

The Evaluation and Development of Port Consolidation and Distribution System

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Abstract

Port consolidation and distribution system is one of the most important systems in port logistics. This paper discusses the Importance and substance of port consolidation and distribution system. And then finds a competition ability evaluation Index System of it. Finally the article puts forward some suggestions for developing the port consolidation and distribution system.

Key words: port consolidation and distribution, evaluation, development

1. Importance and substance of the port consolidation and distribution system

Various traffic ways and port join mutually and come into being the consolidation and distribution system which collects and evacuates the goods through port. The port consolidation and distribution system consists of railway, highway, city road, inland river lane with relevant connecting yards and inland river ports. It provides important infrastructures and link sites for passengers and goods. It is the passageway of port and large hinterland, and the major external condition that the port depends on with the existence and develops. Any modern port should have perfect and expedite consolidation and distribution system, and then can become the land-and-water transportation vital point of real meaning in the comprehensive transportation net.

The specific characters of the port consolidation and distribution system such as the number of the consolidation and distribution lane, transportation way constitution and geography distribution, mainly depend on scale, direction,

transportation distance and goods kind structure of transportation connection among each port and hinterland. Generally, the port whose transportation connection with hinterland has bigger scale, more directions, longer transportation distance and more complex goods kinds, has more port consolidation and distribution lanes and more complex transportation way constitution and geography distribution, and vice versa. Since the actual condition of each port is very complex, its specific feature of the consolidation and distribution system is also different.

It is important that the port consolidation and distribution system provides essential infrastructures and link sites for passengers and goods completing the whole transportation, as well as convenient environment. The importance represents as two aspects: First is making the port city starting and ending point, consuming and producing by itself. The second is consolidating and distributing to hinterland by the city. The former is the city internal traffic mainly with the transportation of short distance. The latter is the city external traffic mainly with the transportation of medium-length distance. They reinforce and link each other in order to make up a perfect transportation network. If port's throughput is larger, it can still cause the port transportation load to be overweight, affecting the development of the port consolidation and distribution system and city transportation. Therefore only the port consolidation and distribution system is network and systematic, then can reduce goods transfer links and much unnecessary and tedious procedure resulting from insulation, shorten transportation time, lower goods loss, loading/unloading and transport costs in order to improve the port consolidation and distribution, as well as its pass capability.

Transfer efficiency of the port consolidation and distribution system directly affects the port transportation system's working. That's an important factor while studying the efficiency of port's throughput capacity. The consolidation and distribution system is also a platform or link connecting many kinds of transportation, the key that carries out Integration transportation organization. The port which has perfect consolidation and distribution system could make each traffic way cooperate better, so as to come into the goal of seamless link. If the consolidation and distribution system has good efficiency, on fairly big level, it could ease up vessel and goods delaying because that vessels arrive at port at any time, or owing to unbalanced goods flow. it also could relax exceptional demand of terminal warehouse capacity from goods consolidation and distribution, Further more, if the consolidation and distribution capability enhances continually, it could also remedy other systems of the port on certain level, even enlarge port hinterland

radius, thereby promote port to develop biggest potential.

2. Competition ability evaluation of the port consolidation and distribution system

The port consolidation and distribution system is a system which is complex, varied on method and form. It has changeable specific measure to different aim and demand. And its evaluation index has different standard from various angles. Table 1 is one of the examples.

Table 1 Competition Ability Evaluation Index System of Port Consolidation and Distribution System

