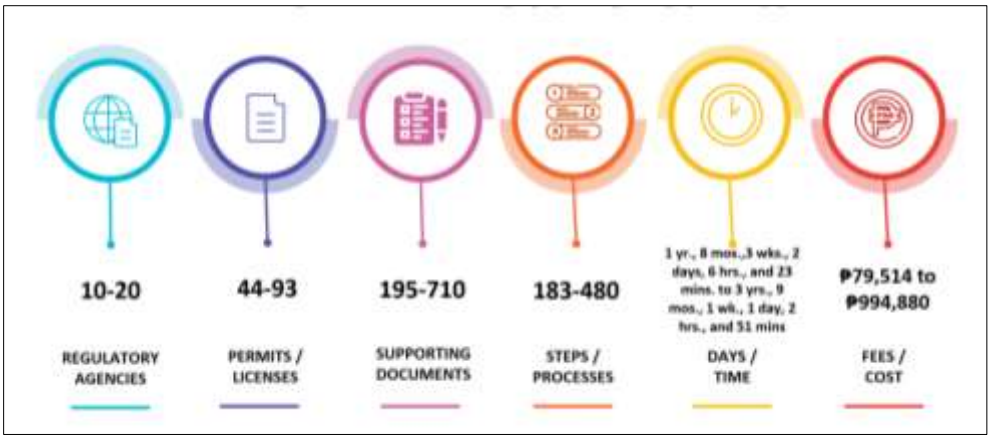
There is a need to increase public and private sector investment in infrastructure. The government needs to invest in public infrastructure in support of logistics and e-commerce. The Department of Trade and Industry has prepared the National Logistics and E-Commerce Infrastructure Program that identified essential public infrastructure in support of trade and commerce. Improving public infrastructure such as roads, seaports, airports, ICT facilities, and others will allow warehouse and storage sector stakeholders to improve operational efficiency, reduce cost, and expand operations. To further enhance the impact of infrastructure, there needs to be a closer collaboration between public and private stakeholders at the planning stage. DTI and DPWH Convergence activity called Roads Leveraging Linkages to Industry and Trade (ROLL-IT) is an excellent program that showcases collaboration between government and private sector in identifying critical infrastructure needed to promote and expand business in an area. This type of collaboration could be adopted by the warehouse and storage sector stakeholders and relevant government offices, such as DPWH, DOE, and DOTR.

Aside from public infrastructure, DTI needs to encourage more private sector investment in the warehouse and storage facilities across the country. The new Public Service Act (R.A. 11659) will open new opportunities for both local and foreign logistics service providers. Aside from physical infrastructure, warehouse and storage operators need to invest in mechanization, automation, and digitization to improve operational efficiency.

B. STREAMLINING OF GOVERNMENT PROCESSES

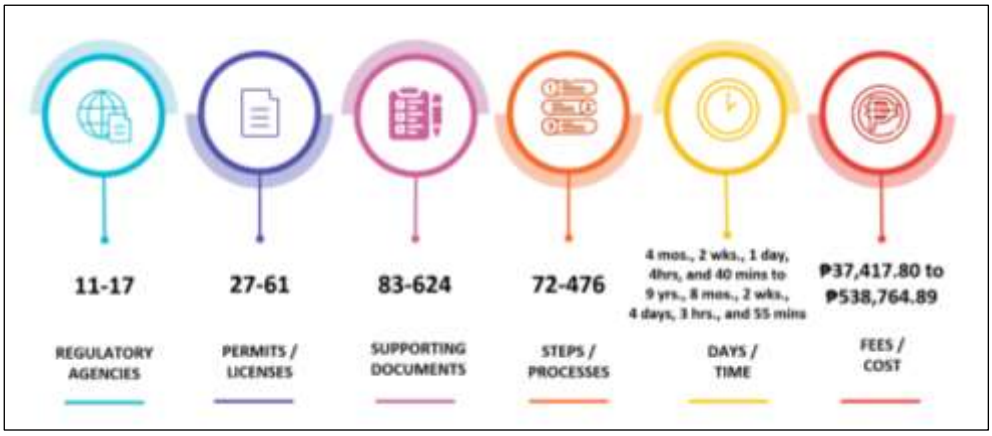
One of the 10 Commitments in the LSPH is the Streamlining of Government Process. Like other enterprises, the warehouse and storage sector would also benefit if the government could successfully streamline its processes and cut red tape. DTI has already assessed six logistics sub-sectors, including general warehouse and cold storage warehouse, and identified the government process, documents, and permits needed for business operation.

