

## Improvement of the port capacity in processing the out of date container

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**Abstract:** In previous years, some firms pursued opportunities to exchange through personal contacts at other companies or by using brokers. However, these informal or small-scale approaches have not proven effective and have not yielded significant benefits. Consider that, in 2011, the possession of more than 30 million containers in use globally was dispersed among more than 100 shipping lines and 20 leasing companies. To help players in the industry collaborate more effectively on a large scale, consulting firm Boston Consulting Group has developed a global exchange market for empty containers: an exchange called xChange. This commitment, as well as BCG's work with the world's top 20 shipping lines, provided valuable information about global container imbalances and opportunities for container shipping to use the "platform" to overcome the industry's problem of relocating containers. The costs of repositioning empty containers in situations like these are not small at all. Indeed, they amount to \$15 billion to \$ 20 billion annually in the industry. (Affected companies include container carriers, leasing companies, and other logistics companies.) For a common carrier (or carrier / carrier - carrier), re-positioning accounted for 5% -8% of total operating costs. By deploying an efficient market for empty container exchanges, carriers can avoid about a third of the relocation costs arising from their operational limitations. Such a market will allow carriers to lease containers for one or more booking requests, temporarily exchange containers between two or more parties at multiple locations, or sublease containers. How much will it save money, and how can such an exchange be successfully implemented?

**Keywords:** Port, container, backlog, logistics, shipping

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### I. INTRODUCTION

Since its inception in September 2014, the number of potential opportunities for container exchange exceeds 35,000 per week. The average savings of \$ 200 to \$ 400 per container are exchanged, mainly from avoiding the costs associated with road transport and the use of yards. This corresponds to an annual potential savings of about \$ 350 million to \$ 700 million. This expansion to the world's top 100 shipping lines will boost annual savings of up to \$ 4.5 billion. If all operators and suppliers of other equipment, such as rental companies and logistics companies are included, this would increase potential savings of up to \$ 5 billion - \$ 7 billion per year. To fully realize this potential, market participants will need to use some success factors to enhance their cooperation and the use of advanced repositioning strategies. Finding innovative ways to solve the relocation puzzle is part of a larger effort to reduce or avoid container shipping costs, which is crucial for overcoming the crisis of profitability for the industry's ongoing profit margins. For large carriers, which own the ship, the handling costs they pay for terminals, warehouses, and multimodal operators typically represent 60 to 75 percent of the total re-cost. locate. The rest of the relocation costs associated with multimodal transport are provided by rail, road, and barge operators. Because these carriers own their own vessels, they do not have to pay for space on board for empty containers. For container owners and operators who do not build their own vessels, such as rental companies and other logistics companies, repositioning is an even more headache. These companies have to pay for space on board, so their relocation costs affect the profit even more. The carrier must move the empty container because the flow of equipment is often unbalanced in the opposite direction. About two-thirds of empty container transport activities arise from structural imbalances. In some countries, like China, exports are more than imports. As a result, carriers inevitably have to transport empty containers to these countries. As mentioned, the remaining one third of the costs of relocating empty containers stem from the imbalance of each carrier-specific imbalances. A carrier that customers are scattered between ports and inland areas of a given country or a firm with a list of import and export companies in an imbalanced country will likely have to move a lot. The container is empty. The sales team also contributed to this imbalance by focusing on increasing the volume of strong routes, rather than optimizing the overall container flow on the routes [1]. For example, China announced to stop importing 24 recyclable scrap items from January 1, 2018. Accordingly, a large amount of these items from developed countries will not be imported into China but will find its way into other Asian countries, including Vietnam. These containers are mainly electric cables, old machinery, fertilizer, agricultural products, garment materials, aluminum raw materials, plastic scrap ... Not stopping there, coming here, a large amount of plastic and paper scrap cargo will continue to be poured into Vietnamese ports due to shipping lines, customers signed contracts or goods loaded onto ships en route. Therefore, there is a risk that there will be

severe consequences of environmental pollution, the expense from the budget for destruction and congestion at Vietnamese seaports when goods cannot be released [2]. According to the latest report of the customs office, as of July 26, 2019, the number of containers declared on the e-manifest as scrap currently stored at the seaport is 11,488 containers.

