

# PHILIPPINE COLD CHAIN INDUSTRY ROADMAP

## Executive Summary

This Philippine Cold Chain Industry Roadmap is an inclusive, stakeholder-driven and market-oriented roadmap that will guide the industry towards the “new better normal” as the Philippines REBUILDS the economy amidst the Covid-19 health crisis.

### INDUSTRY SITUATIONER (Where are we?)

The Global Cold Chain Alliance (GCCA) estimated that, in 2018, there are 120 facilities in the Philippines with a storage capacity of 2 million (M) cubic meters (cu.m.) and an average capacity of 16,667 cu.m. at about 5,500 pallets per facility. The Cold Chain Association of the Philippines, Inc. (CCAP) estimated that there are 400,000 tons cold storage capacity in the country in 2019, or about 500,000 pallets, and still growing. These is a more conservative estimate than that of GCCA.

The warehousing capacity has strong positive correlation with economic activities. The National Capital Region (NCR) accounts for 36 percent of GDP in 2018, CALABARZON 17 percent and Central Luzon 10 percent, Visayas 12.5 percent and Mindanao 14.5 percent.

### Estimated current holding capacity available, 2020

Region	Capacity (tons)	Pallets
NCR	100,000	125,000
Luzon	130,000	162,500
Visayas	50,000	62,500
Mindanao	120,000	150,000
<b>TOTAL</b>	<b>400,000</b>	<b>500,000</b>

Conversion factor: one pallet = 0.8 ton

Note: Above figures do not include ongoing projects scheduled for completion in 2019

Source: CCAP

### On-going projects scheduled for completion in 2019: Estimated current holding capacity available

On-going projects	Capacity Metric tons	Pallets
Greater Manila Area	20,000	25,000
Central Luzon	10,000	12,500
Northern Mindanao	10,000	12,500
<b>TOTAL</b>	<b>40,000</b>	<b>50,000</b>

Source: CCAP

### Key Players

As of November 2019, there are 151 DA-accredited cold storage warehouses (CSWs), most of which are located in the National Capital Region (45), Central Luzon (30), CALABARZON (24), Central Visayas (13), and Davao (8).

Major meat processors, likewise have their own cold storage facilities for their processed meat products and meat imports. The large processors are members of the Philippine Association of Meat Processors Inc. (PAMPI). Moreover, an industry source indicated that each sardine

cannery is estimated to have 200–300 tons capacity of cold storage facility. Banana export producers and selected convenience store chains have their own cold storage facility as well.

Of the total capacity, general warehousing accounts for 65 percent while exclusive warehousing (for onion, tuna, sardines and banana) holds the remaining 35 percent. Cold storage capacity utilization is about 70-90 percent in lean months (June to September) and 100 percent in the peak months (October to December). The Christmas holidays is a major driver of demand.

Over the last 5 years, storage capacity growth was 10-15 percent annually. In the next 5 years this is expected to grow by 8-10 percent. Capacity concentration is driven by economic factors (population, per capita income, and trading/retail activities).

### **Major Users**

Most cold storage firms carry imported meat for further processing, processed meat for retail, local dressed chicken, ice cream and dairy products, and a menu of smaller items such as frozen dough, cakes, etc. Raw materials of quick service restaurants (QSRs) form a large portion in many provincial areas.

Cold storage demand varies depending on the location and industries served. Luzon requires about 40 percent storage for meat, 30 percent for fish/aqua, 20 percent for fruits and vegetables and 10 percent for other products. Meanwhile, Visayas storage facilities are allocated as follows: 40 percent meat, 30 percent local chicken, 20 percent fish/aqua products, five percent for dairy products and five percent for others. Mindanao, on the other hand, has 30-40 percent for meat, 30 percent for local chicken, 20 percent for dairy, 15 percent for fish/aqua and five percent other products.

### **Prices**

The following rates are currently being offered by cold storage facilities in the Regions. Pricing depends on the following: weight and volume, pallet, product category, length of stay, product size, packaging size, temperature requirement, etc.