Figure 27: Cost and Time Processing Warehouse Business Documents / Permits



SOURCE: DTI

Figure 28: Cost and Time Processing Cold Storage Business Documents / Permits



SOURCE: DTI

Through the assessment, DTI has already identified and prepared an inventory of local and national regulation related to warehouse and storage. The trade department has identified the agencies, permits, documents, process, time, and cost of compliance with government requirements for warehouse and cold storage sectors, there is still the need to pursue changes to reduce the requirements and simplify the process. This requires the collaboration with other agencies as well as industry stakeholders. DTI should also work with Anti Red Tape Authority (ARTA) to accelerate the proposed policy and procedure streamlining. The approach should be both vertical (process per department) and horizontal (cross-cutting).

C. CREATION OF A NATIONAL WAREHOUSE INVENTORY

The creation of the National Warehouse Database would significantly enhance the visibility of warehouse and storage facilities. At present, the inventory of warehouse and storage facilities is fragmented across the different regulatory agencies. DA regulates warehouse that store agriculture products (meat, fish, plant, grains, and sugar) and fertilizers. PEZA and other economic zone authorities regulate warehouse and storage facilities operating within their respective economic zone jurisdiction. The Bureau of Customs regulate custom bonded warehouses as well as container yards

(CY) and container freight stations (CFS). Unfortunately, there is no inventory of general warehouses.

In Indonesia, the Ministry of Trade issued Regulation No. 09/2014, otherwise known as Warehouse Arrangement and Development. The regulation requires all warehouse owners and operators to register their facility with the Ministry of Trade to receive a Warehouse Registration Certificate . Through this regulation, Indonesia was able to create a national warehouse inventory . Based on Indonesia's warehouse registry, the country has 50,660 warehouse operators .

The Philippines, through DTI, could adopt a similar approach but subject to the local conditions. Act No. 3893, as amended by Republic Act No. 247, is still legally existing but it is not implemented by DTI. Under the law, DTI can mandate all general warehouses to register under DTI. To avoid duplication in the registration process, DTI should coordinate with other warehouse and storage regulatory bodies such as DA, PEZA, BOC, etc. to integrate and consolidate their respective inventory to come up with a National Warehouse Inventory. However, before consolidation, it is important to standardize the data collected and ensure each office gather quality information from their respective warehouse and storage stakeholders. It is important that DTI only register warehouse and not fully regulate their operation.

The formation of a national inventory will help government, particularly DPWH and DOTR, to develop infrastructure to support logistics activities. It will also assist DTI in identifying areas lacking warehouse and storage facilities and encourage investment in the location. It will also support the government food security efforts. Lastly, it will also provide policy makers with a clear picture of the sector, allowing them to create programs, activities, and policies based on empirical data.

D. PROMOTE DIGITIZATION AND AUTOMATION OF WAREHOUSE AND STORAGE FACILITIES

Digitization and automation increase the productivity of warehouse and storage facilities. It also helps operators to maximize storage space. The Philippine government needs to promote new technologies to traditional warehouse operators. There should be a sectoral technology showcase that promotes technology to operators such as warehouse management system, QR code readers, automated storage and retrieval system (ASRS), among others. Technology startups working in the logistics sector can be connected to warehouse operators looking for digital solutions. The event can also educate stakeholders about the sector's best local and international practices and trends, including smart warehouses.

E. PROMOTE WAREHOUSE RECEIPTS AMONG WAREHOUSE OPERATORS

Warehouse receipts law has been in existence since 1912. While the concept is still applicable in modern times, there is a need to update the regulatory framework to strengthen and modernize the regulation. More importantly, the passage of a revised Warehouse Receipts Law will also capture the attention and interest of warehouse operators and owners unfamiliar with warehouse receipts. Based on the

survey conducted by the project team, more than 50 percent of the correspondents did not know about the warehouse receipts. However, 75 percent expressed willingness to learn more about the legislation.

Aside from expanding the scope of service offered by warehouse and storage operators, the legislation will also help MSME access financing by using their receipts as collateral to banks. The study recommends that DTI to include the modernization of the Warehouse Receipts law in its legislative agenda and advocate for its passage into law. This is also in line with LSPH Commitment No. 7, which is adopting a high standard regulatory practice.