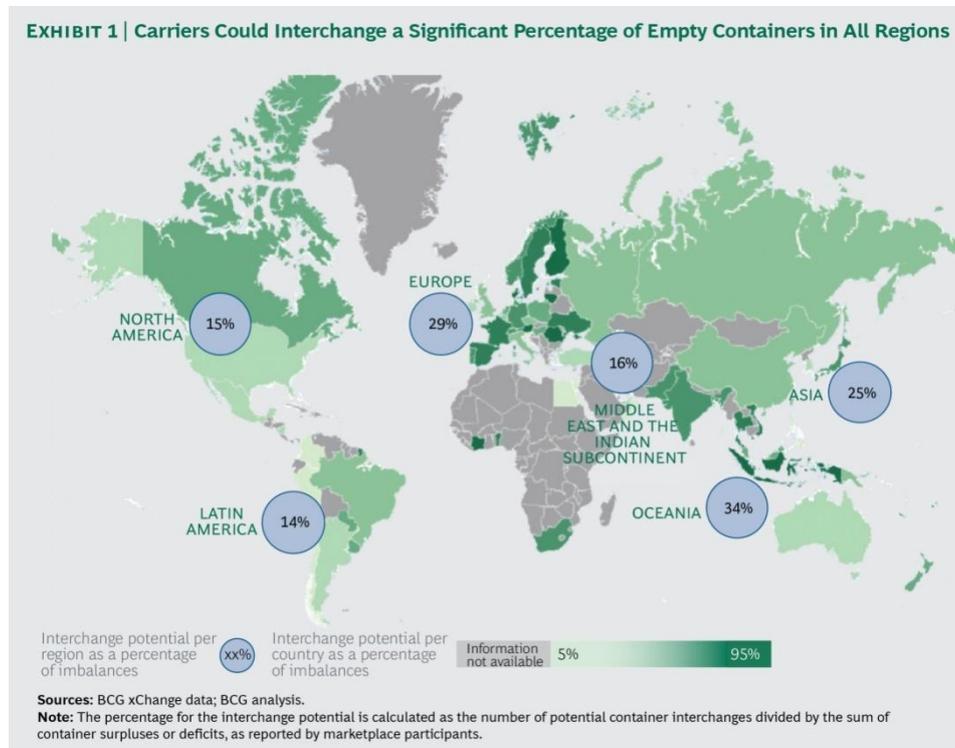


Figure.1. Empty container in all ports

In particular, there are 4,204 containers kept at the port for less than 30 days, 37 containers kept for 30 days to 90 days and more than 7,240 containers leftover for 90 days. Compared to the end of 2018, the total number of containers backlog at Vietnam's seaports has decreased by nearly 9,500 containers. In July 2019 alone, the number of unsold containers decreased by more than 2,200 containers compared to the previous month. The number of containers in stock has been so high due to many reasons, in which the trade policies of the world economic powers have changed with complicated and unpredictable developments. This is a very important reason. In addition, there are still many shortcomings in the management of imported scrap such as: There is no regulation of inter-sectoral coordination in handling cases related to importing scrap as raw production materials; There are no legal regulations to bind responsibilities and sanctions against shipowners in transporting imported scrap; There is no specific technical standard for waste and scrap which makes it difficult for the customs office to compare, compare and determine whether the goods are scraps or waste; looking for loopholes in the current law to bring discarded materials that do not meet the standards into Vietnam. It is these reasons that created the backlog of containers in the port. This will cause a lot of consequences and will affect the import and export industry of Vietnam very much if not solved thoroughly. The movement of goods is also a cause for the existence of containers to become serious. This backlog leads to slow movement of goods in Vietnam ports which leads to port enterprises having to repeatedly move containers at the port yard or have a need for transportation between ports, other ICD to contain. That will increase costs for ports, customers, shipping lines and reduce productivity and port operation efficiency; affecting the import and export activities of other Vietnamese businesses.

