‘AN INVESTIGATION INTO THE CURRENT AND FUTURE ECONOMIC VIABILITY OF THE SUEZ CANAL’

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2009

This dissertation is submitted in part fulfilment of the degree of Master of Science in International Maritime Studies – Ship and Shipping Management at Solent Southampton University in September 2009
Declaration

I hereby declare that the work reported in this dissertation is completely my own work unless otherwise stated, and that it has not been submitted previously for any award or degree at any other institute.

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Abstract

This study investigates the current and future economic viability of the Suez Canal. Therefore, the author set out to investigate the claimed dramatic drop in the Suez Canal revenue since the last quarter of 2008 through initially assessing the internal efficiency including the administrative and operational regimes of the Suez Canal and then assessing the impact of the economic slowdown and maritime piracy in the Gulf of Aden.

For this purpose a number of interviews were conducted with experts in the field including ships masters who are currently using or have transited the Suez Canal in the past five years. Other, interviews were also conducted with port managers and operational managers in a general cargo carrier. Data collection also included questionnaire designed and distributed to 20 shipping companies based in the UK and Europe, from which a 25% response rate was received.

Part of the key findings of this research is that the inefficiency of the internal regime of the Suez Canal has considerably contributed to the failure of the Suez Canal Authority in responding and alleviating the impact of the global recession and maritime piracy on their service. In terms of the administrative regime, the lack of coordination between different stakeholders, ineffective formalities organization and complex rate regime were screened to be significant problems. In terms of the operational regime, some concerns were raised by the respondents and interviewees about the long waiting time, the physical limitations of the Canal and the inefficiency of the Suez's pilots.

Amongst all the previously mentioned problems, the assessment of the external forces reveals that the Suez Canal Authority cannot do much about them; however, a better administrative and operational regime would have put the Canal Authority in a better position. The conclusion of this research project suggests few temporary and long term remedial actions which were identified through several suggestions from interviewees and personal observations.
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Chapter 1

1.1 Introduction:

The face of the world is lined and furrowed by great commercial highways along which the trade of mankind is concentrated... considers that statistics of the Suez and Panama canals to be the temperature charts of the planet...by studying these canals we are felling the pulse of world and measuring it rhythm”. (Siegfried, 1940, Introduction)

The concept of globalisation appeared only after the WWII, leading to the emergence of new geographical trade leading to rapid increase in the mobility of merchandise and humans. This phenomenon is rapidly boosted with the increase in ship sizes and types and enhancement in logistical chains, infrastructure and the appearance of multimodal transport. The commercial dynamism can only be explained by the fact that during the last two decades, distances between trading regions have diminished dramatically leading to quick turnaround. The shrinking in distance is largely due to the several waterways, straits or canals that joined seas. One of these waterways is the “Royal Road” the Suez Canal which serves nearly all the European-Asian markets. This canal with its current approach of function will reach its capacity limits to accommodate more and large ships during its 24 hours cycle. As a result, the canal needs to adapt in the years to come in order to preserve its exclusivity and importance to international trade. In this study, the author wishes to verify and investigate the current and future economic feasibility and viability of the Suez Canal in respect with the current global recession, the increase in maritime piracy and decline in the canal’s internal performance. The next part will provide a thorough background about the Suez Canal’s development and introduce some facts and figures confirming the decrease in the Suez Canal performance.
1.2 Brief History of the Suez Canal:

Being one of the imperative links between the Far East and Europe, Suez Canal have played a vital role since late 18th century by intensifying seaborne trade. Since then, it had witnessed dramatic changes with Napoleon Bonaparte’s discovery of the ancient North South Canal running between the Mediterranean and the Red Sea. His attempts to construct the canal connecting both seas were abandoned after survey results showed that there was a difference of water levels between the two seas amounting to 10 metres and locks based canal was inevitable. A century later, Ferdinand De Lesseps, a French savant announced that the difference of water level is negligible. He then obtained a concurrence from Said Pasha, the successor of Abbas Pasha in Egypt, to create La Companie Universale de Canal Maritime de Suez, so to construct the canal and to open it for international navigation. It took 10 years of excavation and dredging to open it finally for navigation in 1869. From then on, the world has recognised the canal’s significance for international trade by playing a vital role in the European penetration and colonization of Africa. The Egyptian share of the canal was then sold to the British as Said Pasha was forced to do so in order to pay his debts in 1875. With France holding the majority of shares, and Britain the remains of it, La Companie Universale de Canal Maritime de Suez was said to be a country in another country (BBC Four, ‘Suez crisis, the other side of Suez1956’), as all the money received from tolls was divided between shareholders. This situation led to the Suez crisis with Jamal Abdu El Nasser; the Egyptian president who nationalized the Suez Canal in 1956. Once the Canal had been nationalized, the British set pressure on the Egyptians to show that they are capable of running the canal and Egyptian pilots were good as Europeans pilots. Years later, with the backup of the United Nations Peacekeepers and financial pressures from US, the British withdrew their interest from the Suez Canal. After 11 years of war, the canal was closed and then re-opened again for navigation in June 1975. Since then, new rules of navigation have been in place by the Suez Canal Authority. The image below shows, a bird eye view of the Suez Canal.
1.3. Development of the Suez Canal:

