Research on the Optimization of Urban Cold Chain Logistics System Based on the Example of Guangzhou

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Abstract. In view of the realistic environment of the cold chain logistics development in Guangzhou, this paper aims at analyzing the present pre-cooling equipment of the cold chain logistics in Guangzhou, the lack of cold storage facilities, the incomplete cold chain structure, the lagging of the development of the third-party cold chain logistics industry, the lack of traceability of the products, the information tracking mechanism and the deficiency of the standard specifications of the cold chain, the shortage of cold chain professionals etc., and the countermeasures are put forward from three aspects: strengthening the policy support for the overall planning of the cold chain logistics; strengthening the construction and improvement of the cold chain logistics system and the platform and the main body; and developing the Guangzhou cold chain logistics industry in various modes.

Keywords: Urban logistics, Guangzhou cold chain logistics, present situation analysis, optimization countermeasures.

1. Introduction

Cold chain logistics generally refers to a systematic project of the production, storage, transportation, sales and final consumption of refrigerated and frozen food under the prescriptive low temperature environment according to the characteristics of different items, so as to ensure the quality of the products, achieve maximum safety and reduce spoilage. With the development of the science, technology and the breakthrough of refrigeration technology, cold chain logistics is a low-temperature logistics process on the strength of refrigeration technology which is used as a means. The cold chain logistics follows the "3-T principle": time, temperature, and tolerance. Due to the increased awareness of customers on the food nutrition and quality, the cold chain logistics is much demanding than general logistics, with the purpose of ensuring the quality of perishable products and the core of maintaining the low temperature. The characteristics of cold chain logistics are large investment scale, high asset occupancy rate, high requirements for information technology, and high organization coordination requirements. The product range for cold chain logistics is as follows: primary agricultural products (such as vegetables, fruits, aquatic products, meat, etc.), processed foods (such as packaged cooked food, quick-frozen food, dairy, etc.) and special commodities (such as pharmaceuticals, vaccines, etc.) [1]-[7].

There is an enormous demand for cold chain logistics in all modern cities. With the improvement of people's living standard and the concept of life, the demand for frozen fresh products has increased greatly, and the demand of cold chain logistics market has expanded sharply. As an important part of
modern logistics and supply chain system, the cold-chain logistics has greatly given the promotion of the logistics’ development, the healthy life of urban residents, the improvement of the living standard of urban residents and the rapid development of social economy. As a transportation hub in China and even Southeast Asia, Guangzhou takes advantage of traffic conditions and becomes a commodity and logistics distribution center in Asia. In the next 5 to 10 years, cold chain logistics in Guangzhou will be in the critical period of industrial upgrading and industrial structure adjustment. Although the general level of cold chain logistics in Guangzhou leads the whole country, it is still far to go to catch up with these developed countries, and still needs to be improved in infrastructure, technology, cold chain structure, standardization, fresh-keeping awareness, laws and regulations and so on. People's healthy life is closely related to cold chain logistics. With the consumers’ increasing requirement for product quality and health, the traditional circulation mode can never fulfill the requirements of the market. Therefore, studying urban cold chain logistics and speeding up the pace of application of cold chain logistics in people's life can make a difference to promote the development of new urbanization and guarantee the safety of commodity consumption.

2. Development of Cold Chain Logistics at Home and Abroad

2.1. Cold Chain Logistics in China

The development of cold chain logistics in China is still in the initial stage. This year, the research of cold chain logistics has just begun to expand, mainly including the theory of food cold chain logistics, the present situation of cold chain logistics in China, the technical development of cold chain logistics, and the application of cold chain logistics. However, the cold chain logistics in China has not formed a system, regarding developed countries as standard, there is still an obvious gap. The lag of cold chain logistics development has a great impact on the development of food industry. At present, the main problem of the development of cold chain logistics in our country is that the upstream, the middle stream and the downstream are not connected, and there is no complete industrial chain, and the efficiency and benefit from production to marketing can not be integrated.