## II. THE CONSEQUENCES

BCG provides technical support to xChange by serving as a neutral, global clearing house that provides information on container needs and availability and potential for exchange needs. exchange empty containers at specific locations. BCG also provides market technology infrastructure, facilitates information exchange and automates processes and will soon support tracking, billing and accounting equipment. After completing the testing phase, BCG officially launched xChange in November 2015. To date, 11 carriers, representing one fifth

of the global container ship capacity, have entered the market. BCG has collected weekly reports from market participants on the imbalance of three main types of containers (dry 20FT container, dry 400FT container and 40HC container) at more than 2,500 locations worldwide. Analysis of this data shows potential exchange transactions involving each carrier and in each inland area or port. A weekly report presenting this analysis is sent to all participants and provides a basis for market participants to contact each other to discuss exchange transactions. Data collected over the past year indicate that there are significant opportunities for container exchanges in all regions and for all carriers regardless of size. From a regional perspective, the exchange potential for the market ranges from 15% of supply and demand imbalances in North America to 34% of imbalances as in Oceania (see Table 1). From the perspective of 11 firms participating in the market, the potential for global exchange as a percentage of the imbalance ranges from 25% - 52%, with an average of 3%. (Regional exchange potential does not include shipping opportunities between shipping lines due to container redundancy and therefore less in all cases than the global average for 11 carriers.) There are many other causes leading to this situation such as many businesses are ineffective, unprofitable, tax debts, fleeing the business registration address resulting in abandonment of goods after being imported. port; a number of individuals and units importing goods are not eligible to import into Vietnam when knowing that they cannot carry out import procedures, they will give up goods. Some cases of importing rubbish, scrap, and waste from foreign countries then abandoning goods; overseas enterprises send the wrong goods to Vietnam and refuse to re-import the goods to the host countries. In addition, it is also caused by the fact that many export goods shipments to foreign countries are returned due to not meeting the quality standards of the importing country, domestic enterprises abandoning goods. Undeniable, the positive side of the collection and recycling of scrap is contributing to cleaning the environment, making use of waste products, saving resources; at the same time create jobs for workers. However, with the profit motive of some businesses and fragmented practices of the people and the lack of a master plan, the import of scrap is becoming a risk. The most obvious is the backlog of imported scrap containers at seaports, affecting the production and business activities of the ports, slowing down the circulation of goods, reducing the capacity of container yards, affecting customs operations as well as shipping lines' operations, increasing costs for businesses. In the long term, the import of non-regulated waste has the potential to cause epidemics, seriously affect the environment, even with imported toxic wastes affecting human health. In the long term, the import of non-regulated waste has the potential to cause epidemics, seriously affect the environment, even with imported toxic wastes affecting human health. The system of seaports nationwide is storing nearly 11,000 scrap containers. In case the container stays at the port for less than 90 days, enterprises are still carrying out customs procedures for customs clearance according to regulations. However, there are still 3,085 containers out of date but no one has arrived yet. This greatly affects production and business activities, receiving goods from port enterprises. The system of seaports nationwide is storing nearly 11,000 scrap containers. In case the container stays at the port for less than 90 days, enterprises are still carrying out customs procedures for customs clearance according to regulations. However, there are still 3,085 containers out of date but no one has arrived yet. This greatly affects production and business activities, receiving goods from port enterprises.