Currently, the Suez Canal is owned by the state of Egypt, operated and maintained by the Suez Canal Authority. It has been one of the important non-locks waterways in the world. It extends up to a distance of 195 km long from the Port Said north to Port Suez in the south. Its strategic location enabled the liaison of “two oceans and two seas: the Atlantic and Mediterranean via Gibraltar to Port Said, and the Indian Ocean and the red sea via Bab Al Mandab”. (Mohamed, 2004). The significance of the Suez Canal to global trade and the supply chain lays both in its strategic and commercial benefits as it reduced distance and saved a significant cost and time. According to Suez Canal Authority (SCA) distance calculation; a voyage between Tokyo and Rotterdam via the Cape of Good of Hope is 14 507Nm, whereas it takes only 11192 Nm to travel via the Suez Canal with an average transit time of 16 hours, therefore a saving of 23% in distance and 86% saving between the Eastern Mediterranean and Saudi Arabia. (Appendix 1)
<table>
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<tr>
<td>Overall Length</td>
<td>Km</td>
<td>164</td>
<td>175</td>
<td>175</td>
<td>190.25</td>
<td>190.25</td>
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<tr>
<td>Doubled Parts</td>
<td>Km</td>
<td>--</td>
<td>29</td>
<td>29</td>
<td>78</td>
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<tr>
<td>Width at 11 m depth</td>
<td>m</td>
<td>44</td>
<td>60</td>
<td>90</td>
<td>160</td>
<td>180/210</td>
<td>180/210</td>
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<tr>
<td>Water depth</td>
<td>m</td>
<td>10</td>
<td>14</td>
<td>15.5</td>
<td>19.5</td>
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<td>21</td>
<td>22.5</td>
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<tr>
<td>Max. Draft of ship</td>
<td>Feet</td>
<td>22</td>
<td>35</td>
<td>38</td>
<td>53</td>
<td>56</td>
<td>58</td>
<td>62</td>
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<tr>
<td>Cross Sectional Area</td>
<td>m²</td>
<td>304</td>
<td>1100</td>
<td>1800</td>
<td>3600</td>
<td>3800/4300</td>
<td>3900/4500</td>
<td>5000</td>
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<tr>
<td>Max. Loaded ship</td>
<td>DWT</td>
<td>5000</td>
<td>30000</td>
<td>80000</td>
<td>150000</td>
<td>180000</td>
<td>185000</td>
<td>220000</td>
</tr>
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Table 1: The Development of the Suez Canal since 1869
(Source: http://www.suezcanal.gov.eg/sc.aspx?show=11)

Image 2: Development of the Cross Sectional Area
(Source: http://www.suezcanal.gov.eg/sc.aspx?show=12)
From Table 1 and Image 2 above, the physical characteristics of the Canal have developed dramatically since 1869. According to the SCA, the canal currently allows ships as large as 220,000 Ton load or 62 feet of draft, maximum of 68 m above water level and a maximum beam of 254 feet. Some large tankers, unable to transit the canal, can load part of their cargo in The SUEMED pipelines or use one of canal owned ships to reduce the load then re-load it again at the end of the canal. (Suez Canal Authority, 2009).

![Figure 1: Number of ships transiting the Suez Canal every year since 2001](image)

(Source: Suez Canal Authority’s Annual report, 2009)

The number of vessels has increased by 33.28% from 2001 to 2008 with an increase in cargo volume of 49.98% for the same period. The nature of the Canal with its 300 metre wide and 1000 feet at it narrowest point allows an average of 70 ships and 4.5 million b/d flows through the Suez Canal. Its rapid traffic evolution is a clear indicator of the magnitude of the canal in facilitating international trade which makes it one of the vital chokepoints for oils trade.
The Canal also generates a significant income for the Egyptian economy after Tourism; with the Canal contributing by 3.2% in the Gross Domestic Product (GDP) in the Service Sector which accounts for 45% of the overall GDP in all sectors. Revenue of the Canal comes mainly from the fees charged for transit and the deck container surcharge for General and Containerships. The tariff is based on the vessel’s Suez Canal Net Registered Tonnage (SCNRT) with the authority categorising vessel into eight classes of ships, each of them is charged separately.
1.4. Rational of this study:

From the statistics provided by the SCA, it can be seen that there has been a sharp decline in the number of ships and cargos transported via the canal since September 2008. The Suez Canal Authority announced a 7.2% decline in revenue during the period January 2009 and July 2009 (Aljazeera News Channel, 27 July 2009, 20:00 Hrs). This decline is mainly due to the ongoing global recession and maritime piracy in the Gulf of Aden. These elements are mainly short term problems. Nevertheless, they pose major risks on the economic viability of the Suez Canal for ship-owners, charterers and the shipping community, as many shipping companies are diverting their fleets around the Cape of Good Hope. Yet other factors such as the internal efficiency of the Suez Canal Authority could be one of the contributing factors to this decline. In the framework of this study, we are particularly interested in the Asia-Europe market and the reason I am conducting this is mainly because not much attention has been given to understand the impact of these factors on the global commerce and the Suez Canal survival. In fact, the Suez Canal will soon reach its limit (Drewry, 2008) as granting...
access to larger vessels will increase the number per vessel per convoy; and as a consequence increase waiting affecting other trades. Shipping companies transit via the Suez Canal for two main reasons to save cost and time. These mentioned internal and external factors will inevitably increase the days and consequently cost, determining the new dynamism of the Asian-Europe trade.