2.2. Cold Chain Logistics in Europe, America and Japan

Europe, America, Japan and other developed countries have formed a perfect cold chain system and has carried out comprehensive researches, and now mainly focuses on the standardization of cold chain logistics. At present, the cold storage rate of perishable food logistics process in developed countries has reached 98%. Japan attaches great importance to cold chain industry technology and fresh-keeping product circulation. The government specifically formulates relevant laws, regulations and public services to carry out macro-control. In Europe and the United States and other countries, cold chain preservation technology has reached the advanced level, bringing great economic and social benefits.

Table 1. Capacity of Refrigerators in 2014.

| Country | Capacity (million cubic meter) | Population (million) |
|---------|-------------------------------|---------------------|
| India   | 1260                          | 132                 |
| America | 322                           | 115                 |
| Brazil  | 202                           | 16                  |
| China   | 1300                          | 76                  |
3. The Realistic Environment of the Development of Guangzhou Cold Chain Logistics

3.1. Forecast of the Development of Cold Chain Market in China

Since the 21st century, the cold chain logistics industry in China has progressed greatly. By 2005, the cold chain logistics began to develop rapidly and steadily in China. The cold chain logistics in China has expanded from Pearl River Delta and Yangtze River Delta to the whole country. Since 2011, the development of refrigerated transportation industry in China has accelerated, and the construction of cold storage has set off a new climax.

The Chinese cold chain logistics started late and lagged behind. There are still many problems in the development of cold chain logistics. The weakest parts of fresh products are the acquisition and wholesale of products. A lack of professionals and dirty and disorderly market environment make it hard for sales places and transportation process to meet the requirements of cold chain\[3\]. The low cold chain level and the imperfect system result in high corruption hence. According to statistics, 80 million tons of fruits and vegetables rot every year in China, accounting for 20% of the total output, and wasting 80 billion yuan, ranking first in the world \[4\]. Moreover, the construction of cold chain infrastructure is incomplete. The cold chain infrastructure mainly includes a cold storage and a refrigerator. The improvement of cold chain in the region is unbalanced. Beijing, Shanghai, Guangzhou and other first-line cities have a large distribution, and most of the urban construction in the southwest area is relatively small. The function of linking point is missing. In the process of the cold chain of our country, the storage links are obviously missing, the refrigeration technology of the cold storage is backward, and the storage equipment is old and fragile. In the transportation sector, most of the small and medium-sized enterprises shut down the refrigeration equipment in the middle of the process. The concentration rate of the industry is low, and there is no cold chain leading enterprise with super-strong integration capacity.

In 2015, the gross volume of cold chain logistics industry in China was about 4 trillion yuan. According to that, the data of Chinese cold chain logistics will reach 5.4 trillion yuan by 2017, and the compound annual growth rate in the next five years (2017-2021) will be about 23.10%. Therefore, the total cold chain logistics will reach 12.5 trillion yuan by 2021 in China.
Table 3. Forecast of total cold chain market in China

In 2017, the demand scale of cold chain logistics in China reached 195.15 million tons, and the compound annual growth rate was about 25.02 percent in the next five years. By 2021, the demand scale will reach 476.72 million tons.

In 2017, Guangzhou had a resident population of more than 14 million, and the annual consumption of perishable food reached more than 2 million tons, ranking fourth in the country. According to statistics, the cold chain circulation rates of fruits and vegetables, aquatic products and meat in Guangzhou are 20%, 35%, 30%, and refrigerated transportation rates are 25%, 50% and 40% respectively. Now, Guangzhou cold chain logistics has developed from a single food to various food including medicine, fruits and vegetables, flowers, cooked food, egg, dairy and so on. The service scope has begun to develop to the all-round cold chain logistics service, and the cold chain logistics system has begun to take shape. Guangzhou cold chain logistics industry grows in specialization and scale and is at the leading position in the country.