#### **Cold storage current rates**

<b>Particular</b>	<b>Metro Manila</b>	<b>Luzon</b>	<b>Visayas</b>	<b>Mindanao</b>
Freezer (pallet/day)	50 to 75	50 to 75	65 to 75	50 to 75
Blast Freezer (kilo/cycle)	4.20 to 5.00	4.20 to 5.00	2.60 to 3.00	5 to 6
Chiller (pallet/day)	40 to 50	40 to 50	40 to 50	40 to 50
Aircon (pallet/day)	40 to 50	40 to 50	40 to 50	40 to 50
Dry (pallet/day)	10 to 20	10 to 20	10 to 20	10 to 20
Plug-in (container van)	350– 1 <sup>st</sup> 3hours	350– 1 <sup>st</sup> 3hours	250 – 1 <sup>st</sup> 3hours	240 – 1 <sup>st</sup> 3hours
Succeeding hours (per hour)	120	250	180	120

Source: KIIs

The load per pallet is dependent on the product. Technically the capacity of a pallet is 1 to 1.2 tons. However, the condition inside the room (frozen temperature), affects the rigidity and usable life of plastic pallets. Thus, pallets are normally not loaded at full capacity.

## **Current Business Models**

Facilities or warehouses may be of cold storage only, cold and dry storage and integrated cold chain. The integrated cold chain model has one or all of the following: logistics and distribution system, inventory management, tracking services through web application. It is adaptable to both big and small clients. Big clients include fast-food and meat processors. It caters to high value products and has higher margins for finished products. On the other hand, the investment costs for logistics and IT (warehouse management system) is very high. In addition, there are products requiring special handling and temperature such as cakes and ice cream.

## **Supply/Value Chain Analysis by Value Chain Corridors**

The cold storage supply chain starts with the delivery of goods to store or procurement, logistics to CSW, storage and logistics for delivery to client. The supply/value chain analysis looked at the activities involved and the cost build-up within the chain. In general, the cost of PhP0.30 per kilo is incurred from unloading at the warehouse to put-away, then another P0.30 per kilo for the cost from picking to loading to truck for delivery to the client. The client has the option to pay the total inbound and outbound cost of PhP0.60/kg. The arrangement varies per client. The storage cost ranges from PhP0.08 to PhP0.10 per kilo. In Luzon, blast freezing costs PhP4.00-5.00 per kilo.

## **Country Benchmarking**

For purposes of this roadmap, the Philippines has been benchmarked with Indonesia as both countries have the same business models. Similarly, the integrated model provides logistics and distribution system, inventory management and tracking services. Indonesia established this model for the company's own use. The Philippines' tracking services uses actual GPS while in Indonesia, aside from GPS, a GIS database is available which provides the map, location analysis, among others. Indonesia's process is more complex than the Philippines, since it has invested more on modern IT systems which track the products' locations, monitor the temperature and extract data analysis.

## **Market Trends and Prospects**

According to industry players, cold storage demand varies depending on the location. In general, meat, including local chicken, has the largest requirement which ranges from 30 to 70 percent, followed by fish/aqua, dairy and vegetables.

Commodity	Historical Growth (2010-2019), in %		Demand Forecast
	Import	Export	
Beef	9.37	13.66	will grow by 2% annually from 202,000 tons in 2017 to 222,000 tons in 2023
Pork	8.54	-1.15	will intensify by 4% annually from 1.6 M tons in 2017 to 2 M tons in 2023
Chicken	14.60	-1.30	will increase by 5% annually from 1.3 M tons in 2017 to 1.8 M tons in 2023
Shrimp	10.36*	-2.87*	will grow from 44,000 tons in 2017 to 58,000 tons in 2023**
Tuna	15.29	1.08	will escalate from 442,000 tons in

			2017 to 608,000 tons in 2023
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Sources: BAI, PSA and UN Trademap

\* Shrimp and prawns

\*\* Shrimp

## **Growth Drivers**

- Food spending is a main driver of cold storage. Consumption spending comprises 57 percent of gross national income in 2019. Food related items account for 45 percent of the consumer spending. Based on the 2012 weights of the consumer price index, food and non-alcoholic beverages accounted for 37.3 percent while restaurants and catering services (mainly eating out), 8.0 percent (PSA). Meat comprises a significant portion of household food spending.
- Meat demand will grow as income grows.
- Growth in institutional markets (supermarkets, fast-food, restaurants, etc.). Eating out used to be the key driver but in light of the COVID-19 pandemic, increase in food delivery will increase demand.
- Eating-out. Based on FIES, eating-out posted the fastest increase compared to meat and seafood. Its share of food spending rose from 12.5 percent in 2003 to 21 percent in 2018. Eating-out rose by an average of 11 percent a year between 2003 and 2018. This is compared to the overall increase in food spending of 7.3 percent a year. The main menu for eating out are made of chicken and beef.