Figure 4: Total volume of cargo carried via the Suez Canal between Sept 2008-April 2009
(Source: Suez Canal Authority Report, 2009)
Chapter 2: Aims, Objectives and Methodology:

2.1. Aims and Objectives:

This research project was born partly out of the necessity to provide an early assessment of the internal and external factors leading to the decline in the revenue of the Suez Canal. The internal factors will take into account the efficiency of the service provided by the Suez Canal in term of the handling of the administration and operations services. Then, an assessment of the external factors leading to this decline through looking at the global financial crisis and the impact of maritime piracy with respects to Somalia on the international trade via the Suez Canal, the profitability of Suez Canal Authority and their future development, taking into account the possibility of the aforementioned unintended consequences.

Specifically, the research aims at (1), assessing the impact of global recession and piracy in the Horn of Africa on the economic validity of the Suez Canal; (2), assessing the efficiency of the Suez Canal as an organisation; (3), and to critically evaluating ways of improving efficiency of the Suez Canal.

In exploring the above objectives, the study deals with the following fundamental questions that will be answered both in the literature review and the finding; then both primary and secondary material will be discussed and evaluated for the proposition of recommendations to mitigate the risk of more decline in revenues. Firstly, how the Suez Canal is managing the administration and operations aspects of the canal? What are their deficiencies and how could that be improved? Secondly, this study will be answering the questions of how the global recession could possibly affect the Suez Canal Authority and what are the main trades that are really hit hard, and could the Suez Canal do something to attract them back? Finally, is piracy really affecting the Suez Canal and are there measures related to this factors that can reverse the trend and attract back ship-owners as pirate attacks are increasing and spreading towards the Red Sea?
2.2 Methodology:

2.2.1 Research methodology:
Research methodology can be considered as a structure or guidelines for collecting, sorting out and organizing data in order to achieve certain outcomes. Alvesson and Deetz are of the opinion that research methodology can be considered as a structure or framework that enables the researcher to produce empirical materials and additional information that can help in understanding existing theoretical materials, (Alvesson et al, 2000: 58).

In this research, the author intends to combine prosperity of secondary and primary data; the data will be obtained by means of interviews and responses through questionnaires, which have been designed to be administered on 20 respondents. However, the data will be dominantly extracted from personal interviews, as this method has proved to provide more flexibility and in-depth information, which could not be gained from structured questionnaires.

2.2.2 Research Strategy:
The researcher aims to analyse the efficiency of the Suez Canal, using financial data, traffic and cargo statistics, as well as academic materials and point of views in trade publications and internet materials tackling the relevant issues. Among others and in order to understand the current attitude of canal users and to identify and evaluate the reasons for the poor performance of the canal, different methodologies are used for each of the research objectives.

- **Objective 1**: To assess the efficiency of the Suez Canal Authority: Personnel interviews have been conducted with masters currently transiting the canal. The reason for approaching masters because, they spend an average of 15 hours in the canal and they are faced with all the operational and administrative services provided by the authority. These masters are located both in Tunisia and UK. Apart from masters, this study required more views from a managerial level in shipping companies as they are in direct relations with the Suez Canal authority. Therefore, a personnel interview has been also conducted with an operational manager in a shipping company located in Tunisia. To extend my research enquiry, a standard questionnaire has been
sent to General Managers and Commercial managers in several shipping companies.

- **Objective 2:** To Assess the impact of global recession and maritime piracy as one of the factors leading to the poor performance of the Suez Canal: Primary data have been also collected from the same questionnaires sent to the shipping companies, as well as from an interview conducted with the operation manager of the Tunisian Ports. The reason for approaching this expert is because global recession is affecting the Suez Canal and it was assumed that the role of Suez Canal goes beyond feeding major European ports and affect transhipments activities in the some Mediterranean. Like every other research work, this project has its own limitations. Firstly it doesn’t cover a large number of shipping companies and it does not claim to be representative in way or the other of the Suez Canal Authority busy maritime activity. Secondly, it has not been possible to gain information for the SCA, with regards to this project, in spite of the numerous attempts to contact them via their various departments located in Alexandria, Egypt.

- **Objective 3:** To critically evaluate ways on improving the efficiency of the Suez Canal: these objectives will combine different ideas that are collected from masters, port managers, and operations and commercial managers in shipping companies. These objectives will be then subjected to several criteria to determine their effectiveness as a way forward in improving the Suez Canal performance.