Figure 2. Residual scrap container in Vietnam

In transport activities, all shipping lines are required to hire containers to pay daily and annual depreciation of containers. A container worth USD 10,000 has a life of 10 years, depreciation is set at 10% / year, within the first 5 years, which means that each year the carrier has to pay USD 1,000 for leasing containers. The longer the container stays, the more costs will be incurred. Because of the high cost of container storage and the depreciation of the container, the shippers often leave the port without receiving the goods due to the high cost. In addition to losing container rents, the single-seat container also makes shipping lines lose business opportunities and the ability to turn around. The instability of policies on imported scrap goods as well as serious container backlog in one locality has led to the fact that many shipping lines have refused to transport some scrap goods to Vietnam. Currently, port enterprises still have to pay billions of dong/month for ownerless container storage charges for Nam Hai ICD. If the owner continues to not contact, the risk of losing all the costs spent is inevitable. Not to mention, due to a large number of backlog containers, warehouses in the area began to refuse to receive more goods. Port enterprises have to fall into the burden of extremely large debts and loss of operating area in the port to accommodate derelict containers. Some shipping lines are also sitting idle, while the cost of renting containers is still payable, while the cargo is unclaimed. The backlog of containers is occupying a large area in the ports, making it difficult for ports to receive containers from ships. In addition, this also consumes a huge source of cost for port businesses. Some businesses, due to insufficient space to receive containers, have been forced to rent outside ICD yards for temporary containers. This costs a lot of money and most of these containers are either derelict or abandoned by shippers, leaving the money for container storage as well as other additional costs. Currently, at Cat Lai Port, there are about 9,000 TEUS of paper and plastic scrap, accounting for nearly 20% of the capacity of Cat Lai port, greatly affecting the cargo handling activities of the port. According to Saigon Newport Corporation, although imported scrap to Sai Gon New Port has been strictly controlled after offering many temporary solutions to overcome the situation of bringing scrap overflow to the port as previous moment. Currently, only scrap paper is left at the port, so the quantity is reduced by about one third compared to here. It is worth mentioning, the number of containers stored over 90 days in Cat Lai accounted for more than 2,000 containers. It is estimated that about 20% of the above containers are paper scrap and the remaining 80% are plastic and other scraps. The backlog of scrap containers imported at seaports is affecting production - business of the ports, increasing costs for businesses. Most of the containers remaining at ports are those that carry foreign waste or industrial waste to Vietnam for reprocessing for consumption purposes or for export to China. However, from January 1, 2018, China issued a decision to ban the import of 24 types of scrap, the import and sale of scrap in Vietnam tend to increase sharply, with many complicated and dangerous developments. Environmental pollution. The existence of goods for many years, especially frozen goods, has caused environmental pollution, affecting the lives of people living near the seaport. Neither the state nor the port business can collect taxes and fees from all of the aforementioned goods, but still have to look after and preserve them daily. In addition, the indifference of the owner is also a cause of this phenomenon. When the containers arrive at the port, in order to pull the container out of the port, it is necessary to transfer the declaration form to the customs forces for consideration. But most of the scrap containers when the declaration is divided into yellow or red channels, these businesses are indifferent and also do not have to file the documents to carry out the procedures before pulling the container out of the port. This also makes the container fall into a state of no owner. Some of the items in a container are long-term food items that will pollute and smell, but this problem is still not resolved when ports are still subject to storage charges as well as the occupied portion of the owner. Many batches of imported scrap do not meet the conditions of environmental protection in importing scrap as raw production materials, so enterprises do not come to go through customs procedures or be handled by customs offices. clearance procedures, leading to a large amount of imported scrap in stock in Vietnam's ports. Experts said that there should be sanctions to sanction businesses importing scrap and fleeing to the port of loading. At the same time, there is a plan to release the amount of scrap in stock at ports to ensure warehousing for goods import and export activities. In order to avoid turning Vietnamese seaports into a large industrial landfill, for scrap goods already in stock at the ports, customs offices shall review, classify and handle them according to law provisions. Where goods are imported for more than 90 days from the date of arrival at the border gate but no one has come to receive them, the handling thereof shall comply with the provisions of Vietnamese law. Specifically, for goods causing environmental pollution, the owner of the means of transport, the driver of the transport or the person authorized by the means of transport must transport such goods out of the territory of Vietnam. Otherwise, destruction will be performed according to regulations. The backlog of such containers has greatly affected the economy as well as social security. Therefore, it is very important to issue solutions to settle congested containers at seaports. The introduction of light and heavy measures to resolve the situation is also a problem so that such measures are harmonious and do not affect too much to Vietnamese enterprises as well as enterprises with foreign investment. Outside Vietnam is an extremely urgent issue.