Meanwhile, meat grew by 8.7 percent a year in the same period and seafood by 8.2 percent a year. There is no available data yet for fresh and processed meat. PAMPI estimates the processed meat market at PhP300 Billion.

- Increased demand for frozen food due to safety concerns (than food from wet markets).
- Pharmaceuticals – with the “new normal”<sup>1</sup> growth in vaccines and other temperature drugs
- Oversupply of some cash crops with the DA’s Plant Plant Plant Program requiring cold chain to prolong product value.
- Sustained high importation of meat, seafood, dairy, etc.
- Growth of e-commerce and online grocery shopping with the “new normal”.
- Preference for just-in-time delivery
- Emergence of integrated end-to-end supply chain logistics i.e. from farm to fork.

## **SWOT Analysis**

Advantages	Constraints
<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>▪ One-stop shop to its customers</li> <li>▪ Presence of government regulations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Insufficient cold storage capacity</li> <li>▪ Lack of blast freezing/individual quick freezing (IQF)</li> </ul>

<sup>1</sup>“New normal”, an idiomatic term, is typically used to refer to the significant change of the prevailing situation. It has been used following the financial crisis of 2008-2009 (cf. Davis, 2009 quoted by UNESCAP, 2020). The new normal for the agriculture and fishery (A&F) sector calls for a heightened policy focus on food security. More efforts are required to ensure availability, accessibility, and affordability of safe and nutritious food [Source: "We Recover As One" Report by the IATF Technical Working Group (TWG) on Anticipatory and Forward Planning (AFP) chaired by the National Economic and Development Authority]

Advantages	Constraints
<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>▪ Good governance and good performing LGUs</li> <li>▪ Organized stakeholders (CCAP)</li> <li>▪ CCAP strong alliance with other industries</li> <li>▪ Available fund source i.e. LBP</li> <li>▪ Growing market demand</li> <li>▪ Presence of advanced technologies (solar, etc.)</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>facilities</li> <li>▪ Flexible pricing</li> <li>▪ Shortage on logistics and trucking services</li> <li>▪ Lack of trained workers</li> <li>▪ Difficulty in complying to required documentation for accreditation</li> <li>▪ Investment constraints from LGUs</li> <li>▪ Lack of infrastructure/ road networks</li> <li>▪ Limited areas for expansion</li> <li>▪ High energy/power costs <ul style="list-style-type: none"> <li>– Power is the biggest cost item. Power or electricity, accounts for 25 to 35 percent of cold storage operating costs. Depending on locale, it costs PhP10 to PhP12 per kilowatt-hour. Cold storage use Freon and ammonia as refrigerant for the cold storage, and eutectic plates for delivery trucks to maintain the required low temperature.</li> </ul> </li> <li>▪ Unstable power supply</li> <li>▪ Weak internet connectivity</li> <li>▪ High investment requirement</li> <li>▪ Seasonality</li> <li>▪ Supply shortage</li> <li>▪ Insufficient NMIS manpower (inspector)</li> <li>▪ Limited information available on cold storage services</li> <li>▪ No available rendering facility for confiscated/condemned meat products</li> <li>▪ Misconception on frozen products</li> <li>▪ Lack of coordination within government agencies involved in shipments</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>▪ Growing demand on cold storage</li> <li>▪ Increasing consumer awareness on food safety</li> <li>▪ Emerging trends of 3PL service provision</li> <li>▪ Improving economy</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>▪ Price competition</li> <li>▪ Threat of integration</li> <li>▪ Occurrence of diseases (ASF)</li> <li>▪ Calamities</li> </ul>

**STRATEGY SETTING (Where do we want to go?)**

**Vision**

An avowed champion for food safety, a recognized benefactor to agribusiness development, a valued link in the supply chain sector.