### 2.2.3 Questionnaires:
Mark Saunders, Philip Lewis and Adrian Thornhill view that questionnaires are not effective methods for exploratory and studies that requires a large numbers of open-ended questionnaires (Saunders. M et al, 2007). However, Robson argued that questionnaires are more effective if they are made standard and can be interpreted in the same way by all respondents (Robson, 2002). Therefore, questionnaires in this study are used to identify different opinions and particular organizational practices in dealing with different phenomena. This sample has been selected through looking at trade publications such as Lloyd List and the shipping company directory in the UK.
and Europe. Then a process of selection has been conducted to identify companies that are currently trading via the Suez Canal. The questionnaires are self administered by the respondents; as a result, the data collected relies on them for completion and return by email or post. As it has been difficult to gain access to managerial level, this posed a weakness in assessing the efficiency of the Suez Canal and the impact of global recession and piracy of the Suez Canal authority and international trade. But in order to ensure appropriate and decent responses to my questionnaires, I had conducted a pilot study with several colleagues of mine at the university level. After amendments and improvements the questionnaire then were sent to various potential respondents.

2.2.4 Interviews:

As part of this study I have managed to conduct six interviews; two over the phone and the rest were face-to-face interviews. I decided to go for the semi-structured interview method as this would give flexibility by allowing for new questions to be brought up during the interview. Some of interviews were recorded digitally and then transcribed. The data collected was then categorized into 4 different themes with regard to the objectives of this study and then analysed.

2.2.5 Secondary data:

Boslaugh argues that a major limitation in the secondary research is that the data collected is intrinsic in its quality, as this data is not meant to answer my research questions or specific information that may not be collected elsewhere (Boslaugh. S.2007: 4). Secondary data is defined by Saundlers as data that have been already collected for some other purposes (Saundlers Et al: 2007). This combines a wealth of books, published journals, trade publication, websites, presentations, seminars as well as trusted sources of internet articles and the Suez Canal Authority Press. The bulk of the literature review has been collected from Southampton Solent Library, the University of Northampton and the School of Oriental and African Studies (University of London), where a large amount of data has been acquired.

I have tried to complete this study to the best of my capabilities and the resources that where available to me, in contrast it could have been completed in a better way if the
SCA accepted my request to conduct telephone interviews or send questionnaires and have access to their archive material.
Chapter 3: Literature Review:

3.1. Introduction:

A literature research has been carried out and it has become clear that there are few books and academic journal references specifically about the efficiency of Suez Canal, which made the research more unique meanwhile challenging. However the author has found sufficient materials around the areas of research including trade publications, papers and presentations.

3.2. The world trade regime and the Suez Canal

Chokepoints have been defined by Rodrigue J.P as "a common concept in transport geography as they refer to locations that limit the capacity of circulation and cannot be easily bypassed, if at all. This implies that any alternative to Chokepoints involves a level of detour or the use of an alternative that amounts to substantial financial costs and time delay" (Rodrigue, 2004). These chokepoints, which will be referred to as straits or passages in this study, they play a vital role in feeding worldwide demand of energy. According to EIA (the Energy International Association), about one half of the world oil amounting to 43 million bbl/day had been carried by tankers through these passages. Therefore, their blockage can lead to substantial global energy crises. Six major straits serve the oil trade; the Strait of Hormuz connecting the Persian Gulf with the Gulf of Oman and the Arabian Sea, the Panama Canal connecting the Caribbean Sea with the Atlantic Ocean; the Malacca strait, the main shipping line ween the Indian Ocean and the Pacific Ocean and handling one quarter of the world trade; the Istanbul strait also known as Bosporus, which connects the Black Sea and the Mediterranean Sea; Bab El-Mandab which connects the Red Sea with the Gulf of Aden, and finally the Suez Canal connecting the Red Sea and the Mediterranean Sea which is the centre of attention of this study.
3.3. Concerns for a canal of high value - the Suez Canal

3.3.1 Suez Canal from an economic perspective:

The Suez Canal contributes by 3 to 4% to the GDP of Egypt after tourism as a major contributor (*Egypt National Bank report*, 2009). Therefore, from an economic perspective any decrease in the government's income from the canal tolls will have an impact on the economic growth of the country. The graph below (figure 5), originating from the Central Bank of Egypt, shows the amount received in million dollars from canal dues from the first quarter to 2007/2008 until the third quarter of 2008/2009. During the period 2007/2008 the tolls received witnessed an insignificant fluctuation, decreasing from 1298.1 US$ Mn in the Q2 to 1235.2 US$ Mn. From then the canal income increases dramatically to attain a ceiling of 1455.1 US$ Mn in the first Quarter of 2008/2009.

The reason for not selecting dates prior the 2007/2008 is because the global economic crisis have started since that time to spread out of USA and the finance industry to affect other industries slowing down the international trade. A report published by the United Nations explains the reason for the economic crisis and argues that the "World trade volume is growing at only half the pace of recent years" (*United Nation staff*, 2009) and the volume of global trade have slowed to 4.4% in 2008 compared to what it had been in 2007 of 8.7%. The volume of southbound and northbound trade going through the Suez Canal is vital to the global economy. In the first Quarter of 2008/2009, the canal income started to decrease to attain a 950.4 US$ Mn as declared by the Central Bank of Egypt, thus a massive decrease of 65% was witnessed in the third Quarter of 2008.