In recent years, besides recycling waste, utilizing domestic scrap as raw materials for production, to

meet the raw material needs of some manufacturing industries. However, many businesses have taken advantage of this to circumvent the law, bringing waste containers to Vietnam. To restrict this, the Government of Vietnam has also issued decrees allowing scrap imports under specific conditions. In addition, the General Department of Vietnam Customs has applied measures to remotely prevent shipments of imported scrap that do not meet the provisions of Vietnamese law, resolutely force the re-export of goods taking advantage of imports discarded materials to bring wastes into Vietnam, strictly handle them according to the provisions of law, develop an inter-industry coordination regulation on management of scrap import at border gates. Besides, the General Department of Vietnam Customs has conducted inspections at branches affected by this issue such as Ho Chi Minh City Customs Department, HaiPhong Customs Department, etc. on the implementation situation. the management of imported scrap; declaration, analysis of manifest, implementation of entry procedures for vehicles ... check the implementation of customs procedures directly at the customs sub-department carrying out the import procedures for consignments such as scrap: Monitoring, checking, taking samples, taking pictures, sealing up, making a sampling record, a record of actual results ...Scrap imported from abroad into Vietnam must meet environmental technical regulations and on the list of scrap permitted for import. In addition, organizations and individuals importing scrap must meet the requirements and conditions on environmental protection in importing scrap as raw production materials.



Figure. 2. Trash and backlog container in ports

However, through a number of investigating and handling cases, the Customs authorities discovered a number of enterprises having import licenses but not producing or even not having production workshops and machines. Besides, the licensing for each shipment is eligible for import but the actual shipment does not meet the standard. Up to now, the customs authorities have prosecuted more than 10 cases involving smuggled scrap. This is a tough and deterrent measure for businesses that are intending to import scrap materials into Vietnam. There is still a situation in which enterprises import scrap goods but do not immediately withdraw from the port but take advantage of the port as a warehouse and wait to sell new goods to continue collecting scrap at the port for production. In addition, many scrap containers arriving at Vietnamese seaports were discovered as scrap, not on the list of goods allowed to be imported, so owners refused to pull goods out of ports. These are the reasons why thousands of containers are still standing in ports. In the coming time, the port authorities and customs authorities need to have the data connection to track the import of scrap of businesses, take measures to promptly handle these companies and goods at the port cause sea congestion. And in order to make this possible, teams for dealing with backlogs were set up. The main objective of this working group is to strictly control the shipment of scrap as raw production materials brought back to Vietnam, to inventory and classify outstanding goods, to urge shipping lines to report information on the owners of the scrap cargo lots exist at the port to take timely measures. Recently, in order to effectively manage imported waste, the General Department of Vietnam Customs has asked the provincial and municipal Customs Departments to strictly control if it is suspected that the agency's waste is suspected. The Customs conduct the search and enforce the coercion with the shipping companies and force re-export. At the same time, continue to strictly manage discarded goods and used goods with characteristics of scrap left in the customs operation area, strictly handle violations; strictly control these goods before importing them into Vietnam. The most important point in dealing with imported scrap is how to remove waste and trash from Vietnam. It is very common for developing countries to import scrap materials to

recycle finished products. However, many businesses in Vietnam are taking advantage of this problem to import scraps and illegal waste into Vietnam. In addition, many businesses also take advantage of warehouses at the port to store goods, causing seaport enterprises to lose an area as well as a lot of economic losses. Therefore, the disposal of scrap containers and derelict containers at the port is an urgent task to ensure social welfare as well as environmental protection of the area. The introduction of solutions to solve this problem is still temporary, requiring more drastic measures from relevant departments such as Customs, and the Government of Vietnam also needs to enact stricter policies. For the import of scrap, to avoid businesses bypassing the law, causing difficulties in the handling and handling of scrap containers for the Customs as well as causing damage to the seaport enterprises