F. DEVELOP AND INVEST IN WAREHOUSE AND STORAGE MANPOWER SKILLS

DTI has assessed warehouse and storage sector's manpower status in 2018 through Philippine Skills Framework for Supply Chain and Logistics (PSF-SCL), which includes warehouse operations. The study leading to the framework identified the short comings of supply chain and logistics labor force and developed a skills framework to improve and strengthen sector's present and future manpower.

The skills framework aims to level up domestic skills and standardize the job title and job description in the sector. This allows harmonization with international standard and provide a clear career pathway for supply chain and logistics practitioners. Although the framework is already complete, it needs to be adopted by the private sector.

G. PROVIDE A COMPETITIVE BUSINESS ENVIRONMENT

To attract foreign investment into the warehouse and storage sector, a country's business environment must be friendly and conducive to investors. In addition to streamlining government regulations and processes, the government may explore the provision of incentives to accelerate new investments in the warehouse and storage sector.

In the past, the Philippine government, through BOI and the various economic zones, provided incentives that attracted investments into the sector. The BOI has approved several warehouse and storage projects from various proponents. These projects were able to avail benefits such as income tax holidays and exemption from importation duties for capital equipment, raw materials, and other accessories. With the enactment of R.A. No. 11534 or Corporate Recovery and Tax Incentives for Enterprise Act (CREATE), a new fiscal incentive regime is established through the Strategic Investment Priority Plan (SIPP).

For the Warehouse and Storage Sector to be included in the SIPP, the DTI must conduct a cost-benefit analysis to determine whether the grant of fiscal incentives will indeed lead to new investments into the sector, as mandated by current practices under the CREATE Law. A favorable outcome, where benefits outweigh costs, may ensure the inclusion into the SIPP.

H. ESTABLISH A WAREHOUSE AND STORAGE SECTOR ASSOCIATION

There is a need to develop a sectoral association to address the issue on fragmentation and lack of stakeholder visibility. Domestically, cold storage warehouse operators and customs bonded warehouse operators have already a strong sub-sector associate. The Cold Chain Association of the Philippines (CCAP) and Customs Bonded Warehouse Operators Confederation Inc. (CBWOCI) are active in promoting their respective sub-sector. However, this only represent a small fraction of industry stakeholders, which does not necessarily represent the sector.

In the United Kingdom, warehouse owners and operators established the United Kingdom Warehouse Association (UKWA) to advance member concerns, support business development, and establish industry best practices. The UKWA also developed a marketplace that allowed members to advertise their available space. Potential clients can also access the marketplace to search for available storage space of UKWA members.

The establishment of a warehouse association will help DTI adhere to its Logistics Service Philippines (LSPH) Commitment No. 3, which is Private Sector Engagement. The warehouse and storage sector will have a comprehensive and accurate representation if a there is a warehouse association rather than engaging a sub-sector association that only provides a sub-sector view that is not necessarily applicable to all stakeholders.

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ANNEX I. SURVEY QUESTIONNAIRE

WAREHOUSE & STORAGE SURVEY 2021

The study aims to prepare an initial analysis of the policy, legal and regulatory framework that are necessary to promote a more competitive and affordable warehousing and storage services, including policy reforms, regulatory measures, infrastructure, and investment opportunities. Your participation in this survey will help us gather necessary information and data to further enrich this study. Through this data, this study will explore strategies in matching capacity and demand for warehousing services, which may include analysis of geographical market, boosting capacity utilization, listing of facilities and services in an online marketplace, etc.

For your questions and inquiries, please write to: AmandaCutaran@dti.gov.ph

* Required

Email*
Your answer

General Information

Name of Warehouse*
Your answer

Date Established*
Date

Location (Region)*
Choose

Location (Province)*
Choose

Location (City, Municipality)*
Your answer

Ownership*
- Owned
- Leased (please provide additional details below)
- For leased space, how much is the average monthly rental rate per square meter?