![Canal receipts](image)

Figure 5: Canal Receipts 2007-2009 (Source: Central Bank of Egypt CBE staff, 2009)
This decline in the Canal’s income has been followed by a decrease in revenue received from tolls followed by a decrease also in the number of ships and volume of cargo transported on ships. As illustrated in figure 6 sourced from the monthly and annual report published by the Suez Canal authority, it is confirmed that the total number of vessels transiting the Canal declined from 8143 in 2007 to 6,974 in 2009. A CEO and senior analyst in the AfrikaSources; a monthly magazine, argued that the world economy has lead to a drop in the SCA’s revenue by 200$ million or 13.4 % in the first quarter of 2008/2009 and this drop will have a long term affect that will urge the Suez Canal authority to amend their regulations and policies in order to satisfy ship-owners such as Mearsk line’s AE7 service, CMA-CGM container service and China shipping. (AfrikaSources staff, 2009). These shipping companies have as a result begun to divert their services around the Cape of Good Hope in order to avoid expensive tolls and the Somalia pirates in the Gulf of Aden.

![Figure 6: Total number of vessels](Source: Suez Canal Authority Annual Report, 2009)

### 3.3.2 Suez Canal from an administrative perspective:

Part of this study is also to investigate the internal dynamics and factors that contribute to this decrease in traffic. The Suez Canal Authority is an organisation and profit making company that provides services and uses tangible and intangible resources to achieve their objectives. Administration of ships transiting the Suez Canal is a complex and multidimensional task involving several and correlated activities, where the SCA deals with several agents who in turn subcontract their
activities to third parties. All of these entities in the chain of organisations work for a common objective which is to service and satisfy shipping companies. Therefore, an effective management of the administration and choice of service providers, for instance for bunker or crewing, is vital in the overall satisfaction of masters and shipping companies.

*The role of canal Agents:*

After 30 years of state maritime monopoly (Müller, 2002: 146), the Egyptian government allowed partial privatization of their administrative sector by allowing outsourcing the daily operations to private shipping agents. Agents are licensed by the Suez Authority and given a share of the traffic according to their capability. According to the SCA website, currently there are 140 agents with Seabird Suez Canal, a private company sharing 14% of the market, and the rest is handled by other public owned companies.

The Canal agents serve the need of ship-owners using the Canal. They handle all the commercial and operational side as well as financial and other services such as tolls calculation and rebates selections and parts sale and purchase and crewing. Therefore, they are in the heart of the operations, and the reputation of the authority lay in the hands of these agents. Every aspect of these activities relies on an efficient two-way data exchange mechanism, qualified and trained staff. As mentioned earlier, the Suez Canal is a public owned company. Daniel Muller argues in his book the *Transport policies for the Euro- Mediterranean free trade area* that one of the key issues that creates obstacles in the development of the Suez Canal is that the Egyptian government is not really realizing the full potential of the Suez canal as a strategic locations and as a “Gate Keeper” (Müller, 2002: 145).

As a way of comparison, the Panama Canal is considered as non-profit organization. Its tolls are structured in a manner that covers their expenses. The Panamanian look at the long term benefits of the Canal rather than what they can get from its revenue. Their policies allow for private entities to come in and run every aspects of the Canal, which have lead to a greater improvement in the quality of service as well as the infrastructures around and in the Panama Canal (Müller, 2002: 145).
To get in depth, Daniel reported that policies adopted by the Egyptian government are missing what he called “an enabling policy framework”. With this in mind Daniel indicated that the potential development and modernization of the administration regime is restricted within two main constraints: (1) the government budget, whereby spending will be restricted to what the government prioritizes and think it requires more attention than others. A study conducted by David Parker suggested that public ownership is to be believed efficient because the benefits associated with public ownership in low market condition could surpass the cost (Parker, 2000: 30). This could be one of the reasons explaining why a little attention has been paid to fully privatizing the Suez Canal and giving full control and budget independence to private entities. Parker also suggests that public ownership is desirable in a way that handling the commercial operations to a private body could cause economic distortion in the country (Parker, 2000: 31). (2) Other constraints include the heavy taxation regime, the strict and long administration regime and cumbersome formalities imposed. Müller argued that despite the new development of the administration regime since 2000, “inefficient custom clearance service continues to be an important logistical bottleneck” (Müller, 2002: 146) for the SCA before and during a vessel can transit the Canal. Daniel also argued that according to the World Maritime Bank, the inefficiency of the Egyptian maritime sector has cost the Egyptian economy more than one Billion per year. He added that the authority requires a liberalization and privatization scheme to attract private investments and develop a more competitive environment (Müller, 2002: 145).

