



## Development of vehicle transshipment in Sri Lanka: Case study of Hambantota Port

*Pothupitiyage Dona Kalani Dilka (dilkapdk@gmail.com)*

*University of Sri Jayewardenepura*

*Sampath Amaratunge(amarathunge@sjp.ac.lk)*

*Professor in Business Economics*

*University of Sri Jayewardenepura*

*M. P. K. Withanawasam (madurangaw@sjp.ac.lk)*

*Lecturer*

*University of Sri Jayewardenepura*

### Abstract

Due to the characteristics unique to vehicle transshipment, the Colombo Port is unable to handle much vehicle transshipment, since it gives priority to container transshipment. As an effective measure to ease the long berthing delays experienced by car carriers at the Port of Colombo, Sri Lanka Port Authority has decided to route all such vessels to the Hambantota Port, which is officially known as MRMRP and is now "vigorously campaigning" to make the MRMRP a "preferred transshipment hub port for vehicles". A transshipment hub port is determined by not just one factor but a collection of factors. This study investigates the reliability of twelve such factors including location, cost, infrastructure, other services provided by port, port safety, man power, industrial zone, port connectivity, hinterland accessibility, port efficiency, government policies and international relationships to create a vehicle transshipment hub at Hambantota. Whether a port is used as a hub port or not is solely decided by shipping lines. Thus, this study includes a survey with a sample of shipping





companies who are engaged in vehicle transshipment in Sri Lanka. Since vehicle transshipment activities are only being carried out at the Hambantota port, this study has been developed as a case study of the Hambantota port. SWOT Analysis tool has been used to strategically analyze each factor. The most influencing factor to create a hub port in Hambantota has been identified through the weights given by shipping companies. According to these shipping companies' point of view, the great possibility of converting Hambantota port to a vehicle transshipment hub has been recognized and recommendations have been presented for policy makers' consideration to take immediate action for the health of this particular industry. The location of the Hambantota Port plays a vital role and in most of the cases, the management is the prevalent weakness of the port. Opportunities in each aspect have not been correctly utilized by the port authorities yet. This study strongly recommends to the responsible parties to make provisions in order to convert weaknesses into strengths and to capitalize on opportunities.

**Keywords:** Transshipment, MRMRP, SWOT analysis

**JEL Classification:** M1, M2 and M5

## 1. Introduction

Aligning to the government policies to transform Sri Lanka into a strategically important economic center of the world, the government of Sri Lanka has laid out a development policy framework for short, medium and long-term macroeconomic policies to address challenges and to make structural transformation of the economy for sustainable development (vision 2020). The government is taking pragmatic policy decisions to create the necessary economic conditions to strategically position Sri Lanka as a Maritime, Aviation, Commercial, Energy and Knowledge hub.

The logistics industry is expanding rapidly in response to the increasing demand of world trade. The robust trade, economic growth, and liberalization policies followed by many Asian countries have resulted in increased trade volumes, thus ensuing increase in transportation, handling, and warehousing needs. This has led to a demand for integrated logistics solutions in the region and around the world (Vision 2020). Ports and airports will be the key nodes





linking the global supply chain and the logistics services. Therefore, in Sri Lanka, ports and airports will play a significant role in connecting the region to support the transshipment and value addition activities to connect South Asia to the rest of the world. The geographic location gives a comparative advantage to the country to be the gateway to Indian subcontinent and to serve South and East Asia, the Middle East and Africa in the main East-West shipping route.

With this background a new business industry has attracted the country; vehicle transshipment, which is the main income source at the Hambantota Port at present. Automobile industry, which had been dominated by the U.S.A, Europe and Japan for the last century, has shifted towards China and India since booming middle-income earners seeking for reasonably priced vehicles. At the same time the demand for used vehicles (second-hand market) is increasing from the African region. Meantime the largest typical transshipment hubs in the which region, such as Singapore and Bangkok have reached its maximum capacity, resulting high congestion. As India does not have hub ports, China and India are looking for vehicle transshipment hub ports in the East-West shipping route in order to facilitate distribution logistics. Japan and South Korea still play a vital role in the production and distribution of automobiles. Considering all those facts Sri Lanka Port Authority says that the Hambantota Port can be considered as one of the leading hub ports in the region, which can be the reality due to the interest and the potential shown by various principles.

As the transshipment has become a feature of the logistics of intercontinental liner services and has created a new and rapidly growing maritime industry with economic spinoffs including job creation, many port authorities have invested large sums of investments fruitlessly in infrastructure and marketing in order to attract transshipments (NDoT SA Maritime Transport Sector Study / Part 3, 2011). That study argues that, their lack of success is attributable to insufficient insight of the complexity of the logistics of liner of operation and the determinants of transshipment. Many scholars have identified several factors that determine a hub.

This study basically addresses the above mentioned issue, examine that the Sri Lanka's aim to transfer the country into a vehicle transshipment hub in the region can become a reality.

***“Can Sri Lanka be developed as a vehicle transshipment hub in the region?”***





### Objectives of the study

The primary objective of this study is to identify Strengths, Weaknesses, Opportunities and Threats (SWOT) of the vehicle transshipment business in Sri Lankan context by identifying the strategic position in order to examine whether Sri Lanka has the capacity to be a vehicle transshipment hub in the region in the field of location, infrastructure, costs, man power, services provided, industrial zone, connectivity, safety, efficiency, hinterland accessibility, international relationships and Government policies. Positive and negative aspects of each and every variable were identified and concluded a highly affecting factor which influence Sri Lanka to be a vehicle transshipment hub in the region. Those variables were tested through a survey with a sample of shipping companies which are currently using the Hambantota Port for vehicle transshipment. Survey was conducted through interview questionnaires. With the aid of findings of the survey, a SWOT analysis was carried out in order to identify internal strengths and weaknesses and external opportunities and Threats of the business of vehicle transshipment at Hambantota port. Shipping agents were contacted through CASA (Ceylon Association of Shipping Agents) with the help of Sri Lanka Port Authority.

## 2. Literature review

### 2.1 Factors affecting the creation of transshipment hub ports

In a growing number of ports, container shipping lines send their deep sea vessels to intermediate locations between origins and destinations where containers are transshipped between vessels. Thus, container cargo is transshipped by combining/linking two or more liner services (Notteboom, Parola, Satta, 2014). They says that these intermediate nodes are added to a network when considered appropriate by the network operators in view of overall performance of the network. Shipping lines, in fact, aim at increasing the average utilization rate of vessels (i.e. to minimize empty slots onboard), in order to achieve economies of scale and go to break-even. According to their study, three forms of sea-sea transshipment exist, and they are : hub-and-spoke (hub/feeder), interlining and relay. In all three cases, a deep sea vessel discharges containers in the transshipment terminal which are later on (typically within 1 to 3 days) picked up by a smaller container ship (feeder) or another large deep sea vessel (relay and interlining). Drewry (2010, cited in Notteboom,





Parola, Satta, 2014) estimates that 85% of the global transshipment market is connected to hub-and spoke operations and 15% to relay/interlining.

The above study has revealed that originally, transshipment operations were introduced by shipping lines by adopting the hub-and-spoke scheme, which serves small ports that hold an insufficient nautical accessibility (e.g., river and/or terminal depth, canal and tidal constraints, etc.), and/or endowment of infra- (e.g., quay length, yard space, etc.) and supra-structures (number and type of cranes, warehouses, rail marshalling yards, etc.). Later on, given the increasing feeder costs, shipping lines progressively introduced other forms of transshipment, i.e. relay and interlining, which allow to “multiply” the destinations (ports) served without necessitating the deployment of additional (small) vessels. The study further discloses that the early transshipment ports started developing in the Far-East since the 1970s/1980s for connecting those countries and regions which are not directly served by main-haul shipping services. Singapore, Kaohsiung (Taiwan), Busan (South Korea) and, to a lesser extent, Hong Kong (China SAR) were the pioneering ports extensively used by major ocean carriers to transship containers. Later on, almost all pure transshipment terminals/ports (i.e. with a transshipment incidence of 75% or more) emerged primarily since the mid-1990s within many global port systems: Freeport (Bahamas), Salalah (Oman), TanjungPelepas (Malaysia), GioiaTauro, Algeciras, Taranto, Cagliari, Damietta and Malta in the Mediterranean, to name but a few (Notteboom, Parola, Satta, 2014). They argued that the container shipping lines are the key players in setting up liner services centered on transshipment hubs. Liner shipping networks are developed to meet the growing demand in global supply chains. Shippers demand direct services between their preferred ports of loading and discharge. The demand side thus exerts a strong pressure on the service schedules, port rotations and feeder linkages. Shipping lines, however, have to design their liner services and networks in order to optimize ship utilization and benefit the most from scale economies in vessel size. Their objective is to optimize their shipping networks by rationalizing coverage of ports, shipping routes and transit time. Shipping lines may flow directly along paths that are optimal for the system, with the lowest cost for the entire network being achieved by using transshipment nodes in the network (Notteboom, Parola, Satta, 2014).





According to Notteboom, Parola and Satta (2014), these transshipment hubs have a range of common characteristics in terms of nautical accessibility, proximity to main shipping lanes (i.e. low diversion distance from the trunk routes) and ownership in whole or in part by carriers or international terminal operators. These nodes multiply shipping options and improve connectivity within the network through their pivotal role in regional hub-and-spoke networks cargo relay, interlining operations between the carriers' east-west services and other inter- and intra-regional services.

The establishment of global networks has thus given rise to hub port development at the crossing points of trade lanes. Most of the pure transshipment hubs are located along the global beltway or equatorial round-the-world route (i.e. the Caribbean, Southeast and East Asia, the Middle East and the Mediterranean) (Notteboom, Parola, Satta, 2014). Port sites are situated close to strategic passage ways such as the Straits which of Gibraltar, the Suez Canal, the Panama Canal and the Malacca Straits act as magnets on the development of transshipment, relay and interlining activities. The creation of transshipment hubs does not occur in all port systems, but around specific regions ideally suited for maritime hub-and-spoke distribution patterns, thanks to geographical, nautical and market-related advantages. In particular, South East Asia, Far East, Mid East, Latin America, and North and South Europe appear as the most dynamic geographic areas where transshipment operations take place (Notteboom, Parola, Satta, 2014).