The First Level Index	The Second Level Index	The Third Level Index	
Consolidation and distribution infrastructure scale	Consolidation and distribution infrastructure construction input capital		
	Consolidation and distribution line course		
	Consolidation and distribution line density		
	Consolidation and distribution line grade		
	The number of consolidation and distribution lines directly connecting with port		
Consolidation and distribution market and enterprise	The grade of consolidation and distribution line directly connecting with port		
	The number of consolidation and distribution enterprises		
	The collecting level of consolidation and distribution market		
	Consolidation and distribution enterprise's scale	The number of employees	
		The number of vehicles	
Consolidation and distribution enterprise's service quality	The tonnage of vehicles		
	Service speed		
Consolidation and distribution freight and incidental expenses level	The rate of the goods loss or error		
	Service attitude		
	Freight level		
	Consolidation and distribution fix expenses level	Roads maintaining expense level	
		Goods extra charge level	
Transportation management expense level			
Other incidental expenses level			
Consolidation and distribution unification level	Pike level		
	Consolidation and distribution proportion of various traffic way		
	The coordination of water-road combined transport		
	The coordination of water-rail combined transport		
	The coordination of water-water combined transport		
Consolidation and distribution external condition	The link level of city internal traffic		
	The link level of city external traffic		
	The integrality of the consolidation and distribution system layout		
	The coordination of the consolidation and distribution system layout		
	Consolidation and distribution information level		
Consolidation and distribution region policy			
Consolidation and distribution law condition			

3. Measure and suggestion of developing the port consolidation and distribution system

3.1. Construction of port consolidation and distribution

3.1.1. Attach importance to the port consolidation and distribution, enhance consolidation and distribution passage construction

The governments at all level should unify thought, fully understand that the consolidation and distribution system can accelerate or restrict developing of shipping and port, attach importance to consolidation and distribution system. As grasping infrastructure construction of the port, the governments must pay attention to the consolidation and distribution problem, link city internal and external traffic to consolidation and distribution system in reason, perfect passage, connect port, build and repair railway lateral, finally come into being comprehensive consolidation and distribution ability.

3.1.2. Encourage the port railway leased line construction, and promote vigorously rail-maritime combined transport

Transporting container inland in long distance, railway transportation usually has many advantages such as high speed, high-level efficiency, low cost, etc. It is a kind of optimize way extending transport containers from main lines along the coast to hinterland. Now a lot of ports seriously pay attention to develop rail-maritime combined transport. In order to meet the demand of developing port consolidation and distribution, the governments should not only accelerate road consolidation and distribution construction, but also develop rail container transport and rail-maritime combined transport, extend port economy hinterland to inland.

3.1.3. Raise the grade of inland river lane and strengthen inland river consolidation and distribution ability

Only after improving the grade of inland river lane, it could enhance the restriction of the inland shipping tonnage, and then on technology solve improving the standard of an exaltation inland river shipping tonnage admittance, reduce the quantity of boats, heighten pass capability of the inland river section, perfect

transport order and secure shipping in inland river, thereby strengthen inland river consolidation and distribution ability.

3.1.4. Construct information platform of consolidation and distribution system

Since precinct and operation main part is different, the port consolidation and distribution system consists of various operation main parts. And its operation links by section. Only each consolidation and distribution passage link efficiently on information, the whole system could be assured of working in high-level efficiency. This kind of information building also could provide standardization link of logistic information for port information system and common information platform. It will link port information such as operation the place of shipping files with logistic information, thereby build port logistic chain. It not only is useful to raise port consolidation and distribution efficiency and pass capability, but also will absorb shipping companies and transportation enterprises to develop hinterland with ports. Information construction of the consolidation and distribution should firstly optimize operating organization form and business process, and then by the aid of information technology make each consolidation and distribution passage cooperate well.

3.2. Layout of port consolidation and distribution

The port consolidation and distribution system competition ability is in the result that essential factors interact on each other. Only each subsystem cooperate well, advantage of consolidation and distribution system can be bring into play. Otherwise the whole competition ability would be reduced in the end. Government should stand the altitude in whole province shipping and port development, overall coordinate and manage the port consolidation and distribution system, build efficient management organization, so as to enhance competition ability, raise comprehensive pass capability. Concrete measures and suggestion conclude:

3.2.1. Plan the port consolidation and distribution system construction as a whole

In order to guarantee the port consolidation and distribution system to meet the

need of goods pass capacity, firstly construction of each port and city transportation infrastructure should be programmed in reason, improve scientific management level, encourage various traffic way to develop harmonically, bring comprehensive transportation system into play, relax pressure of water and road traffic. Further more this kind of program should cooperate with vicinities' transportation infrastructure. It is necessary to enhance cooperation with large infrastructure in the vicinities, pay attention to build transport network which includes rail, road, water and aviation. In a word, building the port consolidation and distribution, government should break through administration limits between cities, program and construct infrastructure of various traffic ways as a whole, build regional integrated traffic network. This will produce significant and profound influence for economic development.