Daniel Muller also argued that during his research he came across several private companies that are dealing with the Suez Canal; they portrayed the canal authority as “the most bureaucratic entity in Egypt” (Müller, 2002: 145) due to the fact that the SCA have not much control over of their canal agents including pilot company, Mooring boat companies, Searchlight companies, Lifting device companies, Ship-Chandler companies and immigration and the several inspections officials. Müller adds that the SCA needs to look at the way the Panama canal runs their business and adopts a similar regime which he believed have resulted in greater improvement to the Panama Canal since the withdraw of the government from any commercial and operational activities. (Müller, 2002: 186)
Because, there is limited if not inexistent academic literature with regards to the efficiency of the administrative process before transiting the Canal, this section has dealt only with the difference between the efficiency of the administration between private and public owned companies. In order to get in details, Chapter 4 of this study investigates the administrative part in more details and from shipping companies and captains’ perspectives.

3.3.3 Suez Canal Authority from an operational perspective

3.3.3.1 Physical characteristics and shipping capacity of the Suez Canal

Comparing to the Panama Canal’s level of water in each side of the river, the Suez Canal has almost the same sea level in both ends. Therefore, making it possible for ships to transit without the need for locks, whereas transiting from the Caribbean Sea to the Pacific Ocean requires the use set of locks that lift the ship up and down to average it with the river level. The width of the canal is 180-200, though only 110 m is navigable, there is no space for two way traffic. (Appendix 2) However vessels are allowed to pass each other in two sections; the Great Bitter lake between km 103 to km 113 allows 36 ships to anchor in the mooring area, the Ballah by Pass which is a man made mooring areas between km 51 to km 60. J.D Griffiths argued that Lake Timsah is 5 km and rather shallow at a large of breadth of its water periphery. Therefore, it cannot be used neither as a mooring area, nor to accommodate two way traffic. He added that this area could have the potential to reduce the congestion of ships mooring in the Bitter Lake, thus increasing the number of ships per convoy (Griffiths, 1995). Griffiths added that increasing the size of this area will not delay the daily transit of ships, as the shallow area is not used for merchants’ vessels. Nevertheless, the SCA authority needs to amend their convoy systems which could affect the schedule of liner companies, (Griffiths, 1995) as this double parts of the canal have not changed since 1981. Griffiths et al indicated that one of the main constraints also in the Great Bitter Lake is the physical restriction as the areas capacity depends on the size of ships (Griffiths et al, 1987).
In his study, Griffiths assessed the characteristics of the Suez Canal against its shipping capacity and he concluded that the ultimate project will be to provide what he called “A dual water way” in the central area of the canal between 51 and 131 km, thus increasing the two way traffic sections within the canal from 42 Km to 80 km, and accordingly from Ballah By Pass to the Great Bitter Lake. This project will increase the transit capacity of the Canal to 112 standard ships (Griffiths, 1995). It can be argued here that this project could open new dimensions by reducing the waiting time and most importantly increasing the number of ships. Besides, this will encourage the authority to reduce tolls while maximising profit. However implementing such a project requires the interruption and the diversion of the traffic for a long period; in addition to the enormous cost of implementing such a project.

3.3.3.2 Suez Canal Convoy systems with regard to time

As it has been made clear in the preceding section, the major length of the Channel accommodates only one way traffic and the remaining sections allow vessels to pass one another. A convoy system has been in place for a long time. Two southbound convoys N1 and N2 transit from the Mediterranean to Suez, and one northbound convoy S1 for ships transiting towards the Mediterranean to the Suez operate each day. The First southbound convoy starts at 0000h hours, and anchor at Bitter lake. At 0600h, the Northbound starts moving from port Suez straight towards the Port Said without stopping. Meanwhile, the second southbound convoy N2 starts moving from Port Said and anchor in Ballah by Pass waiting for the northbound convoy to pass by. The N1 proceeds to Port Said followed by N2. The SCA has strict policies on the time limit for ships to arrive at the point of departures. A set of radars and sensors are placed in both ends of the Suez Canal. Ships arriving after 6 hours limit time before the starts of the convoy have to pay between 3 to 5% surcharge alongside the tolls. The transit time takes between 11 to 16 hours and the canal accommodates 78 ships per days both northbound and southbound. A study conducted by Griffiths suggests that altering the convoy system could be improved by as much as 44% increase in capacity. This figure does not represent the number of ships per 24 hours, but per 48 hours. The results started with identifying what he called “Dead-time”. This period
refers to the time when there is no convoy. The red section in figure 7 refers to the
dead-time, whereas the green section refers to the convoy moving.