The concept of transshipment hub ports has been more developed since the second half of the last century due to the rapid increase in the international trade, the size of the vessel and the necessity of the carrier to reduce the port of calls, and consequently, the cost (Porto Alegre, 2010). He says that East Asia is the most blooming area among global hub ports. Most of shipping lines select ports in the region in order to transship the cargo to feeder vessels. According to his case study on the Port of Singapore, the country has retained its post as the biggest hub port in the world and one of the busiest ports in the world during the last years. It has aimed to explore how the port achieved this position. Singapore has developed, since its independence in 1965, strategies to encourage shipping lines to use Singapore as a transshipment hub, besides the initial factor of favorable location to the main shipping route. That case study has conducted with aid of qualitative data and has been analyzed the performances of port of the Singapore using the SWOT analysis method. Accordingly, it has





been identified port efficiency, particularly ship turnaround time, labor efficiency, crane efficiency, timeliness and reliability are most significant internal strengths of the port of Singapore. Other than that, port infrastructure and facilities, particularly the number of container berths, cranes and adequate storage facilities, the quality of cranes, quality and effectiveness of the port information system, approach channel provided preparedness of port management, wide variety of port related and ship related services offered are also strengths of the port of Singapore. It is one of the most automated ports in the world with the latest information technology, thus capable of handling increasing demand. The city-state also offers a wide range of ship-related and port-related services, since its position as an International Maritime Center. Their offer to maritime companies' services as repair, maritime finance, insurance, etc. creates a one-stop service provider center. On the other hand, the Port of Singapore is located along the Straits of Malacca, middle of East-West main shipping route, and therefore enjoys natural deep waters and harbor that result in safe and reliable port operations due to non-existence of typhoons and other natural calamities in the region. Another is, that the port of Singapore is situated closer to some of the world's dynamic economies, and that allows it to work as a connection to rising economic powers. Finally, it has been linked to around 200 shipping lines at about 600 ports worldwide. This wide range of port connectivity permits shipping lines to maximize slot utilization on their mother vessels by giving more alternatives of feeders to various routes, thus enabling them to carry their products to and from markets faster and at lower inventory cost. Alegre demonstrates that those internal strengths themselves have made the port of Singapore a Hub port. However, there are some weaknesses in the port of Singapore. As well according to Alegre, the main weakness of the port is higher port charges when comparing to the neighboring lower cost ports. These higher charges have been under pressure due to rising labor and land costs resulting from labor and land limitations and appreciation of the Singapore dollar against other regional currencies (Alegre, 2010). Therefore, the port of Singapore adopts a market-based approach where shipping companies are offered special offers according to the long-term contracts, in order to boost Singapore's attractiveness as a transshipment hub port. Other than that there are opportunities as well with which the port of Singapore could be able to utilize its economies of scale. Such is that trend among shipping lines to use very large ships and to call at fewer ports in order to lower the cost. Alegre stresses that the shipping companies' focus on the intermodalism, which requires a complete





logistical and distributing package to meet “just in time” functions, such as warehousing, storage space, processing facilities, efficient intermodal transfer and sophisticated information services that fit in with the port of Singapore’s current orientation as a comprehensive provider of port services and as a logistics center. Further the port of Singapore is provided ample of business opportunities by the continuing industrialization, economic dynamism and growing trade orientation in the production of high value added products of the countries in the region. However, the aggressive policies by regional competitors to promote their port and attract mother vessels by offering incentives and other measure to discourage ports users to use the port of Singapore, and the massive investments made to improve their infrastructure and technology have posed, and will continue to pose a major threat to the port of Singapore. Alegre argues that not only that, once the transshipment services are dependent on the trade between countries, any slowdown in the economies of the neighboring countries such as economic crisis, results in the drop of containerized cargo traffic and an imbalance of cargo flows. Although despite the competition with other hub ports, Singapore still holds the world’s leading position as a hub port. Based on the performance showed by the port, it can be said that it will remain unchallenged for many years, although its market share can decline (Alegre, 2010).

NDoT SA Maritime Transport Sector Study / Part 3 (2011) has been prepared with the purposes of analyzing the complexities of the demand for transshipments of containers in international shipping insofar as a hub for that purpose could be established in a South Africa port, to explaining the economic motivation for such a hub and the advantages, to dispelling unsubstantiated views about the scope for container transshipment in South Africa as often aired in the media, and describing the requirements and prospects for a successful transshipment hub in South Africa and make recommendations.

When considering infrastructure requirements for transshipment hubs, eleven out of the seventeen terminals listed in the study, have maximum berth depths of 16 meters or more. It stresses that channels need not be that deep as ships can depart at high tide if the range is adequate to allow for the fully laden ship and squat when under way, but waiting for the tide lowers productivity and liner companies prefer ports without tidal limitations. A depth of 16 meters is probably sufficient for all ships up to the size of so-called Suezmax, which is a ship of a maximum length of 400 meters and beam of 50 meters. As the Suez Canal has been







deepened to accept ships drawing 17 meters and Suezmax container ships have been designed with draughts of 15 meters when fully laden, it seems that 16 meters of depth at berths will be adequate for any transshipment port in Southern Africa for some time. The study reveals that the depth of water at berths and in the channels is probably the most critical limitation on the infrastructural development of ports as transshipment hubs, apart from the availability of space for the stacking of containers. Ships shuttling on intercontinental routes between hub ports will usually have all their slots occupied, but often the nature of the cargo and the number of empty containers when the trade is unbalanced, will result in a draught less than the maximum, enabling admittance to ports too shallow to accommodate the ships when fully laden. For many years, the Conference ships to South Africa from Europe offloaded cargo at Cape Town and Port Elizabeth en-route to Durban and could be admitted to the port that otherwise would not have had sufficient depth for the fully laden liner. With the shift in trade to the Far East and the logistics of liner operation now being based on increasingly larger ships, South African ports without sufficient depth to berth ships requiring depths of at least 15 meters will be relegated to feeder ports. According to the study sufficient space for stacking containers is another requirement of hub ports, although it can be argued that the idea behind transshipment is to move the containers quickly between ships, and that space should be limited in order to preclude storage. However, plenty of space is needed to provide slots for the sorting and stacking of containers rapidly offloaded from a ship carrying 7 000 to 9 000 containers or accumulated for loading. The simultaneous offloading and loading between ships are prospects that require logistical planning not feasible yet in trade with South Africa, although it does occur in the Far East. With the exception of the Port of Ngqura, South Africa's container ports are all located near the Central Business Districts of cities and the lack of space has given rise to the so-called "off-dock" concept for the stacking of containers. Since that concept cannot be adopted at transshipment hubs, lack of space imposes a limitation on the development of any of the existing South African container ports as a large transshipment hub, except for the Port of Ngqura (NDoT SA Maritime Transport Sector Study / Part 3, 2011).

The particular study also has illustrated the factors influencing the location of transshipment hubs. It says that the importance of where liner companies will locate transshipment is evident to a large extent from an examination of the geography of existing





hubs and the location advantages which have induced rivalry. It shows that Algeciras (Spain), Gioia Tauro (Italy) and Malta Freeport in the Mediterranean are all located on the major Asia - Europe trade route and in proximity to feeder origins and destinations in Southern Europe and North Africa. Those hubs face competition from Port Said East (Egypt), Tangier (Morocco) and Damietta (Egypt) also in the Mediterranean and located near the main shipping route. Colombo (Sri Lanka) and Dubai (United Arab Emirates) and regional hubs for the Arabian Gulf and Indian sub-continent face competition from Salalah (Oman) and Aden (Yemen) which have more recently arrived into the market. Singapore which is still the largest transshipment hub for an East - West trade route and the intra-Asia trade, is confronted with serious competition from Port Klang and Tanjung Pelepas in Malaysia. The study argues that although all of these competing ports have the advantage of being located on or near the major East - West trade routes, their future as transshipment hubs depends largely upon the decisions of the liner companies that take account of the total logistical costs of including transshipment in their networks of services. As mentioned, liner companies take into account the total costs of their logistical decisions, which implies that a favorable location of a transshipment hub is not necessarily the overriding factor in its use. Where ports have a substantial gateway function on a major route, it might be worthwhile to divert liners to serve those ports and use their transshipment facilities at the same time.

In 2003, a survey was conducted by Jose Tongzon (cited in Alegre, 2010) with a sample of 25 shipping companies, representing major shipping lines at the port of Singapore. The questionnaire was designed mainly to find out how the shipping lines would rate the seven identified factors in determining the choice of a hub port. According to the findings, shipping companies have ranked the seven factors determining a hub port as follows;

Determinants	Rank
High port efficiency	1
Adequate port infrastructure	2
Wide range of port facilities	3
Low port charges	4
Adequate info-structure	5



Connectivity to other ports	6
Location	7

Source: Low & Johnson (2003)

According to Goh (2003, cited in Alegre, 2010), requirements to create a hub port are location, capability, safe environment, conducive commercial environment, free commercial zones, port related government agencies and commercial services.

Lee and Cullinane (2005, cited in Alegre, 2010) has also pointed out some additional factors affecting to a hub port quality, together with the influence of logistic development: port infrastructure, port services, and carrier's service in port, hinterland accessibility, distribution center and info-structure.

According to Porto Alegre (2010) there are six main factors for a transshipment hub port development. He conducted a SWOT analysis of the port of Singapore in respect of following determinants.

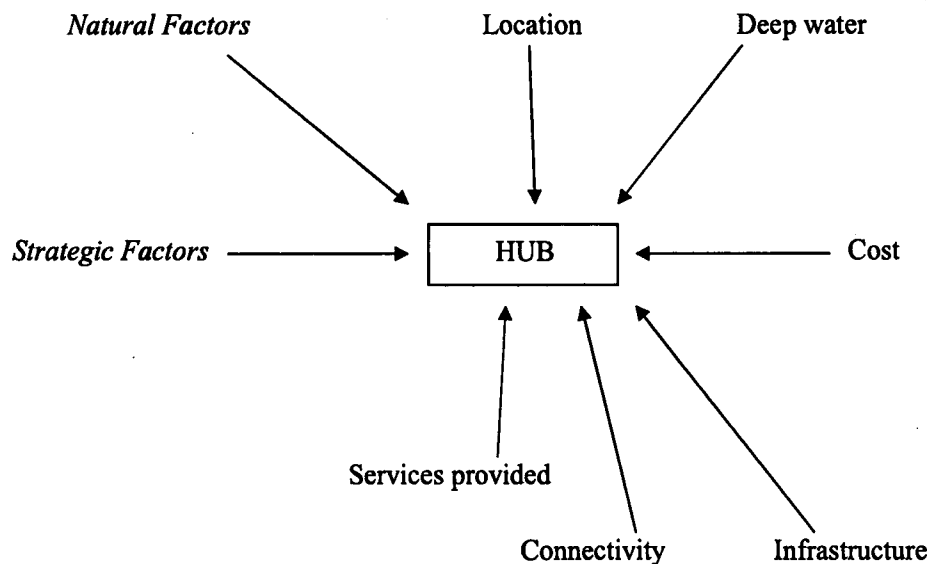


Figure 2.5.2 Factors affecting a hub port.

Source: Porto Alegre (2010)



Thus, creation of a hub port is a result of a collection of favorable factors. Different scholars have identified different factors in determining a transshipment hub port. And different scholars have identified a number of strengths, weaknesses, opportunities and threats of different ports. This study is such a study that identifies strengths, weaknesses, opportunities and threats of Hambantota port in Sri Lanka in order to be a vehicle transshipment hub in the region.

### 3. Methodology

#### 3.1 SWOT Analysis

The standard tool of strategic management is SWOT analysis, which inquires about the major Strengths, Weaknesses, Opportunities and Threats of a given unit. SWOT analysis is the most comprehensive tool that can be used in understanding the overall strategic position of an organization (Capon, 2002). The aim of SWOT is to identify the strengths and weaknesses that are relevant in meeting opportunities and threats in a particular situation (Johnson, G, Scholes, K. Whittington, R. 2008). Capon (2002) affirms that a SWOT analysis helps the organization to understand the overall strategic position of an organization in terms of Strengths – how to match with opportunities, Weaknesses – how to turn into strengths, Opportunities – how to exploit with strengths, Threats – how to turn into opportunities.