**Mission**

A cohesive, functional and collaborative network of cold chain stakeholders imbued with the highest operating principles and standards, compliant with government policies and regulations, and responsive to the needs of the Filipinos.

## **Industry Goals**

1. An organized Cold Chain Industry with synergistic partnership among all stakeholders working in unison for the good of all.
2. Strong logistics providers (transports, ports, and road networks) to implement continuous cold chain protocol in transit and handling.
3. Availability of more efficient, skilled and fairly-compensated labor force – experienced refrigeration technicians and engineers, and skilled manpower on heating, ventilation and air conditioning (HVAC), drivers, NMIS inspector.
4. Favorable government and public support that would encourage increase in investments in the cold chain industry towards countryside development that will generate jobs and help alleviate poverty and improve the lives of the Filipinos.
5. Increase awareness on food safety

## **Industry Targets**

The major objective is to increase the cold storage demand. For the short-term, the target increase of 10-15 percent annually was set by the industry to provide services to the increasing demand of various industries, which is at least 50,000 pallets per year in the short-term.

The increasing demand will be realized through the combined efforts of BOI, DA and CCAP and the private and government sectors particularly the FDA, NMIS, BAI, BFAR, BPI, NDA and other relevant agencies.

## **Value Chain Gaps and Required Chain Interventions**

The table below table identifies the most critical gaps in the supply/value chain, the required intervention necessary to address the gaps and the expected results.

### **Barriers to expansion, required interventions and expected results**

<b>Chain Gap/Barriers</b>	<b>Required Intervention</b>	<b>Expected Result</b>
Limited awareness on food safety/ misconception on frozen products	<ul style="list-style-type: none"> <li>▪ Implement food safety program</li> <li>▪ Food safety education</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased awareness on food safety</li> </ul>
Low demand for cold chain logistics services in some areas	<ul style="list-style-type: none"> <li>▪ Implement food safety program</li> <li>▪ Expand production and improve productivity</li> <li>▪ Offer value-added services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased demand on cold chain services</li> <li>▪ Increased capacity utilization</li> </ul>
Lack of LGU support in cold chain investment	<ul style="list-style-type: none"> <li>▪ Identify areas for expansion</li> <li>▪ Cooperate in finding new sites</li> <li>▪ Reduction in real estate tax</li> </ul>	<ul style="list-style-type: none"> <li>▪ Investments in cold chain facilities</li> </ul>
LGU regulations	<ul style="list-style-type: none"> <li>▪ Local incentives to reduce taxes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lower investment cost and operating expenses</li> </ul>
Limited support in infrastructure	<ul style="list-style-type: none"> <li>▪ Road improvement</li> <li>▪ Transport connectivity which will benefit businesses i.e. fastfood chain</li> <li>▪ Internet connectivity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Better traffic situation</li> <li>▪ Road access which will open up new businesses re: fastfood chains</li> <li>▪ Efficient communication and access to information</li> </ul>
Seasonality	<ul style="list-style-type: none"> <li>▪ Proactive collaboration of stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spread the monthly volume and</li> </ul>

	for increase in local food supply <ul style="list-style-type: none"> <li>▪ Production scheduling</li> <li>▪ Balancing imports and proper programming</li> </ul>	limit the number of lean months
Traffic	<ul style="list-style-type: none"> <li>▪ LGU ordinance to improve traffic situation</li> <li>▪ Proper delivery scheduling</li> </ul>	<ul style="list-style-type: none"> <li>▪ Better traffic situation</li> <li>▪ On time delivery</li> </ul>
ASF	<ul style="list-style-type: none"> <li>▪ Strict implementation and regulation of policies on imports/ASF</li> </ul>	<ul style="list-style-type: none"> <li>▪ Controlled ASF situation and eventually ASF free status</li> </ul>

**STRATEGIES AND POLICIES (How do we get there?)**

**Primary Strategy**

The roadmap pathways will employ a coordinated sectoral (private and government) and program-oriented approach to provide appropriate interventions across all sectors. It shall follow the **GO-5-Synergy** of 5 goals, 5 objectives, 5 focus industries and 5 action agenda which the industry will undertake in the next 5 years.