Your answer

Operating Hours*
- 8 hours
- 10 hours
- 12 hours

- 24/7

Business Organization*
- Sole Proprietorship
- Partnership
- Corporation
- Cooperative

Business Size*
- Micro (with Assets below PhP 3M)
- Small (with Assets of PhP 3,000,001 to 15,000,000)
- Medium (with Assets of PhP 15,000,000 to 100,000,000)
- Large (above PhP 100,000,000)

Contact Person (Surname, First Name)*
Please type in your Surname, First Name
Your answer

Position in the Company/Organization
- President, CEO, General Manager, Owner
- Operations Manager, Executive Officer
- Operations Supervisor
- Sales, Marketing Officer
- Other:

Contact Person (Phone Number)*
Please type in your mobile number or landline number
Your answer

Contact Person (Email Address)*
Please type in a valid email address.
Your answer

Contact Person's Gender
- Male
- Female
- Prefer not to say

Contact Person's Age
- 18-25 years old
- 25-35 years old
- 35-45 years old
- 46-50 years old
- 55-65 years old
- Above 65 years old

Warehouse Information

Please provide basic information about your warehouse facility, the type and quantity of products managed in the warehouse; services and processes; automation tools and information technology.

Type of warehouse*
- Public warehouse
- Private warehouse
- Government warehouse
- Customs Bonded warehouse
- Distribution center
- Cold storage / temperature controlled
- Fulfillment center
- Customs facilities & warehouses (off-dock CY/CFS, airport public bonded warehouse)
- Other:

Services Offered*
Check all that applies
- Storage
- Contract warehousing
- Inventory Management
- Cross-docking
- Pick & pack
- Transportation
- Distribution
- Other:

Warehouse capacity (floor space in sqm)*
Your answer

Warehouse capacity (number of pallet position)
Your answer

Warehouse capacity (volume in MT)*
Your answer

Warehouse capacity (by Ton of Refrigeration in TR)
Your answer

Major Commodity Accepted / Served*
Select all that apply
- Animal Feeds
- Chemicals - not controlled
- Chemicals - controlled
- Controlled substances
- Construction materials
- Electronics and semiconductors
- Fertilizer
- Fish and aquatic producs
- Food - perishables
- Food - non perishables
- Fruits and vegetables
- Onions

- Furnitures
- Grains (rice, corn, soya)
- Home appliances
- Meat and meat products
- Pesticides
- Pharmaceuticals
- Other:

What equipment and material handling tools are available in your warehouse?

- Forklift - electric
- Forklift - petrol
- Hand pallet truck
- Hydraulic Lift
- Reach truck
- Stacker
- Overhead Crane
- Dollies and castors
- Dock Levelers
- Industrial Scale
- Strapping and Banding Equipment
- Stretch Wrap Machine
- Hoist, monorails
- Shelves
- Racks
- Loading / unloading bay
- Loading / unloading dock
- Scissor lift
- Other:

What technology and automation tools are available in your warehouse?

- Warehouse Management System
- Automatic Storage and Retrieval System (AS/RS)
- Automated Guided Vehicles (AGV)
- Autonomous Mobile Robots (AMR)
- Sorting machines
- Conveyor system
- Automated racking system
- Wearable (picking system)
- Automated picking system
- Automated labeling system
- RFID Scanners
- QR Scanners
- Other:

Average Storage Price (in PHP per sqm)
For Public Bonded Warehouses that collect storage fees per square meter
Your answer

Average Storage Price (in PHP per RT)
For Cold Storage Warehouse / Temperature Controlled Warehouse / Other Public Bonded Warehouse
Your answer

Average Storage Price (in PhP per Pallet position)
Your answer

Human Resource Information

Please share information about the employment generation capacity of the warehousing and storage sector.

How many employees do you have?
- 1-10
- 11-20
- 20-30
- 30-50
- 50-75
- 75-100
- more than 100

How much percentage of your employees are female?
- less than 10% female
- 10% female
- 11-20% female
- 21%-30% female
- 31%-50% female
- 51%-75% female
- more than 75% female

Warehouse Receipts

Warehouse receipts are governed by the Warehouse Receipts Law (Act No. 2137). Philippine jurisprudence defines a warehouse receipt as a written acknowledgment by the warehouseman that it has received and holds certain goods in its warehouse for the person to whom the document is issued. Under the Warehouse Receipts Law, a non-negotiable receipt is a receipt stating that the goods received will be delivered to the depositor or any other specified person. The Warehouse Receipts Law defines a negotiable receipt as a receipt stating that the goods received will be delivered to the bearer or to the order of any person named in the receipt.

Enacted over a century ago, amendment to the Warehouse Receipts Law of 1912, has been filed in Congress and awaiting passage at the Senate. The amended bill will allow farmers to grow their businesses by allowing them to more easily obtain bank financing. The proposed amendment will bring integrity to the use of warehouse receipts as collateral by providing for accreditation of warehouses engaged in the issuance of warehouse receipts, establishing a centralized IT system or repository of all warehouse receipts.