In general, factors affecting to be a hub port have been identified through analyzing the corresponding strengths, weaknesses, opportunities and threats of a port. Therefore, this study is also being developed through a SWOT analysis in order to identify the most significant factors that are possible to make Sri Lanka, especially Hambantota port a Vehicle transshipment hub in the region. Here, the special attention is paid to the Hambantota port since all the vehicle transshipment activities in Sri Lanka are being done there currently. Following other scholars and referring to literature articles this study initially recognizes twelve factors that need to be there for the creation of a hub port. Those are location, infrastructure, costs, man power, services provided, industrial zone, connectivity, safety, efficiency, hinterland accessibility, international relationships and government policies. The last two variables; international relationships and government policies are added by the author as her contribution to the study, anticipating that a country's government policies and its international relationships with the rest of the world would have an impact on international





relationships, thus on maritime logistics. Favorability or the un-favorability of each and every variable is tested from the users' point of view of the Hambantota port. The main users of a port are shipping companies. Shipping companies are the parties who decide whether a port will be a hub or not (Alegre, 2010). Therefore, this study includes a survey with a sample of shipping companies/ agents who use Hambantota port for vehicle transshipment in Sri Lanka. By means of a questionnaire covering all selected variables, positive points and negative points have been identified.

Through a questionnaire, information on selected variables from the shipping companies' point of view were collected. Most of the questions were in open-ended form in order to discover the opinions of shipping companies. As well as most of the questions were qualitative in nature, therefore SPSS (Statistical Package for Social Science) 16.0 software package was used to analyse them. Positive and negative sides in each variable were analysed with the ideas of each and every shipping company. From their point of view, favorable and unfavorable factors connected to Hambantota port for vehicle transshipment business were identified. Opportunities and threats seen by shipping companies as expertise in the field were presented with the recommendations at the end.



### 3.2 Conceptual Framework

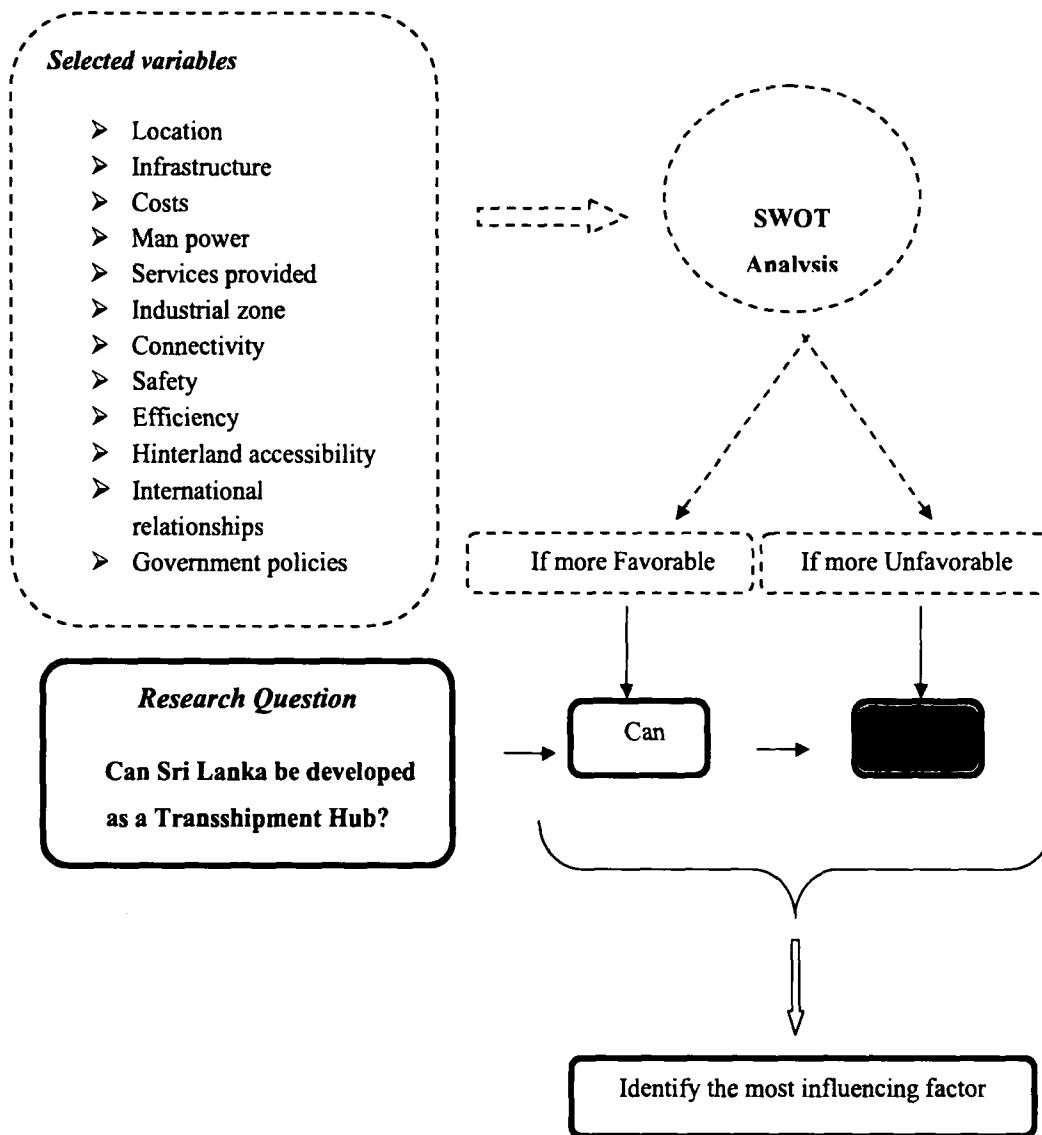


Figure 3.2.1 Conceptual Framework

Source: Compiled by the author



### 3.3 Questionnaire

A structured questionnaire was designed in order to gather the opinions of shipping companies/ agents on selected variables at Hambantota port. It was consist of fourteen sections. The first section was on general information about the company. It was to get an idea about the respondents. Next sections were for the variables such as; information on location, costs, services provided by the port, man power, infrastructure, port connectivity, safety at the port, efficiency at port, hinterland accessibility, international relationships of the government and government policies. Under each category, questions were designed to identify the positive and negative aspects of the variable. It included some open-ended questions as well to discover the opinions of the shipping companies. Final section was designed to conclude all the variables and to allow respondents to rank all variables in order to identify the most influencive factor to create a transshipment hub at Hambantota port. Last question focused on a direct answer and an opinion of respondents on the research question, that is about the possibility of converting Hambantota port in to a vehicle transshipment hub in the region. while analysing the questions one by one, Strengths, Weaknesses, Opportunities and Threats have been summarised in the next chapter.

## 4. Analysis

In this chapter, twelve selected factors are analyzed one by one. This analysis is a qualitative analysis containing both favorable and unfavorable aspects of each factor. Under each factor, the opinions of respondents are presented and discussed. Likert scale questions are presented with the aid of SPSS frequency tables. At the end of the analysis, the most effective factor is identified from respondents' point of view.

### 4.1 Location

Hambantota port is located along Southern coast of Sri Lanka and nineteen nautical miles (16km) away from the main East-west shipping route which connects Asia and Europe through Malacca Straits and Suez Canal. It has been estimated that around 36000 ships including 4500 oil tankers use this particular shipping route annually. It has also been estimated that ships travelling via Hambantota would be able to save about three days' sailing time.





From the beginning of the automobile industry, American and European countries dominated the automobile manufacturing with advanced technologies. By the 1970s, Japan emerged as an automobile manufacturing country with low cost small cars. Due to the disruptions prevailed in American and European countries during this period, such as oil hike and high inflation, the interest of industry shifted towards low cost small Japanese cars. Japan started automobile assembling centers in other Asian countries such as Malaysia, Taiwan, India etc, in order to reduce cost of production. With the time pass Japan tended to manufacture high quality cars with new innovations that lead to increase of price. Meantime, China, South Korea, Taiwan and India emerged as low cost car manufacturers. After the economic crisis in 2008, China has become the leading automobile manufacturer in the world since 2009. According to the World Bank report, the middle income earning people around the world are increasing and numbers of countries have turned into middle income earning category. Therefore, demand for automobiles has increased in many Asian, African, Latin American and Gulf countries. Considering the trends in the world automobile industry, followings are the questions asked from the shipping agents who bring automobiles to Hambantota for transshipment and the answers received. The questions were developed in order to analyze the nature of vehicle transshipment in Sri Lanka.

According to the survey, one respondent loads finished vehicles from China. Four respondents load finished vehicles from Japan. Korean brands are brought by two respondents while four respondents load from India. Another three agents load cars from Europe.

All the respondents said that African countries, mainly East and West African countries are the main destination countries of them. Apart from that, four respondents reload finished vehicles to Middle East countries while two respondents to Europe. Two respondents carry vehicles to North and Latin American countries.

The above explanations; opened the path for the researcher's next question, which are the main shipping routes that the respondents use. All the respondents said that they use East-West shipping route, particularly from China to Gulf/Africa and conversely. It is obvious that any ship which wants to navigate from an eastern country to a European/African country or from a European/African country to an eastern country definitely has to sail along the East-







West Shipping route. Being located at the center of the East West Shipping route, it gives a strategic advantage to Sri Lanka to attract ships to a greater extent.

Incidentally, India does not have hub ports with deep water. In India, travelling cargo from west to east or east to west by land modes is very costly. Therefore, usually those cargos are carried by ships. The existing shipping route is there around Sri Lanka. This gives an ample of opportunities to Sri Lanka to capitalize on India's volume as same as the way Hong Kong capitalizes on China's volume.

However, the proposed 'Sethusamudram' project may be a threat to the Hambantota port. 'Sethusamudram' project is to create a canal through Polk Straits between India and Sri Lanka. It involves digging a deepwater channel of 44.9 nautical miles long linking the Palk Strait and Gulf of Mannar. The purpose of this project is to connect the Ports of Mumbai, Marmagoa, Kochin on the west coast with the ports on the east coast explicitly Tutic or in Chennai, Visakapatnam, Paradip and Haldia (Kolkata) for rapid deployment of its naval forces, over and above movement of commercial ships of different DWTs without circumventing the coast of Sri Lanka. With compared to most of the Indian ports, it is notable that Hambantota port has natural deep water which the most of Indian ports do not have.

However, the project has been temporarily halted due to the protestations by some religious, environmental and economic pressure groups. The Supreme Court of India ordered to delay the project in 2010 in order to present a proper Environmental Impact Analysis.

Being the center of the East-West shipping route, it gives furthermore opportunities to promote Hambantota as a marketing and tourist hub. A trader who comes from the West can stop at Hambantota, if we can showcase the Eastern products to him there. Same as we can showcase Western products to traders/ investors or buyers who come from the East. For instance, if a trader from a Middle East country wants to observe the Toyota production and order a number of Toyota cars, he might have to travel a lot. But if a Toyota assembling center is there at Hambantota, the trader can directly come to Hambantota and get his wish done, thus reduce the time, cost and effort. Similarly, if he wants to go to India's Tata or Maruti Company he might have to incur a half a day travel to the company from the city. Therefore, converting the port at Hambantota into an international showroom will reduce the cost, time and efforts of them and will give a win-win situation to both parties.





Additionally, there are national parks such as Udawalawe, Yala, Kumana, Veerawila, Bundala, Lahugala, Ohiya, Somawathiya, Galoya and an agro park with easy access from Hambantota. Further, there are historical places like Katharagama and Sithulpawwa, which are very attractive among foreigners. Therefore, the port at Hambantota can also be developed as an ideal crew transitional center.