The 5 focus industries shall be: (1) Meat/processed meat; (2) Fisheries and aquaculture; (3) Dairy; (4) Fruits and vegetables; and (5) Non-food i.e. pharmaceuticals, electronics, etc.



**Critical Key Result Areas (KRAs) and 5-Action Agenda**

There are a number of key result areas in the supply/value chain to enable the industry to meet the targets. The roadmap shall focus on the following 5-point action agenda in the short-term.

1. Investments in cold chain facilities (cold storage warehouses)
2. Investments in cold chain logistics services (road, connectivity, trucking services)
3. Demand enhancement - increase demand for cold chain services
4. Food safety education
5. Policies and regulations

## **Implementation and Monitoring**

The implementation of the Cold Chain Industry Roadmap shall be orchestrated by the National Cold Chain Committee (NC<sup>3</sup>) which will be established and primarily composed of the BOI, DA and CCAP in collaboration with other industry stakeholders and relevant government agencies, to undertake institutional development measures.

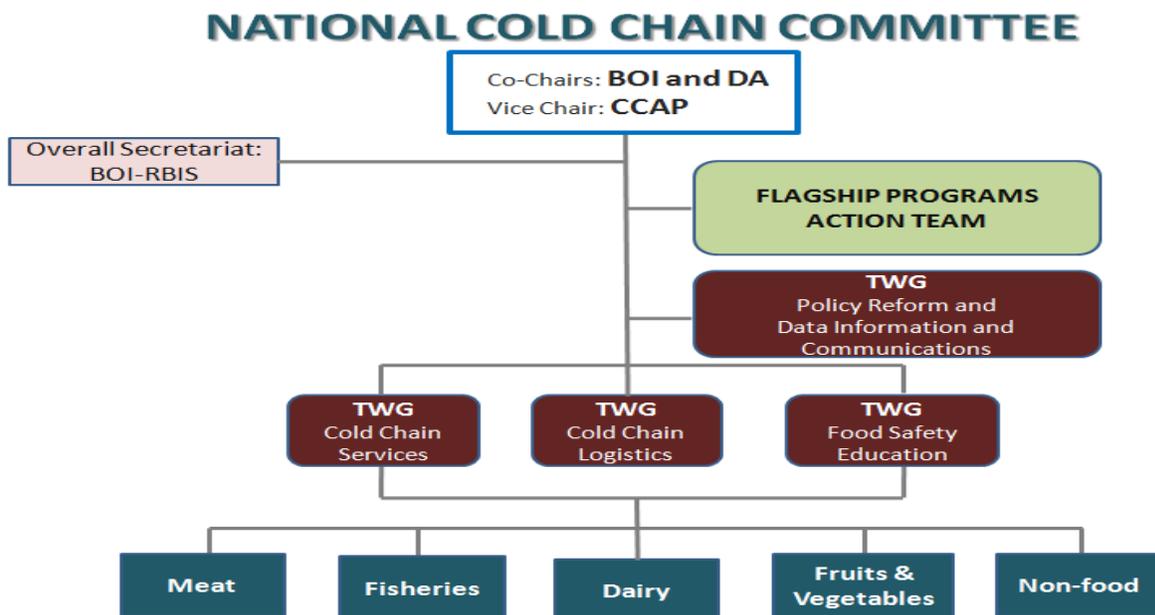
Roles and responsibilities:

- Ensure the successful implementation of the action plans, programs and projects in the Cold Chain Industry Roadmap
- Monitor the progress of various activities being implemented
- Update the Roadmap targets for relevance
- Conduct advocacies and activities to promote the objectives and development of the cold chain industry in the Philippines
- Conduct regular meetings to make available venues for discussion of and decisions on issues

A Flagship Programs Action Team (Flag Team) may be created to serve as a core group which will mobilize the realization of the industry milestones in the short-term (2020-2022).

Four (4) TWGs shall be created which will provide guidance and recommendation on priority projects that will address four thematic areas: cold chain services, logistics, food safety, policy reforms and data information and communications. The TWGs shall make sure that the Cold Chain Industry Roadmap is disseminated closer to the provincial levels with the support of the LGUs, industry associations and other stakeholders.