Cold chain logistics infrastructure is becoming more and more perfect. There are more than 100 cold chain logistics related enterprises in Guangzhou, and the circulation of cold chain food in Guangzhou exceeds 3 million tons. Since 2009, the scale of cold storage construction has increased at an annual rate of 20 per cent. By the end of 2013, the total amount of refrigerated vehicles in Guangzhou reached more than 1000. Among them, Huangpu, Panyu, Baiyun and Liwan are the most concentrated districts, with more than 40 cold stores of more than 5000 tons, and with a total capacity of more than 800000 tons, accounting for 50% of the province. At present, there is no specific cold chain logistics park in the city. Cold chain logistics service scope continues to expand and improve, mainly serving fast food raw materials, dairy, cooked food, flowers, fruits, vegetables, medicine, etc.

3.3. Development Characteristics of Guangzhou Cold Chain Logistics[8]-[12]

(1) Large Capacity of Cold Storage but Uneven Regional Distribution

The total capacity of cold storage in Guangzhou is more than 800000 tons, which is relatively large. In distribution, Huangpu, Panyu, Baiyun and Liwan are the most concentrated districts, with capacity of more than 1000 tons accounting for 23.9%, 20.9%, 17.9% and 16.4% of the whole city, and the storage capacity accounting for 29.9%, 13.8%, 15.1% and 17.7% of the total cold storage capacity of Guangzhou respectively.
(2) The Small Scale of Cold Chain Distribution Vehicle and Poor Services
At present, Guangzhou refrigerated car owners are mainly cold storage enterprises, logistics enterprises and production enterprises. According to statistics, a total of 50 enterprises have 1279 refrigerated cars of all kinds, of which 924 are owned and 355 are rented out. In terms of enterprise size, there are only 4 enterprises that own more than 100 refrigerated cars, and 44 enterprises with less than 50 sets, of which 20 are below 10. In addition, Guangzhou is a big market for the sale and use of refrigerated vehicles, but the manufacturing and service enterprises engaged in refrigerated car are relatively scarce. Only a few enterprises, such as Guangzhou Baier Cold Chain Polyurethanes Technology Company, are engaged in related services. From the national point of view, the scale is still small and urgent to expand.

(3) Incomplete Functions and Small Quantity of Cold Chain Auxiliary Equipment
The auxiliary facilities used for cold chain is the crucial factor to ensure the cold chain logistics’ execution, and ensure that the product storage, transportation and distribution are carried out at the required temperature. With the rapid development of the cold chain logistics, the demand to the auxiliary facilities of the cold chain is getting higher and higher. At present, the existing facilities in Guangzhou still have the problems of incomplete function and small quantity. In the production of fresh products, 30% of the enterprises have pre-cooling treatment to the products at production areas, 64% of the production enterprises have their own cold storage, and 36% of the products produced by the enterprises are transported with refrigeration. In the circulation, 48% of the cold storage is stacked with a shelf, of which, the use of ordinary shelves accounts for 93%, while automated shelves accounts for only 7%. In the use of forklift, forklift has been used in the cold storage with capacity of more than 1000 tons, among which the usage of ordinary forklift truck and intelligent forklift truck accounts for half respectively.

(4) Complex Cold Chain Transportation and Distribution Network
The output value of agricultural services in Guangzhou accounts for a large proportion of the output value of the whole province about 25%. The total annual transportation of perishable goods is about 10 million tons, and the refrigerated transportation volume is 2 million tons. Among them, in the form of transport distribution, 58% of the production enterprises self-distribution, only 42% of the enterprises adopt third-party logistics for transport distribution [6]. In terms of transportation and distribution types, frozen food, meat, aquatic products and other frozen products account for the main part, and the total is about 56%, followed by dairy products, fruits and vegetables and dry goods. As for the transportation and distribution routing, Guangzhou's urban distribution and inter-city distribution are the main routings, supplemented by trunk transportation, among which, the city internal distribution and inter-city distribution together account for 76% of the total traffic.

Figure 3. Analysis of the cold chain transport in Guangzhou.