However, Mr. Jose Maria Pulmones, Captain of MV Barcelona, said once in his visit to Hambantota, that the South West monsoon is the most difficult time for Hambantota. He said that wind is fast and fiery; the waves are high and entering the port is difficult. He said that when the wind is high, it is difficult to manoeuvre the ship. This often causes delays in berthing. Currently, Hambantota port has three tugs to control these situations, but the captain said that this port needs more improvements such as another breakwater to break those dangerous waves.

#### 4.2 Cost

Hambantota port earns port charges from vehicle transshipment. At the same time government charges taxes on vehicles import through Hambantota port. However this port is being developed as a Free Port. The concept of Free Port is applied for the industries establish in the port. The industries which imports from other countries, add value at the port and re-export them are entitled to port tax exemptions and have to pay port charges only.

At Hambantota port shipping agents have to incur costs such as port charges, tariffs, navigation costs, lashing and unlashng costs for primary business activities. Sri Lanka Port Authority offers a free storage period of 21 days for shipping agents. Other than that port charges for transshipment is USD 1.50 per cubic meter for each movement. More particularly for both loading and unloading of a one cubic meter is charged USD 3 by the port. Normally a car contains 12 cubic meters. Unloading of a domestic vehicle is charged USD 4 per cubic meter. If a shipping agent would able to achieve 3000 transshipment units per calendar month, he is entitled to a 10% volume rebate where port charge reduces from USD 1.50 to USD 0.85. SLPA has introduced a rebates scheme for vehicle transshipment at Hambantota since 2012. In the year 2012, the rate of tax concessionary was 30% and it has been gradually reduced as 20% in 2013, 10% in 2014 and 0% in 2015. A shipping agent said that even though they were able to enjoy a considerable cost reductions during previous years due to this rebate scheme,



from 2015 onwards their costs increase because of the unavailability of tax concessionaries. In additionally SLPA has increased the navigation charges from 2015 onwards. Trunk charges for both day time berthing and night berthing has also been increased. From the shipping companies' points of view, increasing cost annually discourages their business. All the respondents said that Hambantota port is not the cheapest port in the region, but an average port. Cost at Hambantota and Colombo are almost same. Colombo is the next nearest alternative to the Hambantota and has a less impact in terms of freight. However they can enjoy cost savings such as demurrage, ocean freight, and handling cost at Hambantota. More often due to the high congestions at Colombo, container transshipment hub port, RO-RO vessels had to practice long delays, sometimes waiting two-three days for berthing. Such troubles can be avoided at a port where there are specific facilities for vehicle transshipment.

Incidentally even though vehicle transshipment was shifted to Hambantota from Colombo, most of the vehicle importers, car sales/showrooms are still located at Colombo. Therefore vehicles imported for domestic consumption have to be transported to Colombo. To transport them from Hambantota to Colombo by lorry, it has to spend nearly Rs. 30000 per vehicle, thus increase the automobile prices in domestic market. These additional costs incurred by vehicle importers can be reduced by developing proper and efficient transport modes and develop the Hambantota city; hence automobile business may be established at there.

Nevertheless according to the graph below three respondents are satisfied with the cost factor at Hambantota port and another respondent is neutral while the other is not satisfied.

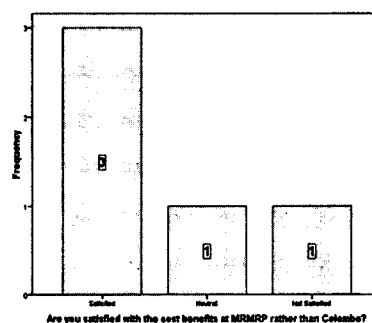


Figure 4.2.1 Satisfactory level on cost factor

Source: Compiled by author based on survey results



But all the respondents said that the port should take lots of actions to initiate proper warehouse facilities, labor training, yard facilities, and space facilities, fuel station at night, and set up necessary equipment, so that the productivity and efficiency will increase and reduce the cost further more.

One respondent pointed out that at the Colombo port shipping companies have to give incentives to the workers in terms of money, to get the works done. Otherwise a quick and quality service cannot be expected. It is being practiced as a norm for a long period. But at Hambantota, the scenario is somewhat different. Shipping companies have to give incentives in terms of foods to Hambantota port workers in order to get the work done. To discharge a one vessel, the corresponding shipping company which called the port has to sponsor the lunch or dinner of the workers. He said that those things should not happen in hub ports.

Incidentally the cost reflects the quality of the service too. For an example, even though Singapore is one of the highest costs charging transshipment port, the quality and the speediness of the services are also high. Therefore if cost is increasing; the quality of the services should also be improved simultaneously.

#### 4.3 Infrastructure

The Hambantota port is constructed as an inner harbor, which means that the port and port activities are located inland. Thus the port is developing as an artificial port (Kumara Y. G. I. S, and Weerakoon K. G. P. K, 2014).

Construction of the port was started in 2007 and the first phase was opened in 2010. It involved in construction of ship building, bunkering, crew changing and ship repairing facilities. It consists of two 600 meters general purpose berths, a 310 meters bunkering berth and a 120 meters small craft berth. There are two breakwaters, a dredging of a 210 meters wide entrance channel, a 600 meters turning circle, excavation of 17 meters deep basin area and bunkering facilities also with tank farm which comprise 8 tanks for marine fuel, 3 tanks for aviation fuel and 3 for Liquid Petroleum Gas. As a part of the project an administration complex comprising 100000 ft<sup>2</sup> has been built with 15 floors. To prevent flooding in close by areas, a dam has been built and a seawall made of interlocking concrete has been built to protect the port from high seas. The first phase of the project was completed at a cost of USD 361 million and it was funded jointly by China's Export Import Bank (85%) and Sri Lanka



Port Authority (15%). The construction of the tank farm was completed at a cost of USD 76.5 million in 2011 and the contractor was Han Quin Engineering Construction Company of China.

The second phase commenced from 2011 and it was faintly delayed due to a rock near to the entrance of the port, thus it was blasted at a cost of USD 40 million. The total cost estimated for the second phase is USD 810 million and the contractor selected was China Communications Construction Company. The second phase consists of three stages including a 2140 meters long quay wall to accommodate four 100000 tons and two 10000 tons wharf berths in first stage, a 50 hectares offshore artificial island with an elevation of 8 meters in second stage, and in the third stage it will construct a 300 meters long and 17 meters depth container oil terminal, four 100000 DWT container berths, a one 100000 DWT oil wharf and two 30000 DWT feeder berths. Moreover nearly 400000m<sup>2</sup> of roads and a flyover bridge, a 490000m<sup>2</sup> harborbasin, and a 60 hectares of yard area linked with yard handling equipment are also included in the second phase. The third phase or the final phase of the port project is planned to complete by 2023. Apart from that a tax-free industrial zone is set up near to the port area with a cost of USD 550 million for ship relating and import-export related businesses. With the completion of all the constructions, the port will cover 4000 acres (16m<sup>2</sup>) of land will be able to accommodate 33 vessels at any given time. The capacity will be 20 million TEUs per year marking the largest port in South Asia and the biggest port construct on land thus far in the 21<sup>st</sup> century.

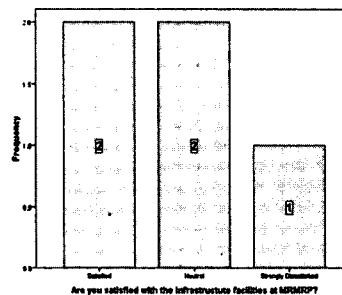


Figure 4.3.1 Satisfactory level of existing port infrastructure

Source: Compiled by author based on survey results



However the shipping companies are not strongly satisfied with the current infrastructure facilities. Two shipping agents said that they can satisfy with infrastructures available at the movement to some extent, but the authorities should initiate many. They said that a lot of improvements must be taken including marking speed limits, marking safety measures, marking space limit, develop the signal system, setting up proper equipment etc. They said that the port authority should keen on existing lags in warehousing, parking, fuel stations, lashing and unlashings. One said that they need a large yard space with proper lighting and security. Since there are only two berths available yet, a shipping agent stressed the importance of another berth in order to reduce the traffic. Adding more one shipping agent said that even though he is satisfied with existing infrastructure to some extent, he is very unhappy with equipment. He said that there are lots of business opportunities, but the problem is Hambantota port does not have enough equipment. Two shipping agents were neutral on the current infrastructure and they requested that there should be more advanced equipment available to handle all the kind of operations on RO-RO vessels. One of the respondents is strongly dissatisfied with the current infrastructure provided by the Hambantota port. He requested infrastructure facilities such as Gantry Cranes, Top Lifter, and Polk sifter in order to carry out their business smoothly. Singapore is the world buggiest and busiest hub port and it is well outfitted will very advance equipment and infrastructures. To handle the ever increasing container traffic, port of Singapore has developed an entire logistics system comprising of the warehouses and freight stations, road and rail transport, ground handling equipment like straddle carriers and gantry cranes in the port terminals, and larger container ships (in excess of 10,000 TEUs) to benefit from the economies of scale. To meet the increased container capacity as well as logistics warehouse space, port of Singapore is continuously planning warehouses and freight stations to increase in size and more efficient designs and container handling systems to increase the throughput and efficiencies. Those models and designs should be considers by Sri Lankan officials and act in order to provide a quick and easy service to its users. Even though port design implies a big picture as of South Asia's largest port and the world's biggest port constructed on the land, proper equipment and infrastructure facilities should be there to activate it as the South Asia's busiest port.





#### 4.4 Other Services provided by the port

The Hambantota port is developed as an industrial port. It will not be limited for a one particular business, but a multi-dimensional center. By considering the strategic location it has potential to provide so many services to ships and people who travel along the East-West shipping route. At present the main service rendered by Hambantota port is vehicle transshipment. Apart from that it also provides bunkering (oil) facilities. The main cost component of operating a ship is bunkering cost which account for 40-50% from the total cost. The SLPA says that nearly 200 ships pass Hambantota every day via East-West main shipping route therefore there is a huge potential for bunkering at Hambantota port.

The tank farm owned by SLPA consists of 14 tanks which 8 tanks are operated by SLPA for maritime bunkering, 3 tanks have been leased out to Ceylon Petroleum Corporation for aviation fuel to be supplied to the Mattala International Airport and the other 3 have been leased out to Litro Gas Company for LP gas storage. The total bunker capacity is 51000 cubic meters and the capacity for aviation fuel and LP gas are 23000 and 6000 cubic meters respectively. The Chief engineer of the Hambantota port once said that if they able to cater 3 ships per day, they would break even. As there are offshore bunkering facilities, the ships necessarily do not want to come into the port for the service.

The Hambantota port's competitor in South Asian region is India in terms of bunkering and they offer bunkering at competitive prices. Singapore is the lowest bunker price offering port in the Asia while Rotterdam offers the lowest bunkering prices in the world. Therefore the Hambantota port has to offer competitive prices in order to attract ships. On the other hand even though India offers competitive prices, their services are much distance from the main shipping route, gives a strategic advantage to the business at Hambantota port.

Another unique feature at the Hambantota port is that the "state-of-the-art" reception facility for slops and waste oil from vessels. The waste oil reception plant has a storage capacity of 500 cubic meters and it enable the vessels passing Hambantota to discharge their oily waste while meeting the terms of MARPOL regulations and ensuring the clean and green environment.