Initially the BOI, DA and CCAP shall handle the monitoring system for roadmap implementation. Once the NC<sup>3</sup> is formalized, it shall agree on a monitoring system at the provincial and regional level. The monitoring group will have a high level of independence and may hire external experts. The evaluation shall be done by an independent group such as the academe or non-government organizations.



## The Industry Milestones (2020-2022)



## Way Forward to the “New Normal”

The COVID-19 pandemic is a black swan event. It has a more negative impact on activity in the first half of 2020 than anticipated, and the recovery is projected to be more gradual than previously forecast. In 2021 global growth is projected at 5.4 percent.

Overall, this would leave 2021 GDP some 6½ percentage points lower than in the pre-COVID-19 projections of January 2020. The Philippines’ GDP growth is expected at -3.8 percent in 2020 and 6.5 percent in 2021. The inflation rate is forecasted at 2.2 percent in 2021 (*ADOS June 2020*). The adverse impact on low-income households is particularly acute, imperiling the significant progress made in reducing extreme poverty in the world since the 1990s.

The Philippine cold chain industry is part of a multi-channel supply/value chains. On the backside, a large part is meat, imported and local. On the front side, are demand sectors: food processing, food service, and households. The storage demand is affected by supply and demand balances. The supply side is affected by imported prices of raw materials, e.g. meat and seafood products. The key demand driver is family income spending. It is influenced by jobs, livelihood, OFW remittances, and government income transfer. Key indicators to track: meat imports, local goods like poultry, job creation

## Key Takeaways

One, the Cold Chain industry is a growth area. This following the growth of Philippine economy, the rising incomes and improving infrastructure. Many of the “stored” products have high income elasticities like meat and dairy products. But the 2020-2021 is a transition.

Two, the cold chain industry is not immune from the impact of demand compression. Cold storage is a strategic bridge of the supply/logistics chain. Whatever happens to the Philippine

economy affects the industry, demand and supply disruptions affect cold chains backward and forward linkages.

The country is behind ASEAN in market development Index- the ratio of cold chain capacity with GDP. That is a major opportunity as income increases and transport connectivity expands.

### **Strategic Perspective**

The roadmap lays down the Vision and Mission Statements. There are three cogs in the Vision: (1) food safety advocacy (2) agribusiness development and (3) vital link to supply chain. This vision must be embedded in the programs and projects of the industry, especially in the regions.

The industry's mission conforms with CCAP "citizenship". Among the key strategic thrusts: (1) develop the supply chain in underserved areas, (2) push industry clustering to achieve a resilient supply of essential products (e.g., food, medicines, vaccines, etc.) and (3) inclusive growth must be imbibed.

The industry is well-positioned for post COVID-19 recovery. Food spending will continue its upward trajectory. But income trajectory from mid-2020 to mid-2021 will be challenging. The economic recovery is not easy to forecast. The government projects negative growth on 2020, and surge in 2021. It can be V shape or U shape.

The industry must highlight its relevance. It must program towards: food security and resilience; promotion of investments in cold chain storage.

- **Food security and resilience. Embed resilience into food and agriculture value chains.** Food is a daily nutritional requirement. Food comprises over 40 percent of average household spending.
- **Promotion of investments** in cold chain in key areas to increase food security and safety in time of COVID-19. The industry must promote PPP with LGUs and producers in underserved areas where scale has yet to be reached.
- Ensures **longer shelf life** of food commodities. In distant communities, refrigerated trucks can address perishable goods from producers and consumers.
- Linkage of **cold chain investment** to urban agriculture (e.g., aeroponics project). This is to complement the urban agriculture promotions by the DA and private sector venturing into soil-less agriculture. Cold chain linkages to urban agriculture cuts harvest losses two ways: production of expensive vegetables and timely delivery. It is still in its infant stage but growing market in urban areas like NCR.
- Encouraging industry players and other stakeholders to adapt **greener technologies** (e.g., energy-efficient insulation systems, etc.).

Though the current pandemic has filled the cold storage warehouses in full, the phenomenon might be short live as supply in the pipeline are adjusted thinner as demand was significantly reduced. It is good for players to watch economic trends and consumer behavior in the next six months and adapt to the "new normal."