The responsibility for re-exporting this scrap shipment out of Vietnam is the shipping line itself. However, the most difficult thing is that the sanctions do not have specific provisions on how the shipping company will not re-export waste materials causing environmental pollution. In fact, the number of containers that shipping lines re-export waste and scrap is very small because the shipping line must find a place to transport waste. According to regulations, they must return to the country from which this scrap and waste were exported. In order to free up congested containers, many ports and warehouses have decided to reduce storage costs in order to encourage businesses with containers to be stored at a high cost to pick up containers. According to Saigon Newport Corporation, in the past time, imported scrap containers have existed in the port system of Saigon Newport Corporation in general and Cat Lai Port in particular, which is very high, causing local congestion and seriously affect the production and business activities of the port. The amount of scrap container left in Cat Lai port as of March 20, 2019, is 3,800 TEUS and the other port facilities are 6,000 TEUS. In order to assist customers to quickly release goods from ports, put raw materials into production, and return the airy ground to the ports, Saigon Newport Corporation has reduced 80% of the warehousing fees for The imported scrap container is located at Cat Lai port before December 31, 2018, which customers take out of the port during the period from now until the end of April 30, 2019. Regarding the liberation of backlog scrap, regaining space for seaports, over the past time, the Vietnam Maritime Administration has also continuously sent documents to seaport enterprises, shipping lines and shipping agents formulating and proposing plans on exemption, reduction of warehousing, storage and container storage fees for import goods owners, creating conditions for enterprises to receive goods at the port as soon as possible. The Maritime Administration proposed that shipping lines must coordinate with port business enterprises and relevant agencies to conduct statistics and classify existing container cargoes at seaports. Shipping lines and owners of shipping lines must be responsible for shipments of organizations and individuals that do not have a certificate of eligibility for scrap import. At the same time, port business enterprises must be determined not to let goods unloaded into Vietnamese seaports when ship owners and cargo owners produce certificates of eligibility for environmental protection, import quotas and not yet actually carried out, deposit imported scrap as a guarantee.

### III. CONCLUSION

The system of seaports nationwide is storing nearly 24,200 containers of scrap. In case the container stays at the port for less than 90 days, enterprises are still carrying out customs procedures for customs clearance according to regulations. However, there are still 3,085 containers out of date but no one has arrived yet. This greatly affects production and business activities, receiving goods of seaport enterprises. This port has approximately 2,000 containers in stock for several years. This container not only stops the cargo handling activities but also causes the port enterprises to incur large costs when they have to transfer a part of the remaining container to the next Nam Hai ICD to maintain trade activities in the port area. If shippers continue to "abruptly abduct", the risk of losing all the expenses spent is inevitable. Not to mention, before the large amount of backlog containers, warehouses in the area began to refuse to receive more goods. Port enterprises have to fall into the burden of "oh my God", just lost the area of exploitation in the port to accommodate the containers "no appointment to return". Some shipping lines are also sitting idle, while the cost of renting containers is still payable, while the cargo is unclaimed. In transport activities, all shipping lines are required to hire containers to pay daily and annual depreciation of containers. A container worth USD 10,000 has a life of 10 years, depreciation is set at 10%/year, within the first 5 years, which means that each year the carrier has to pay USD 1,000 for leasing containers. The longer the container is located, the more costs will be incurred.

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