(5) Cold Chain Enterprises Mainly being Private and Closing to Frozen Food Market
In terms of enterprise structure, Guangzhou cold chain enterprises are mainly private enterprises, state-owned enterprises and foreign-funded enterprises. Among them, the private sector accounted for 58%, accounting for the main position, followed by the state, accounting for 22%. In the type of enterprises, cold storage enterprises account for the majority, 64%. Other types (such as production, transportation, third party logistics, etc.) account for about 36%. In addition, from the point of view of regional distribution, Guangzhou is in the core area of the development in cold chain logistics because of its great advantages of market and circulation. Therefore, most of the enterprises focusing on cold chain in Guangzhou develop around the frozen food market to facilitate their business, such as Luo Chong Wai-Xicun Metro Station. Baiyun District, Huangpu District and Luogang District and other areas.

Figure 4. Proportion of cold chain enterprises in various districts

(6) Cold Chain Enterprise Informatization Ranking the Forefront in the Country
The investigation shows that the cold chain enterprises’ overall information level in Guangzhou ranks in the forefront of the country. In the aspect of information management, 75% of the cold storage enterprises use video monitoring system, 68% implement temperature monitoring management, 54% have established storage information management system, 70% use temperature monitoring, 13% use video monitoring, and 74% use GPS for dispatching management.
4. Problems Existing in the Development of Cold Chain Logistics in Guangzhou

4.1 Development Disparity with Western Developed Countries
Through the investigation of Guangzhou cold chain logistics enterprises and fresh supermarkets, it is found that Guangzhou ranks the forefront of the country in terms of the overall level, but there is still a certain gap with the western developed countries. Especially in infrastructure, technical level, cold chain structure, standardization, fresh-keeping awareness and so on need to be further strengthened.

4.2 Lack of Pre-cooling Equipment and Low Pre-cooling Rate of Fresh Food
In Europe and the United States and other developed countries, the pre-cooling rate has reached more than 80%. The low temperature cold chain in the United States has been quite perfect, which realizes the effective connection of pre-cooling, refrigerated transportation and low temperature circulation consumption. Japan has more than 1600 pre-cooling stores, including nearly 200 vacuum pre-cooling stores and more than 400 pressure pre-cooling stores. More than 90 percent of vegetables must be stored and transported after pre-cooling. However, the cold chain logistics of the fresh in Guangzhou has just started. The pre-cooling rate of all kinds of perishable foods is less than 20%, especially the fruit and vegetable with an annual output of nearly 50,000 tons. Due to the lack of relevant pre-cooling equipment, especially the source pre-cooling equipment, the pre-cooling rate of fruits and vegetables is lower than 10% and the food corruption is serious, which needs to be improved urgently[12].

4.3 Deficient in Cold Storage and Cold Transportation Facilities
As an international metropolis with 14 million people, Guangzhou plays the role of cold chain hub in Southeast Asia, but its cold storage infrastructure is obviously insufficient. At present, the cold storage capacity cannot keep up with the great need for refrigerated food in the market. In the distribution of refrigerated transportation, due to the difference in time and regions of various products and the characteristics of the separation of production and market, the market demand for refrigerated transportation distribution is increasing. More than 200000 refrigerated cars are in use in the United States and more than 100000 in Japan. Guangzhou has more than 1300 refrigerated vehicles of all kinds. Although the number of refrigerated vehicles has increased greatly compared with before, there is still a big gap in terms of total demand, especially in the average person. With the growth of fresh food production and sales and the prosperity of Guangzhou and regional economy, road refrigerated transportation will be more developed.

4.4 The Structure of Cold Chain Being not Perfect and the Development of Third Party Cold Chain Logistics Industry Lagging behind
Although food safety has been paid more and more attention, the cold chain structure is still very imperfect. Because of the lack of legal measures, the phenomenon of cold chain breaking is very serious, the upstream and downstream industrial chain has not been effectively integrated, and the whole cold chain service has not been formed. Especially in the pre-cooling link, fruits and vegetables are rarely pre-cooled except for some low-temperature frozen meat, ice cream, frozen food and so on. In the terminal sales link, the vast majority of sellers lack cold chain facilities. In addition, Guangzhou cold chain related enterprises obviously have the problem of development imbalance. At present, the main business of cold chain enterprises is refrigeration business. The distribution capacity of refrigerated transportation needs to be improved. From the perspective of spatial distribution, there are many cold chain enterprises in Panyu, Liwan and Baiyun. In general, the most obvious features are less circulation and distribution cold storages and more preservation cold storages. Cold chain enterprises concentrated in old urban areas will also bring great pressure on urban traffic.