Are you familiar with the Philippine Warehouse Receipts Law?*
- Yes
- No

If you are familiar with Warehouse Receipts Law, do you offer this service to your customers?*

- Yes
- Not yet

Do you have plans to offer warehouse receipts services to your customers in the future?*

- Yes
- No

Would you like to learn more about the Philippine Warehouse Receipts Law, receive update and information and participate in the ongoing review of the said law?*

- Yes, please sign me up and send me more information.
- I'm not interested at the moment.

Regulatory Environment

What are the general legal framework for the regulations of warehousing services and activities in the Philippines?

To establish and operate your warehouse, from which of the following agencies do you need to secure permits and licenses?*

Select all that apply.

- Authority of the Freeport of Bataan (AFAB)
- Bureau of Animal Industry (BAI)
- Bureau of Customs (BOC)
- Bureau of Plant Industry (BPI)
- Bureau of Fire Protection (BFP)
- Bureau of Fisheries and Aquatic Resources (BFAR)
- Bureau of Internal Revenue (BIR)
- Bureau of Product Standards (BPS)
- Clark Development Corporation (CDC)
- Dangerous Drugs Board (DDB)
- DENR - Environmental Management Bureau (DENR-EMB)
- DTI - Fair Trade and Enforcement Bureau
- Fertilizer and Pesticides Authority (FPA)
- Food and Drug Administration (FDA)
- Laguna Lake Development Authority (LLDA)
- LGU - Business Permits and Licensing Office (BPLO)
- LGU - Office of Building Official (OBO)
- Mindanao Development Authority
- National Food Administration (NFA)
- National Meat Inspection Service (NMIS)
- National Tobacco Administration (NTA)
- Philippine Coconut Industry (PCA)
- Philippine Drugs Enforcement Agency (PDEA)
- Philippine Economic Zone Authority (PEZA)
- Philippine National Police (PNP)
- Subic Bay Metropolitan Authority (SBMA)
- Sugar Regulatory Administration (SRA)
- LGU - Other Offices
- Other:

When applying or processing permits and licenses, which of these agencies do you encounter challenges or difficulties?*

Select all that apply.

- I do not encounter any challenge or difficulty
- Authority of the Freeport of Bataan (AFAB)
- Bureau of Animal Industry (BAI)
- Bureau of Customs (BOC)
- Bureau of Plant Industry (BPI)
- Bureau of Fire Protection (BFP)
- Bureau of Fisheries and Aquatic Resources (
- Bureau of Internal Revenue (BIR)
- Bureau of Product Standards (BPS)
- Clark Development Corporation (CDC)
- Dangerous Drugs Board (DDB)
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- National Tobacco Administration (NTA)
- Philippine Coconut Industry (PCA)
- Philippine Drugs Enforcement Agency (PDEA)
- Philippine Economic Zone Authority (PEZA)
- Philippine National Police (PNP)
- Subic Bay Metropolitan Authority (SBMA)
- Sugar Regulatory Administration (SRA)
- Other:

What challenges or difficulties do you encounter in applying or processing permits and licenses for your warehouse operations?*
Check all that apply.

- I do not encounter any challenge or difficulty
- Documentary requirements - not clearly specified
- Documentary requirements - not necessary
- Facilities requirements - not clearly spefied
- Facilities requirement - not necessary
- Timeline - not clear
- Timeline - not followed
- Multiple signatories
- Process flow - not clear
- Process flow - not followed
- Application Forms - unnecessary details
- Feedback and Complaint Mechanism
- Excessive fees (pease provide details in next question)
- Other:

If you choose excessive fees above, please provide details below

Your answer

Additional Comments, Suggestions

We welcome your comments and suggestions, feel free to write in the column below

Your comments, suggestions, additional information.
Your answer

Electronic Consent Form

We appreciate your participation in this survey. All data and information that you have provided as survey respondent will be treated with strict confidentiality in accordance with the Data Privacy Act of 2012 and related regulations.

Please select your choice below. Clicking on the "Agree" button indicates that: (1) You voluntarily agree to participate (2) You are 18 years of age or older (3) You agree to be contacted for further interview (via phone or email) by our researchers.*

- Agree
- Disagree

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