But the challenge faced by this business is the development of ship building industry where stimulating to build energy efficient bigger vessels, reduce the consumption of bunker facilities much less than earlier. Over the past few years the use of bunkering facilities has been slightly reduced as a result of these new trends.





Nevertheless the port has potential to create a wide range of both direct and indirect business opportunities through ancillary services. The port has opportunities to fulfill the basic requirements such as the water, fuel, foods, medicine and accommodations to the crews. Taking into account the above requirements, it has been planned to provide supplementary water supply by “Ruhunupura” water supply project at Hambantota.

According to the survey results the shipping agents said that the port provides bunkering and water to the vessels and vessels’ staffs. But a respondent mentioned that currently a water bottle is provided at USD 8 at Hambantota port while the same is only USD 5 at Singapore port. Even though Singapore does not have water within the country, they import them and provide to vessels at a lower cost than that of at Sri Lanka which is a country full of pure water. However medicine, food and beverages are provided by private sector on the request by the shipping agents. There are opportunities to local entrepreneurs to provide vegetables, fruits, pure water, medicine and other various kinds of essentials to the vessels. When the port is being developed as a crew changing center, it will render more than enough opportunities to people who engage in tourism sector. And the demand for professionals in maritime field, trained workers will increased, so that the education sector will be improved.

However the figure 4.4.2 illustrates the satisfactory level of the respondents on the quality of the services provided by the port currently. According to the results no one is strongly satisfied with the quality of the services. One respondent is satisfied to some extent, two of them are neutral on the question and two respondents are not satisfied at all.

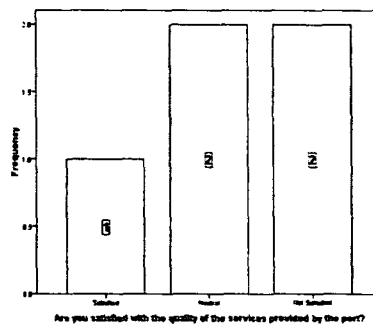


Figure 4.4.1 Satisfactory level on the current services provided at Hambantota port.

Source: Compiled by author based on survey results





The entire respondents said that the authority should take immediate actions to improve the quality of services. They said that it is all about management problems so that management procedures should be reconsidered. Respondents claim more quality services such as proper storage planning, trained tally men and stevedores, proper time management and lashing. . They said that the port is capable enough to render such quality services, if they have a real sense of customer caring. One respondent said that the quality of services at Hambantota port is very low. He said that even though the productivity of stevedores has been increased with compared to earlier (averagely from 15 units per hour to 50 units per hour) the quality of the services has decreased. He said that since car carriers are very much conscious on safety of the vehicles, especially regarding brand new cars, port should keen on the quality of the services.

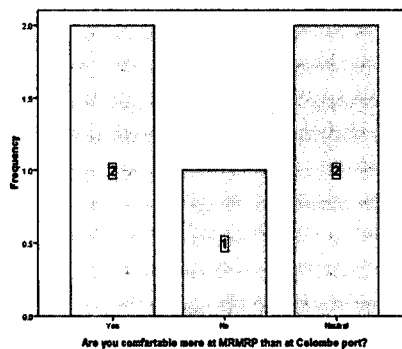


Figure 4.4.2 Comparability of Hambantota port with Colombo port

Source: Compiled by author based on survey results

Figure 4.4.3 illustrates the respondents' comparability of Hambantota port and Colombo port. Two respondents strongly said that Hambantota port is more comfortable than the Colombo port for their vehicle transhipment business while another said that Hambantota port is not comfortable at all than the Colombo port. Two respondents are neutral on the question saying that since there are two different operations at two ports they cannot give an exact answer. They said that at Hambantota port both domestic vehicle imports and vehicle transhipments are handled but at Colombo port vehicle transhipments are not allowed and only domestic vehicle imports are allowed. After being shifted vehicle transhipment to the Hambantota, the SLPA deliberately discourage that business activity at Colombo port. They said that no improvements are done at Colombo port for Vehicle transhipment at present and

therefore the both ports cannot be compared. However respondents showed that the incentive they have is, Hambantota port has two berths while the Colombo port provided only one berth for them. Colombo port did not have enough berth facilities or yard facilities for car carriers. But at Hambantota, vessels can be berthed on arrival since it has two berths.

#### 4.5 Port Safety

Captain of MV Barcelona, Jose Maria Pulmones once said that it is the duty of the captain and the crew to deliver the vehicles safely on its scheduled round trip. Ship captains are seriously concerned about potential pirate attacks, especially when sailing through areas known as “magnet for pirates”. Car carriers are vulnerable to pirate attacks as the gang way only five meters high; hence it is easier for pirates to enter into a RO-RO vessel. It is the main issue with car carriers and they take lots of preparations and precautions to avert those threats.

The following Figure 4.5.1 demonstrates responsible party for the possible damages to the vessels and vehicles at the port.

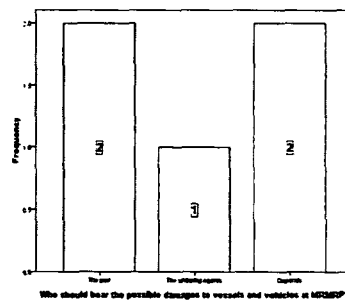


Figure 4.5.1 Responsibility of possible damages at the port

Source: Compiled by author based on survey results

Two respondents said that cost of damages to the vessels or vehicles at the port should be incurred by the port because port is the party who provides equipments, labors, facilities, management and all. One of them said that some stevedores have already been penalized for damages they have done to vehicles at Hambantota. Therefore port should be responsible for any accidents at the port. Another respondent said that all the costs of damages should be borne by the shipping company as port does not take any responsibility. Two respondents said that it depends on the nature of the damage. If the damage caused by the port, it should

be responsible for the losses whereas if the accident caused by the shipping agent, he should take the responsibility.

According to the survey no respondents have experienced any kind of damages to the vessels at Hambantota yet. But all the respondents have experienced damages to vehicles at the ports and all of them are minor accidents. Respondents said that dealing with vehicle transshipment, especially with brand new vehicles is very sensitive. In brand new vehicles nobody can place even a finger print on a vehicle.

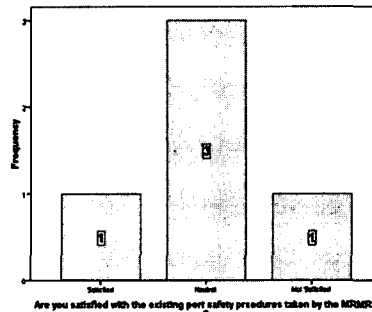


Figure 4.5.2 Satisfactory level on existing safety measures at Hambantota port

Source: Compiled by author based on survey results

The above figure 4.5.2 shows the satisfactory level of the respondents on the current safety procedures at Hambantota port. In the survey, one respondent is satisfied with the existing safety procedures at Hambantota while three are neutral on the question. Another is not satisfied and he said that even though he can satisfy in navigation wise, he could not satisfy in labor wise.

To minimize or avoid such accidents respondents have informed them to the port officials. They ask for speed and space limit markings, proper signals lighting systems, well trained stevedores and tally men and proper security system within the port. As prevention methods, they have employed supervisors and have conducted training programs to labors. Two respondents said that they take great care to ensure stevedores handling their vehicles at Hambantota port, are trained to its own international standards, bringing down foreign trainers for monthly training sessions. Shoes are a necessity for stevedores and attention to detail extends to compulsory wrist bands for drivers wearing watches to prevent accidental scraping of vehicles. One respondent said that since port does not make anything to train

workers, shipping lines have to train them at their cost. Respondents said that it is port's duty to take required security measurements. Labor factor is critical when initiating safety measures and it is said that adequate skilled labors should be hired since when there are labor shortages, the existing workers become overloaded, thus low productivity and high probability of damages. Skilled, educated and specialized people in the field of maritime and logistics management should be recruited in order to improve the business environment at Hambantota port.

#### 4.6 Man power

Labors are essential for the business of vehicle transshipment. Well trained stevedores (drivers) are needed to load and unload the vehicles from and to vessels. Tally men are needed for proper lashing and unlashings. The existing labors at Hambantota port are young and newly recruited people who are from the same area. When a ship arrives, the group of labors should quickly get to their positions and loading or unloading should be completed within the given time. Therefore efficiency and the productivity of the business considerably depend on the efficiency and productivity of the labors.

"Number of labors required to clearance of a one vessel per shift, at least 60 stevedores is needed for both lashing and unlashings" said by a respondent. All the respondents said that labor requirement varies with the number of vehicle units in the vessels. For instance, if there are 1000 units in a vessel, usually it takes 24 hours with two shifts; day shift and night shift. Some lines want to unload 200 units within an hour. However according to respondents averagely to discharge a 500 units vessel, at least 40-50 number of stevedores are needed.

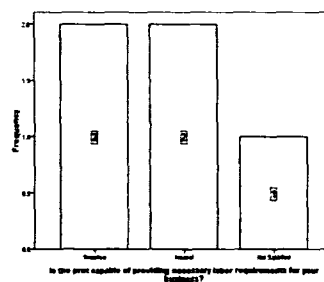


Figure 4.6.1 Satisfactory level on labor availability at Hambantota port

Source: Compiled by author based on survey results

The Figure 4.6.1 illustrates the satisfactory level of the respondents on labor availability at the Hambantota port. Two respondents are satisfied about the supply of labors by the port. But they said that it would better if the port can increase the existing staff as few labors tend to become tired at congestions. One of them said that even though they did not face many difficulties with labor availability so far, in future it would be a problem. He said that port should have to maintain a backup labor group. The other one said that at least 60 stevedores are needed to perform well at Hambantota port in near future. Two respondents are neutral on the question and the other respondent is not satisfied about the labor availability at the port. He said that there are only 30 stevedores at present and he requested that at least 40 are needed per a gang. Further he added that when there are two vessels berth at once the existing labors are not sufficient to handle all.

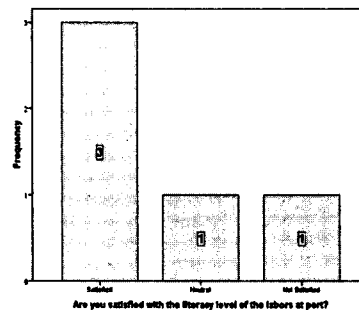


Figure 4.6.2 Satisfactory level of the literacy level of the labors

Source: Compiled by author based on survey results

Figure 4.6.2 depicts the satisfactory level of the respondents on the literacy level of the labors at Hambantota. Three respondents are satisfied whereas one respondent is not satisfied. The other respondent is neutral on the question and said that basically there is a language barrier. In the lower level, literacy is not a big issue, but in the staff level there should be educated people. Especially labors who engage in lashing and unlashings should have some kind of knowledge to read and understand the notices, menus and reports appeared in the vessels, unless they may make mistakes. For instance if they could not read and understand the documents, they may order to unload someone else volume at the Hambantota. However a respondent said that there are more educated people at Hambantota than at Colombo port. But the problem is with the negative attitudes of the workers. Workers at Hambantota port are unmotivated and they do not have a real sense of marketing. On the other hand there is a



problem with worker qualifications and worker positions. For example he mentioned that sometimes professional engineers are working at managerial positions. Therefore having professionally qualified workers at a place is not enough for a success. It should be ensured whether appropriate people are in the appropriate positions.