Griffiths argued that this period amounts to 50% of the 24 hours, hence only half of
the Canal’s capacity is used. (Griffiths, 1995) This explains the increase in waiting
time claimed by shipping companies as well as the reluctance of the Suez Canal to
reduce tolls. One explanation could be that reducing the toll may increase the number
of ships transiting the Canal, which in turn increases the waiting time causing delay
and congestion. To reduce the dead-time or the time where the Canal is unproductive,
J. D Griffiths suggested that the cycle of transit has to be expanded to 48 hours
instead and the configuration of the convoy system needs to be altered (Griffiths,
1995). Figure 8 retrieved from his research illustrate how the dead time could be
reduced to as much as 20 % of the overall transit cycle. The response of the Suez
Canal to this idea was not encouraging and they claimed that customers are already
using the same systems for more than 20 years, and altering the cycle of transit could
affect their business. In addition, increasing the number of ships per convoy will
reduce the speed of transit and reduce the safety distance between two ships as the
process of stopping a ship is very difficult in confined water. Yet, Griffiths suggested
that the cycle of 48 hours could be implemented temporary if the number of vessels
increase during certain periods in order to sustain the normal waiting time experienced in normal market condition (Griffiths, 1995).

![Diagram of Suez Canal and its surroundings](image)

Figure 8: New convoy systems (Source: Griffiths, 1995)

### 3.3.3.3 Pilotage, Navigation and Safety Features of the Canal:

The Suez Canal has evolved through the years keeping up with the latest advances in navigation and marine technology. According to some sources the percentage of accidents is almost nil compared to other waterways. The Canal operates a strict policy of safety making Pilotage compulsory for every ship and tugs boats for large tankers. The Suez Canal implements two VTS stations at Gulf of Suez and Gulf of Aqaba and Central VTMS in Port Said. In a report published by the IMO in 2004, insurers and marine underwriters have had increasing concerns with regards to the Canal Pilotage standards, which was said to be not confirming with international standards, and the risk of grounding and collusion could be costly and leads to environmental disasters in the area. This report was published in 2004, however according to the SCA, the authority has put in place a Centre for Maritime Simulators (Appendix 3), with the main objectives of training pilots using Advance Bridge Simulator which imitates real ships environments in great details and they are extremely realistic. This enables pilots to use and maneuver different types of vessels, in different weather conditions and in emergency situations. In addition the centre
holds an analysis department that conducts assessments of incidents identifying causes and implementing risk management measures in order to mitigate them. Furthermore, the centre constantly studies the behaviour of different ships within the different parts of the Canal, (Appendix 4); as an imitation of the whole length of the Canal is constructed in miniature version which allows different ships to be tested against the physical characteristics of other Canals. From what one can see, and without referring to any evidence from academic material about the efficiency of the Suez pilots, it will be hard to confirm what the insurers and Marine Underwriters claim. Nevertheless, chapter 4 will discuss these issues from a master and shipping companies' perspectives.
3.3.4 Suez Canal and the Global recession:

3.3.4.1 Ships types, International trade and Suez Canal

Without looking at the history of the current global recession, it will be hard to comprehend its implications on international trade and specifically on trade via the Suez Canal. The widespread of banking problems and the credit crunch in the USA and Europe has triggered in the 4th quarter of 2008 a fall in growth in other developed countries such as UK, Europe and Japan (Figure 9). Consumer demand for various goods has decreased. Such consumer products are outsourced from different parts of the world, most of it in Asia, making ships the most economical means of transport.

![Graph showing growth in developed countries between 2007 and 2010](image)

Figure 9: Growth in developed countries between 2007 and 2010 (Source: United Nation staff, 2009).

To get a clear picture of the distribution of ship types transiting the Canal and those most hit by the recession, statistics retrieved from the Suez Canal Authority's monthly and annual reports are collapsed and put in the following pie chart and diagram 10 and 11. The pie chart below illustrates the annual number of vessels transiting the Suez Canal brought to the author's attention, that only three trades, the tanker, the Bulk and Containerships are the major users of the canal with containership leading the list by 39%. After assessing the data, presented in Figure 11, 12 and 13, the author identified that the tankers and bulk carriers transiting the Canal are not contributing to
the decline in number of ships, whereas containerships are witnessing a sharp decline compared to previous months.

![Pie chart showing the percentage of different types of ships transiting the Suez Canal every year.](image)

Figure 10: Total number of ships by type transit the Suez canal every Year (Source: SCA Annual report)

This analysis was undertaken to narrow down the amount of research and focus it on the containerships trade. Figure 11 shows that containerships are the major users of the canal with usage rates of an average of 7616 ships between 2006 and 2008 or 39% of the total ships transiting the Canal between those periods.

![Graph showing container traffic via the Suez Canal between January and May for three consecutive years (2007-2009).](image)

Figure 11: Container traffic via the Suez Canal between January and May for three consecutive years (2007-2009) Source (Suez Canal Authority)
In addition, from looking at graphs 12 and 13, the tanker ships and bulk carriers are not really witnessing any decline as a comparison with the previous year as they show similar trends. However container ships have declined dramatically since January to increase in mid March and fall sharply in May. Comparing this trend with the previous years, it can be argued that the growth in international trade and demand for products and containerisation should instead either lead to an increase in the number of ships and tonnage or a sustained growth. However, this is not the case in the current economic climate.