4.5 Lack of Traceability for Products and Difficulty in Tracking Relevant Information
The traceability mechanism of fresh products in Guangzhou is not perfect. The present situation of fresh product base can only rely on manual recording of the planting status of agricultural products before harvest, and then input into the system, for the main use of information query and data filing. If wondering more information about the logistics and sales channel tracking of the product after harvest,
EDI, GNSS, bar code technology, as well as RFID technology can provide an access\textsuperscript{[10]}. Nevertheless, vegetable and fruit bases and cooperatives can not afford the high cost of RFID, and bar code technology is not suitable for agricultural products, so it is urgent to establish the specific information system of agricultural product with the function of information traceability.

4.6 Lack of Specification and Cold Chain Standard
Until 2009, China has set up the National Logistics Standardization Technical Committee and the Cold chain Logistics Technical Committee one after another. Before that, the formulation of cold chain standards had been at a standstill, which seriously hindered the healthy development of cold chain market. According to the investigation, the quality standards of food in China are more than 3000, and only more than 100 are related to food circulation. Therefore, the lack of standard system caused seriously insufficient protection to the cold chain \textsuperscript{[9]}. In the process of production and consumption of fresh products in Guangzhou, due to the blank of the standard system, there are many cases of irregular operation and unclear responsibility. Generally, the standardization system of each link of the cold chain is not perfect.

4.7 Lack of Awareness of Cold Chain Preservation
For a long time, the preservation technology research and industrial application of postharvest flowers and fruits and vegetables have been slow, and the consciousness of cold chain preservation is relatively weak, resulting in high decay loss. It was found that less than 20% of enterprises used cold chain preservation or partial cold chain preservation technology in the whole process, and most of them did not keep agricultural products fresh at all. As a result, fresh products have been in a state of low selling price, high loss and high quality and safety risk.

4.8 Shortage of Professionals
The high-speed development and growth in cold chain logistics industry has led to the lack of professionals. The disconnection between the development of the industry and the existing personnel training have been disconnected. Therefore, the training of professional cold chain logistics talents has become an urgent demand\textsuperscript{[12]}. 

5. Optimization Countermeasures for the Development of Guangzhou Cold Chain Logistics

5.1. Strengthening the Development Planning of Guangzhou Urban Cold Chain Logistics
The policy is the main driving force for cold chain development. The construction and development of cold chain in China has mainly experienced two climaxes. In 2010, the National Development and Reform Commission (NDRC) issued a plan for the improvement of developing cold chain logistics of agricultural products, identifying the main tasks and key projects of cold chain development, putting forward safeguard measures to support developing cold chain. In 2013, a number of policies in the Central Document NO.1 are related to the cold chain, and "Improve the standard of cold chain information management and quality assurance" are also proposed in the guidance issued by the Ministry of Industry and Information. So far, the major capital of the country has started to pay attention to the cold chain industry, bringing new hope to the development of cold chain in our country.