Annually virtually 25000 graduates are passed out from government universities. Apart from that a considerable bunch of private and foreign university degree holders are joining with the work force. In recent past, diplomas and degrees in management, particularly maritime logistics management has become popular among Sri Lankan students at higher education level. There is a tendency to increase the researches in this field. Those opportunities can be utilized by the port authorities and can be recruited skilled, knowledgeable and enthusiastic young people on this field. On the other hand cost of labors in Sri Lankan labor market is relatively less with compared to developed countries. Low labor cost will help to render services at reasonable prices.

#### 4.7 Industrial zone

The proposed industrial zone at Hambantota amounts to 2717 acres (1100 hectares) whereas all the investment zones (12) collectively in Sri Lanka managed by BOI amounts 2770.69 acres (1121 hectares), thus the largest investment zone in Sri Lanka.

This industrial zone has been designed with the intention of extending the boundaries of the port area. The industrial zone is built adjacent to the port and they will be connected with a flyover. With compared to other transshipment hubs in the region such as Salalah (Oman), Dubai and Singapore the advantage at Hambantota port is the land availability for future expansion. Marine and port related industries can be established at the industrial zone those investors who start businesses in the industrial zone would able to enjoy tax exemptions.

SLPA says that several investors has already keened their interest on invest in the categories of cement grinding plant, cement storage and bagging plant, fertilizer storage, processing and bagging Plant, LP gas distribution facility, warehousing complex, vehicle assembling plant, flour mill, food processing and packaging and many other businesses related to import and export sector. Among them the Cabinet Ministers have approved seven investment proposals, subsequent to the recommendations by the Cabinet Appointed Negotiating Committee with the assistance of the Technical Evaluation Committee in 2013. Accordingly, three investors, Thatta Cement Company (Pvt) Ltd., Hambana Petrochemicals





Ltd. (HPL) and Lanka Sugar Refinery Company (Pvt) Ltd. have already commenced construction following successful business venture agreements with the Sri Lanka Ports Authority (SLPA). Hayleys Advantis Ltd. (fertilizer bagging plant), McLarens Holdings Ltd. (warehousing), Agalawatta Plantations PLC (warehousing) and ACE Distripaks (Pvt) Ltd. (warehousing) are among the other Cabinet-approved investors. China's number three car manufacturers; Geely is also considering an assembly and manufacturing plant in Hambantota with US\$ 20 million in shared investments with Micro Cars Limited.

However all the respondents in the survey said that nothing in the industrial zone is functioning properly. Still only lands have been allocated and it is not activated yet. They said that the officials have not taken enough procedures to use the potential opportunities through the industrial zone. One respondent said that since Hambantota port is a free port and an airport is located closer to the sea port, it is very important to develop a well-managed industrial zone at there. He gave an example that is automobile makers can import and acquire raw materials easily from the port and then manufacturers can assemble those vehicles at the industrial zone. Finally they would be able to export vehicles through the port. Another respondent said that having an industrial zone near to the Hambantota port is very important because there are lots of opportunities in the case of value addition which can be used for the development of Hambantota port. He expressed that proper tender procedures should be activated in order to attract foreign investors and at the same time government should encourage local investors also to start up productions at this industrial zone. One of the respondents said that if the industrial zone put in to the correct place and use the port facilities to market the outer countries' products along with the tourism, this port can be developed similar to the port of Dubai. He suggested that the government should start providing facilities from zero and then should look into the improvements. He added that the immediate remedies should be taken to eradicate frauds and corruptions in the government, especially in the custom. Another respondent said that automobile manufacturers and assembling businesses should be encouraged by the government at this industrial zone. But he emphasized that when they allocate lands, government make sure that industries like fertilizer, coal, and cement should be far away from the automobile factories hence will be able to avoid damages. The last respondent said that to develop the port furthermore, lots of industries should be established in the industries. Thousands of job opportunities would be able to create through the industrial zone. He said that the government should have to have a





good communication with vehicle manufacturing companies and should take initiations to start vehicle manufacturing factories at Hambantota.

However no respondent is strongly satisfied with the prevailing measures at the industrial zone and they said that they cannot give an exact answer since it is a out of their scope.

Mr. Dulip Jayawardena, a retired Economic Affairs Officer of United Nations ESCAP, once said that he could draw a parallel of the port city of Hambantota to the US Naval Base at Subic Bay, a deep water port that was handed over to the Philippines in 1991. The Subic Bay Free trade Zone (SBFZ) is located in Luzon Island and it is the first successful case of a military base converted into a tax and duty free zone similar to Hong Kong and Singapore. It is operated and managed by the Subic Bay Metropolitan Authority (SBMA). It is a competitive investment hub with blue-chip companies such as Coastal Petroleum and Fed Ex pumping over US\$ 3 billion investment creating 70000 jobs in the free port's first four years. The US Navy had left US\$ 8 billion worth facilities and other assets including property when they withdrew the 7<sup>th</sup> Naval Fleet. Fed Ex Asia-Pacific hub Asia-One was also located at Subic Bay for 10 years. Mr. Dulip Jayawardena proposed that the Sri Lankan government should take immediate action to set up an independent authority in line with the Subic Bay Metropolitan Authority (SBMA) showcasing the proposed Hambantota Metropolitan Authority (HPMA) as a destination in South Indian Ocean for attracting international port users as a strategic gateway to Asia's market and logistic hub, investors as an attractive site of choice investment from foreign and local businesses, tourists with lifestyle experience to watch wildlife including bird watching, eco-tourism to pristine rain forests, sites of cultural heritage spanning over 2000 years and water sports such as diving and surfing. He further emphasized that the proposed HPMA should also provide safety, security and environment protection to foreign and local communities who would live in the proposed free port area. He pointed out that another ambitious area the government of Sri Lanka can look into is setting up a satellite launching and tracking station for scientific research as well as for commercial purposes as this area is the ideal location in Asia or even in the world as there is no landmass up to the South Pole. The ideal site would be between Hambantota and Dondra Head. He also proposed to prepare an HPMA Investment Guide in line with the guide for Subic Bay.







#### 4.8 Port connectivity

Hambantota port has a well-protected deepwater harbor and is located near the east–west trunk routes between the Asia-Pacific, Europe, and the United States East Coast regions. Therefore it is the closest transshipment port to the huge, rapidly expanding markets of the ISC. For Europe-bound cargo for the east and south segments of the ISC, using Hambantota port as a hub port is more advantageous than using Southeast Asian ports because of the shorter distance to Hambantota port (Kumara, Y. G. I. S and Weerakoon, K. G. P. K, 2014). Hambantota is close to the Asian and European international shipping routes through the Suez Canal and the Strait of Malacca.

The South Asian ports are considered as competitive ports for Hambantota port. Because the ships are, coming along the silk route, have to spend a considerable time period in the sea. These large ships have to spend three-and-a-half days to Singapore and also to India, Thailand, and Malaysian harbors for refueling, buying provisions, medical supplies and other essentials. Hambantota port has opportunities to change this scenario, by offering fewer days for shipment and cheaper freight charges thanks to its proximity to Chittagong Port and the country's major export market, Europe. Ports Ministry officials said that feeder vessels from Chittagong Port take four days to reach to Hambantota while it needs five days to reach Singapore.

According to the survey results it was further proved that ships have direct access to so many other ports from Hambantota. Respondents said that they have direct shipping routes from Hambantota to all East African ports, European ports, Indian ports and Far East and South-East countries like, Mondra, Chennai, Bombe, Singapore, Gulf ports, Yokohama, Alagoya, Osaka, Shanghai, Buban, Nhavashiva, Durban, Lobito, Maputo, Luloruis etc.

Europe is the main export destination of Sri Lanka and China and India are main imports origin. On the other hand China, Japan, India and other south-east countries are main automobile manufacturers in the world and there is an increasing demand for those Asian-made automobiles from Gulf and African regions. Therefore having direct shipping routes to those origins and destinations from Hambantota, enables it to develop as a vehicle transshipment hub. Alternatively there is a demand for used vehicles from African countries whereas Gulf and newly industrial countries supply them. Being the middle point of the sea route network in the Indian Ocean, Hambantota port can easily connect those volumes.



#### 4.9 Hinterland Accessibility

Hinterland refers a rural area surrounding the urban catchment of large cities or agglomerations. It is exemplified by a less dense population and infrastructure (Kumara, Y. G. I. S and Weerakoon, K. G. P. K, 2014). In shipping usage, a hinterland of a port is the area that it serves, both for imports and exports. The size of a hinterland depends on geography, but also on the easiness, speediness, and cost of transportation between the port and the hinterland. Simply, it is the area surrounding a service from which customers are attracted, also called the market area.

Under this variable the researcher supposed to analyze the port's association with the local area. Transport facilities are vital to maintain ease and speedy accesses to hinterland. Therefore performances level or the contribution of existing transport modes such as roads, highways, railways and airports were analyzed from the shipping companies' point of view.

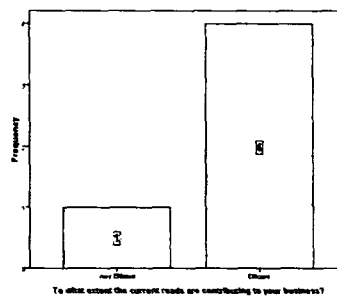
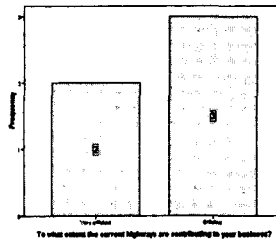


Figure 4.9.1 Performance level of existing roads facilities

Source: Compiled by author based on survey results

Above graph (Figure 4.9.1) shows the opinions of shipping companies on existing roads facilities. One respondent said that existing roads are contributing very efficiently to their business. The remaining four out of five respondents said that current roads are efficient. Roads are the main transport mode they use for connecting with local areas. In last years' roads from and to Hambantota were developed ever more. Therefore roads act as the major efficient transport mode to access to hinterland from port. All respondents are satisfied with existing road facilities.



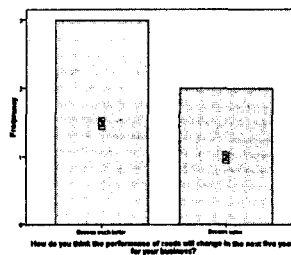
*Figure 4.9.2 Performance level of existing highway facilities*

*Source: Compiled by author based on survey results*

Figure 4.9.2 represents the opinions of shipping companies regarding contribution of highways to their business. Two respondents said that highways are very efficiently contributing while the other three said that highways are efficient. However everybody said that existing highway from Kottawa to Matara, should be extended to Hambantota very shortly.

Nevertheless railways are not sufficiently contributing to this business. And also Mattala airport is not functioning well. Therefore roads and highways are the existing transport modes to keep up accessibility to hinterland. Developing other transport modes is vital and the attention of policy makers should be given.

The next question aimed the shipping companies' expectation on the development of transport facilities within next five years.



*Figure 4.9.3 expectation on performance of roads*

*Source: Compiled by author based on survey results*

Figure 4.9.3 shows the shipping companies expectation on changes of roads performances in next five years. Three respondents said that roads will become much better while two said that they will become better. It shows that all the respondents are anticipating developments

of roads. It is very essential to have a good road network connecting Hambantota with other towns. To attract investors and industries to Hambantota, there should be very efficient roads.