3.2.2. Unify and coordinate with the program construction of the port consolidation and distribution system and city

Since the space and soil resource of port city is usually very limited, the problems of city transportation and port consolidation and distribution exist at the same time. Enhancing unification and coordination with the program construction of the port consolidation and distribution system and city, it is essential to consider the reasonable layout of the port consolidation and distribution and city transport establishment from the angle of comprehensive transportation system. Government should program city roadway in reason, further realize layers and functions of city roadway, make roadway management combine with road net construction, set special passage to vehicles through territory as soon as possible, strengthen link and cooperation between city and external transportation system ; according to functions of city roadway and traffic program, it should carry through division of labor in reason, efficiently scatter passengers and goods traffic flow, so as not to make traffic jam because too many passengers and vehicles flow into city traffic main road; raise science level to divide the work of city roadway, avoid the behavior of short period, perfect weak point of port internal roadway and external passage, make the service level of main road and pass capability improve in different level.

3.3. Port consolidation and distribution market

3.3.1. Formulate market policy of fair competition

Government should enhance the monitor and management of overweight vehicles in the port consolidation and distribution, rectify road transport market order, prevent overweight driving and seriously punish overweight behavior. The overweight vehicles which has found out should be checked in, warned and proclaimed. The roadway administration in all levels must seriously check the operation certification and driver qualification. For same vehicle, announcement exceeds two times, or for Same transportation enterprises, overloaded operational lorry exceed this enterprise operational lorry total 5%,then reduce the qualification grade of this enterprise, and cancel the commercial transportation qualification of illegal driver. At the same time, government should set down the mandatory standard of the lorry, die out some low-level efficient vehicle, encourage to produce and use heavy multi-axle lorry and van, in order to improve level of the port consolidation and distribution, reduce logistic cost, accelerate consolidation and distribution efficiency. In addition, management of outside vehicle should be strengthened, long-time management policy should be set down, so as to make the port consolidation and distribution work orderly and efficiently, guarantee fair competition of transport market.

3.3.2. Strengthen control of port consolidation and distribution

Properly enhance control of container transport, especially control of getting in and out the container of port area. It concludes two aspects :one is important port management department should set a office at the port. The office cooperate with port and custom, deliver certifications such as IC and RF to the container trucks, control quantify of trucks getting in and out the port area, improve technology standard of the trucks, restrict worse competition behavior of enterprises. Another one is direct association to set down service pact which must be complied by all enterprises in port, put forward requirement such as transportation behavior, safety demand and service item.

3.4. Port consolidation and distribution enterprise

3.4.1. Reduce consolidation and distribution freight, support consolidation and distribution enterprises to develop

Government should give consolidation and distribution enterprise preferential financing policy, and adopt certain measure to support consolidation and distribution enterprise, so as to ease pressure of fixed express from consolidation and distribution enterprise and consignor, raising management level operation efficiency, further push consolidation and distribution enterprise to manager intensively. For example, properly reduce fixed express such as pass express and road maintaining express, guarantee that the in average general cost of container trucks drops again.

3.4.2. Encourage to establish port consolidation and distribution enterprises group

Government should do well policy research, institute some preferential policy to support to develop port consolidation and distribution enterprises group or build transportation industry alliance, in order to perfect structure of transportation enterprises, improve market convergence level, accelerate to adjust structure of transportation economy.

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References

1. Zhou Junshan, Modern Port Economics, China Communications Press, 1997.
2. Zhen Hong, Port Management, China Communications Press, 2003.
3. Wu yinggao, Integration of Port Consolidation and Distribution Access and Digital Logistics. China Ports, 2004-08.
4. Shi Liangqing, Feng Xiangming, Zhang Yaming, Analysis of the Consolidation and distribution system of Main Container Port in our country. Containerization, 2005-5