In order to meet the needs of the new era, the state and the government have issued a series of policies and guidance for the cold chain logistics industry. Logistics Industry Restructuring and Revitalization Plan, Opinions of the State Council on Deepening the Reform of the Circulation System to Accelerate the Development of the Circulation Industry, and the Central Document No. 1 etc. have listed cold chain logistics as the main object of development. In 2011, compiled by the Guangdong Provincial Development and Reform Commission, Guangdong Cold Chain Logistics Development Plan for Agricultural Products, which plans and guides the development of cold chain logistics industry in the next few years, is issued. The departments at all levels in Guangzhou responded quickly, increased the research on cold chain policy and planning, and made a good plan and layout for cold chain logistics. In 2016, the NDRC formulated Implementation Plan for Promoting Integrated Development of
Transport and Logistics by Creating a Good Market Environment. The scheme proposes to plan and build professional logistics facilities such as cold chain and perfect cold chain service specification, realizing the whole cold chain. In addition, the NDRC issued Guidance on Promoting the Healthy Development of Cold Chain Transport Logistics Enterprises to promote the healthy development of cold chain logistics enterprises and improve the overall service level of cold chain logistics. With the support of provincial and municipal policies, Guangzhou Industrial Logistics Development Plan and Guangzhou Modern Logistics Development layout Plan have been issued one after another, and Guangzhou cold chain logistics industry ushered in the opportunity of rapid development[13].

5.2. Strengthening the Construction of Guangzhou Urban Cold Chain Logistics Development System
(1) Strengthen the construction of cold chain logistics base and infrastructure. Cold chain enterprises need to speed up the construction of cold chain related facilities in pre-cooling, transportation, refrigeration, fresh-keeping. In addition to the transformation and utilization of the existing cold chain facilities, it is necessary to speed up the construction of a number of refrigerated and fresh-keeping warehouses to meet the needs of the rapid development, circulation and consumption of modern economy in Guangzhou. According to the development space layout of Guangzhou cold chain logistics, we should speed up the transformation and upgrading of wholesale market, build cold chain distribution center and logistics park, and constantly improve the urban distribution and supply system. Relevant departments need to encourage leading cold chain logistics enterprises to update cold chain transportation equipment and strive to pre-cool in producing areas and refrigerate loading and unloading in transportation, sorting and processing in storage to keep fresh etc. Besides, temperature control facilities in processing and circulation is urgent to be improved[2].

(2) Build up information system and cold chain logistics monitoring system. In order to realize the whole process cold chain, whole process monitoring, whole process traceability, big data analysis and other multifunctional services of all kinds of fresh products in Guangzhou, it is necessary to establish the cold chain logistics public information service platform as soon as possible to ensure the safety and quality of food. The functions of the platform should include quality inspection, traceability, real-time monitoring system, cold chain logistics supply and demand information and trading system, financing inventory management system, warehousing management system, transportation and distribution management system and credit rating, etc[14].

(3) Make an improvement in the cold chain application’s standardized system. At present, a total of 108 national standards and standards related to the cold chain logistics have been promulgated and implemented. There are 19 related to the commercial cold chain logistics. The relevant cold chain logistics standard system shall be established as soon as possible, and the hardware facilities such as the cold storage and the cold transport vehicle shall be constructed, purchased or standardized according to the standard requirements.

(4) Improve the cold chain logistics distribution system. Enterprises should build a cold chain warehouse and distribution center in accordance with their needs. With related automatic monitoring system and control equipment. Standard cold transportation tools should be generalized, environment-friendly cold chain technology should be put into use, and the production area pre-cooling, sales, consumption refrigeration, fresh-keeping transportation, processing and so on should be improved, to achieve the whole operation "continuous chain". In the fast-developing market, it is significant to develop common distribution and explore the cold chain distribution service mode of "Last 100 meters" in community[15].

(5) Improve the talent training system of cold chain logistics. The professional requirements of cold chain personnel are logistics management, logistics engineering and procurement. To meet these needs, enterprises should co-establish with the higher education institutions, carry out school-and-enterprise cooperation, establish the practice and practical training base, and train the professional cold chain logistics management personnel, so as to speed up the training speed of the cold chain personnel, improve the skill training of the cold chain logistics professional technology, and improve the quality of the relevant employees.
5.3. Developing Guangzhou Cold Chain Logistics Industry in Various Modes

(1) The cold chain logistics mode dominated by the operators of large refrigerated wholesale market. Large refrigerated wholesale market operators and fresh product sources connect to form an integrated cold chain logistics model of product production, acquisition, processing, storage, distribution and so on [16]. The market operators of this model are driven by the needs of users and profits, so as to establish a logistics service system. As the main enterprise to drive the participants to implement cold chain logistics management, to establish an operating mechanism is good for benefit sharing and risk sharing[7]. Such as Guangzhou Dongwang Food Wholesale Market, Guangzhou Jiangnan Fruit and vegetable Wholesale Market.