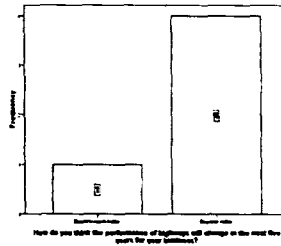


Figure 4.9.4 Expectation on performance of highways

Source: Compiled by author based on survey results

Figure 4.9.4 shows the shipping companies expectation on changes of highways performances in next five years. Four respondents predict that highways will become better in near future while one respondent predicts that highways become much better. However highway network should be expanded throughout the major business areas in the country. Very efficient highways are essential to attract international investors to Hambantota in order to develop a hub at Hambantota.

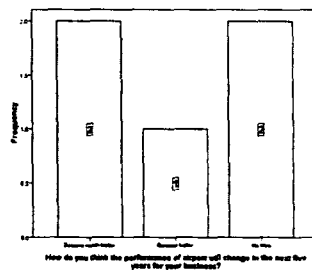


Figure 4.9.5 Expectation on performances of airports

Source: Compiled by author based on survey results

Figure 4.9.5 shows the expectationthe shipping companies' expectation on changes of airport performances in next five years. Currently Mattala Mahinda Rajapakshe International Airport is not functioning and Katunayake Bandaranayake International Airport is the only international airport which serves businesses in Sri Lanka. In order to establish an industrial hub at Hambantota port, and if it is used as crew transition hub port, it is important to have a



well-functioning international airport there. Two respondents predict it to become much better in near future, one predicts it to become better and the remaining two respondents have no idea about the future of it.

All the respondents said that the efficient hinterland accessibility must be improved including roads, highways, railways and airports in order to create a business environment. Especially they highlighted the importance of a railway network. In many cases vehicles imported to Hambantota for domestic consumption should have to be transported to Colombo since vehicle importers, vehicle showrooms are located at Colombo. Currently they transport them by lorries. It increases the cost by Rs.30000 per vehicle. One agent said that these costs can be drastically reduced by using railways. Therefore another respondent said that it would be better to construct the proposed railway from Peliyagoda – Colombo – Hambantota.

#### 4.10 Efficiency

Under this variable it was aimed to analyze the current efficiency level of Hambantota port. Normally the clearance time of a vessel at Hambantota port depends on number of units it contained. For an example, for clearance of a 3000 units vessel, it takes two to three days, a 1000 units vessel takes about 24 hours, and a 500 units vessel takes about six to eight hours. The respondents said that loading and unloading turnover at Hambantota port is in between 40-50 units per hour to 80-100 units per hour. But it is about 200-300 units per hour in Singapore, South Korea, India and about 150-200 units per hour in Bangkok. Therefore Hambantota port should take procedures to increase the productivity of stevedores up to competitive level. However one respondent said that earlier Hambantota port had handled 12-15 units per hour so that the productivity level of Hambantota port stevedores has increased. Adding more he said that the problem was with the unmotivated attitudes of the stevedores.

Apart from that four respondents said that Hambantota port does not use any advance technology or any special application in order to enhance the efficiency of the port. But one respondent said that Hambantota port uses a kind of a technology to do basic activities. The following figure 4.10.1 shows the respondents' satisfactory level on current efficiency of the port.



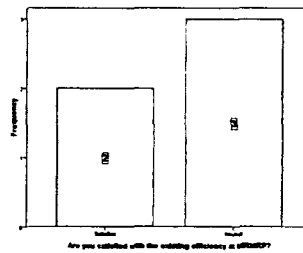


Figure 4.10.1 Satisfactory level on existing efficiency level of Hambantota port

Source: Compiled by author based on survey results

Three respondents are neutral on the question while two respondents are somewhat satisfied with the existing efficiency level. However all said that port should take lots of measures in terms of efficiency in order to render a better service. All believe that the management of the Hambantota port is not very much efficient and effective. Therefore authorities should concentrate on the efficiency in order to attract more businesses.

#### 4.11 Government Policies

Previous government introduced the “five hubs” concept as the principal government policy. That government took policy decisions to create the necessary economic conditions to strategically position Sri Lanka as a Maritime, Aviation, Commercial, Energy and a Knowledge hub. Hence, the infrastructure development was focused to achieve those objectives. The physical infrastructure development had been focused on the basis of upgrading sea & air ports, roads, power and communication. According to the vision 2020 government policy in terms of maritime and logistics aimed to be the “Center for maritime excellence” by 2020. Making a port at Hambantota itself is a government policy. It is a state-owned policy. Hambantota port is managed by MPMC fully owned by SLPA.

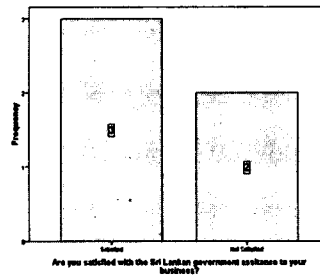


Figure 4.11.1 Satisfactory level on the government assistance to the business.

Source: Compiled by author based on survey results

According to the above Figure 4.11.1 three respondents are satisfied with the government assistance to their businesses while two are not satisfied with the government assistances. Here the respondents emphasized that the inconsistency of the government policies. Time to time governments are changed and accordingly their policies are also changed. For an example one respondent pointed out that newly appointed government raised taxes on Japanese vehicle while reducing taxes on Indian vehicles. Another respondent said that the time passed is not enough to see the impact of the new government policies.

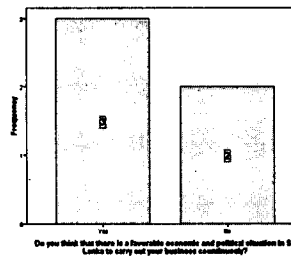


Figure 4.11.2 Favorable economic and political situation to carry out your business

Source: Compiled by author based on survey results

Three respondents said that there is a favorable economic and political situation in Sri Lanka to continue their business while two respondents said that there is no favorable economic and political situation to perform their businesses smoothly.

All the respondents said that the government aspiration to make Sri Lanka a maritime hub in the world is absolutely possible. One respondent pointed out that the other main hub ports such as Bangkok and Singapore are already congested. Therefore Sri Lanka has gifted an excellent chance to become a hub if it can have good technology, proper equipments and



infrastructures, well trained labors, effective and efficient management, and enough space and warehouse facilities. Another respondent said that the Sri Lankan governments should have an unchanged economic and trade policies for the global trade to be satisfied and to be a maritime hub, it needs to come out from bureaucracy. He notified that the government institutions are highly bureaucratic and decision making is not very much efficient. Therefore he requested the port to be managed by private sector in order to minimize the corruptions and maximize profits. Another respondent said that government needs to have a proper vision about how the status of a hub is maintained. He said that even though there are written policies and documents, those were not translated to the lower level. One more respondent said that government has not identified and capitalized on opportunities. Adding more he said that as a country there are countless opportunities to reap benefits from maritime sector. But the problem is that the policy makers and government are not keen on them. The last respondent also said that maritime hub concept is a reliable dream. He mentioned that Sri Lanka is the only one country which is capable of catering very large vessels and mega containers. No any other South Asian country has that kind of ports. And also Sri Lanka's sea network or the connectivity with other regions is very wide. Therefore Sri Lanka is an ideal place to create a maritime hub. Government should be aware of those shipping companies' suggestions and implement strategies accordingly.

#### 4.12 International Relationships

To cope with international trade, a country should maintain good international relationships with other foreign countries. Therefore the government foreign policy has an impact on businesses with other countries. Construction of the Hambantota port itself is result of an international relationship with China. In 2005 China agreed to construct Hambantota port and in 2007, constructions were begun. It is the largest investment done by China in Sri Lanka. Sri Lanka is one of nodes (a pearl) in the China's strategy of "String of Pearls".

A string of pearls strategy is a strategic move that involves establishing a series of nodes of military and economic power throughout a region. Each node is a "pearl" in the string, enhancing the overall power of the parent nation. This strategic relations move is an excellent way to unfold a greater area of territory, thereby gaining more influence on the global stage. Several effects are included in a string of pearls strategy. The first is increased access to airfields and ports. This is accomplished by building new facilities or through establishing





cordial relations with other nations to ensure access to their ports. In some cases, the strategy involves heavily subsidizing construction of new port and airport facilities in other countries. Developing better diplomatic relations is also a crucial step in this strategy. To a certain extent, this is undertaken to ensure that shipping lanes and airspace remain free and clear. It may also be used to quiet concerns about a rapidly expanding string of pearls, and to establish solid trade and export agreements which may ultimately benefit both nations. Since the strategy may rely on linking a series of pearls, it is important to ensure that each pearl is also safe, and that it will not be threatened by neighboring nations. Modernizing military forces is another concern of the strategy. Modern military can be effectively maintained at individual pearls and it will also be prepared for various actions and exercises on the part of the parent country.

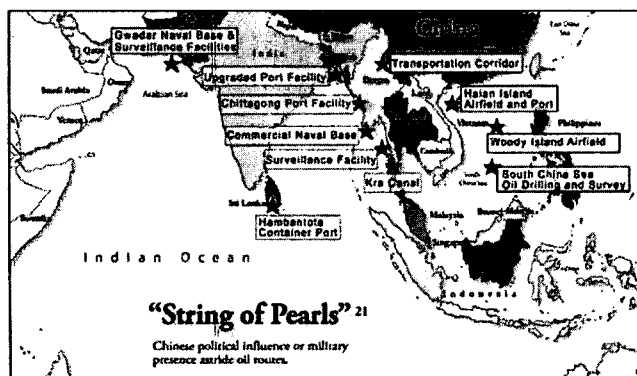


Figure 4.12.1 Important nodes of Strings of Pearls

Source: <http://www.startrisk.com>

Chinese possessions in the Indian Ocean consist primarily of commercial ports owned and operated by Chinese firms, as well as resupply stations operating in agreement with the Chinese government. The two biggest projects are Chinese-financed commercial shipping center in Hambantota, Sri Lanka and a Chinese-controlled deep-water port near the mouth of the Persian Gulf in Gwadar, Pakistan. Both sites have raised the concern of neighboring power, India, which fears the possibility of a string of Chinese bases situated just off its coast. Chinese investment in Hambantota, and Sri Lanka's dialogue partner status in the Shanghai Cooperation Organization (SCO), is seen by some Indian analysts as reflective of a wider encirclement strategy on the part of the Chinese. The port at Gwadar, which is

connected to the Karakoram Highway linking Western China and the Arabian Sea, is of even greater worry to the Indian government, which views it as powerful evidence of Chinese and Pakistani collusion against Indian security and economic interests.

Therefore maintaining un-alignment foreign policy and unbiased international relationships with all the foreign countries are very sensitive and crucial.

According to the survey analysis Figure 4.12.3 shows that four respondents said that the Sri Lankan government maintains favorable relationships with other foreign countries while one said that Sri Lankan government does not maintain good relationships with the world.

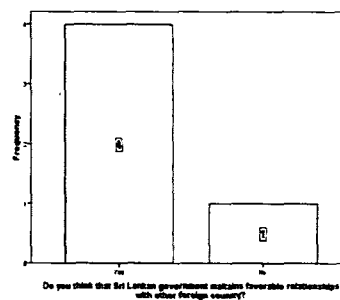


Figure 4.12.2 Government's international relationships

Source: Compiled by author based on survey results

One respondent said that Sri Lankan government has a good relationship with Japan and India and it is very helpful to carry out their business with them. He said that Japanese are very preferred Sri Lanka and the like to work with Sri Lankan. And also it is easy to work with Japanese. He further said that Under ISFTA and SAFTA, Sri Lanka maintains a good relationship with India. Another respondent said that implementing democracy and good governance within the country, Sri Lanka will be able to start good international relationships. He added that the new government has shown a good beginning in terms of international relationships through their rules and regulations. Another respondent said that the early government tried to maintain relationships with China while neglecting others. It was not good as that government obtained huge loans from China and increasingly invested on infrastructures. He said that no investments were made in industries over last ten years. He said that industrial sector should be widened and thousands of jobs should be created through industries. This maritime logistics is one of potential industry to strengthen the Sri Lankan economy by creating lots of jobs all around the country. International collaboration is vital



when developing industries. The respondent who said that the Sri Lankan government does not maintain good international relationships, expressed that in order to promote available facilities in Sri Lankan ports, the government must take initiatives to increase the awareness of the world to use the facilities in Sri Lanka. He said that such measures have not been taken internationally by the government through their international relationships. One more respondent said that Sri Lankan government needs to seek more and more opportunities internationally to maritime sector to be developed and to convert Sri Lanka into a maritime hub.

#### **4.13 Most Significant Factor determining a hub port at Hambantota**

Considering all twelve factors, researcher finally asked whether the Hambantota port can be developed as a vehicle transshipment hub in the region. Because all the respondents participated in the survey were having more than 10 years business experiences and three of them have more than 30 years of business experience in the maritime logistics field. They are genius in the field and capable enough to strategically foresight the future of the industry. All the respondents said that Hambantota port definitely can be developed as a vehicle transshipment hub in the region.

First respondent said that in terms of cost, labor and location, Hambantota is the ideal place for a hub in the region. He said that Singapore, Bangkok and Hong Kong are already congested and have to build lands, so Hambantota is blessed with new opportunities. Adding more he requested more and more for betterment such as efficient management, skilled labors, favorable government policies etc. He showed the importance of bunkering facilities at Hambantota port. He ranked location, costs, and connectivity factors as the most significant factors to Hambantota to be a hub port.

Second respondent said that Hambantota port should use the facilities to market other countries' produced vehicles at Hambantota port and provide comparative cost effective services. He also requested to strengthen international relationships to bring more and more overseas buyers and sellers. He showed that a vehicle transshipment hub port is possible at Hambantota if it provides more strategic advantages to vessel operations. He selected location, costs, infrastructure, services provided, connectivity, efficiency, industrial zone, government policies and international relationships as the most significant factors to create a transshipment hub at Hambantota.





Third respondent showed that India has shown a good development in automobile industry. Thus Hambantota port can use this opportunity with its wide range of connectivity with East and West. He selected location, cost, other services, infrastructure, man power, connectivity, efficiency, government policies and international relationships as the most significant factors to Hambantota port to be a hub port.

Fourth respondent said that the location and its connectivity together with lower cost are the most significant factors to determine a hub port at Hambantota. He said that ample availability of yard space to expand is important and the port should take advantages of those idle resources. Bunkering facilities are also playing a vital role in a hub port.

Last respondent ranked location, connectivity, efficiency, government policies and costs as the most significant factors to convert Hambantota port to a hub port in the region. He further said that if the port could provide safety and efficient infrastructure together with favorable government policies to businesses, Hambantota port can work forward to a brighter future.

Allocating weights to factors rank by respondents, the following order can be identified.

Factor	Weights
Location	0.23
Costs	0.20
Connectivity	0.18
Efficiency	0.09
Services provided	0.07
Infrastructure	0.07
Government policies	0.07
International Relationship	0.03
Man power	0.03
Industrial zone	0.02
Safety	0.00
Hinterland accessibility	0.00
	1.00

Figure 4.13 Significant factors determining a hub port at Hambantota

Source: Compiled by author based on survey results





According to the survey with shipping companies, high weight was given to the Location factor by the respondents. Cost, Connectivity, Efficiency, Services provided, Infrastructure, Government policies, International relationships, Man power and Industrial zone were ranked respectively as significant factors. No one ranked Safety and Hinterland accessibility as significant factors. Accordingly most influencing factor to Hambantota port to be a hub port is its location.

## 5. Conclusion

The research problem was to find an answer for the question of “Can Sri Lanka (Hambantota port) be developed as a vehicle transshipment hub in the region?”. The answer was it can be developed as a vehicle transshipment hub. But for that Hambantota port should take loads of activities. The most significant factor to create a hub at Hambantota was its ideal location. Existing strengths of the port should be further improved. At the same time existing weaknesses should be removed by initiating immediate procedures. Apart from that there are lots of opportunities in every aspect which Sri Lanka can easily capitalize on. Advantages of those opportunities should be identified, analyzed and captured gradually. Then the threats from other ports in the regions will be evaded. The researcher highly recommends them to be considered by the policy makers and make the vision of the port, to be the logistic excellence in the silk route, a reality.

It is important to note that even though there are plenty of opportunities to develop country, especially in terms of maritime industries; Sri Lanka still has not identified and capitalizes on them. Available resources are more than enough to develop the country. But those resources are not being utilized fully. Construction costs of the Hambantota port are a sunk cost. Therefore now what we do is to reap the potential benefits by minimizing existing weaknesses. All the existing internal weaknesses can be converted into strengths easily by eliminating management inefficiencies. At the end of report the researcher highly recommend that the management of the Hambantota port should follow strategic management process in order to make Hambantota port, a transshipment hub in the region. Continuing existing procedure will definitely harm the economy.





## Reference

- A new record in vehicle transshipment at Magampura Harbor*. Retrieved October 20, 2014, from <http://www.itnnews.lk/>
- Alderton, P. M. 2008, *Port Management and operations*, England: Informa
- Alegre, P 2010, *Hub Ports – A case study of Port of Singapore*, University Sorbonne Nouvelle – Paris 3
- Available investment opportunities (2013-2015)*. Retrieved October 20, 2014, from <http://www.opportunitiesrilanka.com>
- Capon, C 2002, *Understanding Organizational Context: Inside and outside organizations*, England
- Chou, C. and Wu Chu, C. 2003, *Competitive analysis of major ports in Eastern Asia*, Journal of the Eastern Asia Society for Transportation Studies, Vol.5
- De Silva, C 2013, *More shipping lines to shift transshipment via Colombo*. Retrieved October 20, 2014, from <http://www.ceylontoday.lk/>
- Department of National Planning, 2010, *Mahinda Chinthana Vision for the Future: The Development Policy Framework, Government of Sri Lanka*. Ministry of Finance and Planning.
- Dias, S 2011, *Sri Lanka's biggest investment zone at Hambantota*. Retrieved on February 25, 2015, from <http://www.sundaytimes.lk/>
- Dressing for a hot market in a cold network, 2014, the 15<sup>th</sup> annual automotive logistics global conference. Retrieved October 20, 2014, from <http://www.automotive-logistics-magazine.com>
- Frankel, E. G. (2002). *The challenges of container transshipment in the Caribbean* Conference proceedings of the IAME Panama 2002. Conducted by the IAME Panama 2002 International Steering Committee
- Hambantota has become regional hub for South Asia*. Retrieved October 20, 2014, from <http://www.automotive-logistics.com/>
- Haviland, C 2011, *Rock on seabed delays Sri Lanka's Hambantota port*. Retrieved February 20, 2015, from <http://www.bbc.co.uk/>
- Is Sri Lanka becoming a key player of China's string of pearls?* (2013). Retrieved October 20, 2014, from <http://www.startrisk.com>
- Jayawardena, D. 2013, *Making Hambantota Port an integrated hub for shipping in Indian Ocean*. Retrieved October 20, 2014, from <http://www.dailymirror.lk>
- Johnson, G, Scholes, K, and Whittington, R. *Exploring corporate strategy: text and case*, seventh edition





Kariyawasam, S. 2013, *Hambantota to be developed as a sea-air business center*. Retrieved October 20, 2014, from <http://www.dailynews.lk>

"K" Line to increase MRMRP vehicle transshipment. Retrieved October 20, 2014, from <http://www.dailynewsonline.lk/>

Kumara, Y. G. I. S. and Weerakoon, K. G. P. K. 2014, *Review of Port City as a Place; Port City in Hambantota, Sri Lanka*, European Academic Research.

Malone, M. *Ten steps to carrying out a SWOT analysis*. Retrieved October 20, 2014, from <http://www.chron.com>

Martin, E 2014, *From transit route to hub - Panama dream looks beyond waterway in bid to create integrated maritime center*. Retrieved October 20, 2014, from <http://www.tradewindsnews.com/>

Mattfeld, D. C. 2004, *Development of vehicle transshipment at European ports*, TU Braunschweig, Dept. of Business Administration, 38106 Braunschweig, Germany

Mattfeld, D. C. and Kopfer, H. 2002, *Terminal operations management in vehicle transshipment*, University of Bremen, Box 330440, Bremen 28334, Germany

Notteboom, T.Parola, F. and Satta, G. 2014, *Partim transshipment volumes*, State of the European port system – Market trends and structure updates, seventh framework program, PORTOPIA

Pickton, D.W. and Wright, S. 1998, *What's SWOT in strategic analysis?* Strategic Change Vol. 7

*Port of Hambantota Sri Lanka* (2007). Retrieved February 20, 2015, from <http://www.chinapage.com/>

Ports. Retrieved February 24, 2015, from <http://www.mohsl.gov.lk/>

Queensland Government Business and Industry Portal (2014). Retrieved October 20, 2014, from <https://www.business.qld.gov.au/>

Robbert, S. 2003, *SWOT Analysis SSS – Groningen Seaports*, Northern Maritime Corridor

Rothaermel, F. T. 2012, *Strategic Management: Concepts and Cases*. McGraw-Hill/Irwin

Sivalingam, P 1997, *International Relations in an Emerging Multilateral World-The Indian Ocean Region 'Sethusamudram' Ship Canal Project*. Retrieved on February 20, 2015, from <http://tamilnation.com/>

*String of Pearls (Indian Ocean)*, 2015. Retrieved October 20, 2014, from <http://en.wikipedia.org/wiki/>

*SWOT Analysis*, 2013. Retrieved October 20, 2014, from <http://www.strategicmanagementinsight.com>





Thompson, J. and Martin, F. 2010, *Strategic Management: Awareness & Change*. 6th ed. Cengage Learning  
EMEA

*Transshipment*, NDoT SA Maritime Transport Sector Study / Part 3/ 27 July 2011

Urbonas, A. and Schwabe, P., *SWOT – Market – Customer analysis*, THE EAST WEST TRANSPORT  
CORRIDOR II

*Vehicle transshipment picks up at Hambantota port*. Retrieved October 20, 2014, from  
<http://www.sundaytimes.lk/>

*Vehicles flow through MRMRP*. Retrieved October 20, 2014, from <http://www.thenation.lk/>

Warushamana, G 2014, *Huge potential for bunkering at Hambantota port*. Retrieved on February 23, 2015,  
from <http://www.sundayobserver.lk/>

*What is a string of pearls strategy?* Retrieved October 20, 2014, from <http://www.wisegeek.com>

Zielinski, K. 2007, *Evolving third – party logistics in the auto industry*. Retrieved November 5, 2014, from  
<http://www.areadevelopment.com>