(2) Self-operated cold-chain logistics model led by large chain operation enterprises. Chain operation enterprises extend to the upper reaches of the cold chain, establish product production bases, build partnerships with fresh products with stable sources and bases, and build a logistics distribution center for fresh products or cooperate with third-party logistics enterprises to provide various fresh products to supermarket or stores, and form self-supporting cold chain logistics mode with self-supporting distribution[8]. This model is helpful for product quality assurance, standardization of management, effective control and reduction of inventory and loss. It has the advantages of scale and quality, which can create an effective improvement in the efficiency of logistics, so the low-temperature state and the cold transportation benefit on the cold chain chain can be realized. It is the mainstream model of the cold chain logistics that is now relatively successful. Lianhua Supermarket has the largest domestic and most advanced processing and distribution center of raw and fresh food, and has a number of chain-operated shops in Guangzhou to enjoy its cold chain logistics service.

(3) Self-owned cold chain logistics model led by the production and processing enterprise. Production and processing enterprises build or jointly establish community stores to control sales terminals and form a self-owned cold chain logistics model with the integration of production, supply and marketing. This model has less links, which helps get feedback in time, speed up logistics, and improve the added value of fresh products. However, it is easy to cause the deterioration of low temperature fresh products. Therefore, the logistics radius of the cold chain logistics mode is small. Now Guangzhou's large-scale processing enterprises begin to establish their own cold chain logistics system. Yantang’s mode of cold chain logistics is a kind of self-owned cold mode of cold chain logistics dominated by processing enterprises. At present, Yantang has already established a sound sales networking Guangdong Province and its surrounding provinces (Fujian, Jiangxi, Hainan, Hunan and Guangxi markets), with more than 1000 sales departments, distribution points, milk delivery service departments.

(4) The cold chain logistics mode dominated by the third party logistics enterprises. Through the realization of the whole process monitoring of cold chain logistics, these logistics enterprises of the third party can effectively integrate the fresh product supply chain, provide efficient and perfect cold chain scheme for the demand side of cold chain logistics, and provide professional logistics service for fresh product enterprises. Shunfeng cold chain relies on its own Shunfeng express transportation’s fast and professional logistics resources to expand cold chain service, set up refrigerators and freezers in each branch, and provide one-stop integrated cold chain logistics service business, which brings efficient and perfect support for the development of fresh market. The cold chain logistics of fresh products has high requirements on technology, equipment specificity and investment. Therefore, the cold chain logistics of fresh products is suitable for specialized logistics service mode, as well as the combination mode of self-management and socialized logistics of large enterprises. Under this condition, the third party logistics will take on more work. At present, the platform mode of "Internet + cold chain logistics" is playing a role. This mode refers to the construction of "Internet +cold chain logistics" cold chain resource trading platform based on big data, Internet of things technology, IT technology, integration of logistics finance and other value-added services[15]-[19].

6. Conclusion
Undoubtedly the construction and development of Guangzhou cold chain logistics will create great benefits to the contemporary and future generations. It is a profound project that will make a great difference on people's livelihood. The municipal government of the municipal party committee and all
walks of life in Guangzhou should attach great importance to and support it, and encourage experts, scholars and entrepreneurs to make joint efforts. At present, the key measures should be based on the strategic promotion of "Belt and Road Initiative" and the construction of Guangdong-Hong Kong-Macau Greater Bay Area, integrating intelligent logistics into cold chain logistics, confirming the strategic orientation, formulating practical measures to reduce the decay rate of fresh food, meeting the growing demand for fresh food, ensuring the safety of fresh food, and effectively promoting the high quality, high level and high speed development of cold chain logistics in Guangzhou.

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