![Graph 12: Tanker Trade via the Suez Canal](Source: SCA monthly reports)

![Graph 13: Bulk trade Via the Suez Canal](Source: SCA monthly reports)

### 3.3.4.2 Ships expenditure and the ship-owners decision to transit the Suez Canal

Other ingredients that affect ship-owners decision to transit the canal are the fluctuation of bunker price and the rocketing of insurance premium. These elements amplify ships expenditures, which will be passed to charterers who in turn will pass the cost to shipper, receivers or consumers. Many ship-owners have either laid up their ships because the cost of operating the ships exceeding the profit, or others have reduced their turnaround by reducing the number of voyages and relying on the economy of scale through using bigger ships such as Mega-containerships with a nominal size of 8000 TEU. Companies such as Japan’s MOL, Hapag-Lloyd, NYK, OOCL and MISC decided to reroute their containerships around the Cape of Good
Hope in order to avoid high tolls that exceeded $700,000 for a very large containerships (Porter and Grinter, 2009). Other large shipping companies such Mearsk line; CMA-CGM and the Mediterranean Shipping Company MSC announced that they are too diverting their large containerships around Africa. Porter and Grinter agree that from an economic perspective and taking in hand the market situation the "diversion makes sense because of lower bunker prices that enable lines to save money despite burning more fuel on the longer voyage" (Porter and Grinter, 2009).

From the point of view of ship-owners two options lay ahead, if they use the Suez Canal two things will be considered, (1) they need to raise the amount they charges on the Canal, hence this will increase freight rates and shippers will pay more. In this case the ship-owners will keep sending their ships via the Suez Canal. But, the decision to do so lay entirely in the hands of the charterer and the shippers. (2) The cost of running the ships and the type of charter are crucial in the decision to transit. In case of the time charter and voyage charter, charterers will pay only a lump sum or daily hire for the owners. According to the charter party contract BALTIME Time Charter “The charterers shall provide and pay for all fuel oil, port charges, pilotages (whether compulsory or not), canal steersmen, boatage, lights, tug-assistance, consular charges (except those pertaining to the Master, officers, and crew), canal, dock and other dues and charges.” (BIMCO, https://www.bimco.org/, 2001). In some reports, the cost of re-routing around the Cape of Good Hope is actually less than the total of tolls and insurance paid to transit the Suez from most of the vessels. To make things worse, the shipping community including ship-owners and organisations such as INTERTANKO, INTERCARGO, BIMCO and the International Chamber of Shipping have approached the Authority of the Suez Canal in an attempt to convince them to reduce the charges imposed on ships. (Porter and Grinter, 2009). These attempts have failed to bring any results and currently until the completion of this study the tolls have not been changed.

AXS Aphiliner, an information service that tracks the container trade has argued in their July 2009 report that 15% of the current container capacity will be inactive by October (Economist, 2009). This figure is worsened by Drewry an independent maritime Advisor argued that the containers service between Asia and Europe lost
about $20 Billion, and ship-owners try to offset this figure by slow steaming to save fuel and "opting for the longer and cheaper route round the Cape of Good Hope, which avoids hefty fees for using the Suez Canal" (Economist, 2009).

Another report by the Supply Chain Digest, an online information service about Logistics and Supply chain Management identified three main reasons that have taken the "once hot sector to absolute pummelling" (SCDigest Editorial Staff, 2009). Firstly the volume of import in containers has decreased by as much as 20.6% between January and June 2009. Secondly this decrease in volume is made worse by the fact the ship order book is full and some shipping liners have already ordered Mega Containership that can transport more than 10000TEU, these ships will be added during the next three coming years to the current capacity. This will lead some liners having to pay penalties for cancellations or lay off smaller container ships and use the new megaships for service around the Cape of Good benefiting from the economy of scale and saving on fuel (SCDigest Editorial Staff, 2009). Thirdly, spot rates are weakening. Supply Chain Digest staff indicated that the rental of FLC ships has decreased by 80% from $38,500 to only $5700. He added that it costs $1400 to transport a container between China to Europe; this rate has gone down to merely $400, with shipping companies recovering only their costs and aiming for closer market recovery. (SCDigest Editorial Staff, 2009).

To conclude this part, it is very clear that the global recession is hitting hard on the shipping industry; this is affecting the Suez Canal Authority and Egypt as mentioned that it is their 2nd Source of foreign currency..
3.3.5- **Suez Canal and Maritime Piracy:**

Without a week passing by, the shipping industry, governments including security experts are raising the level of threats that is facing the safety of vessels transiting some major regions knows to be hot spots for piracy and armed robberies such as Golf of Aden and coast of Somalia. Nations of the world have known piracy since 3300 years, where pirates sailed in rowing boats with weapons together with brass guns, swivel guns, handguns and swords and where chief pirates dressed in scarlet tunics and armours coats. Nowadays, people undertaking these attacks are not anymore poor coastal inhabitants banded in groups and attacking individual merchant vessels, but they now appear to be sophisticated, organized and more equipped with advance technology and armed with heavy machine guns. 22000 ships transit the Gulf of Aden every year between Asia and Europe, with the cost of deviating through the Suez Canal or going around the Cape of Good Hope adds significant costs and delay to consumers and customers. (Ross Kamp in search for pirates, SKY 1, March 2009). Therefore this area of the sea has been recognized as lucrative target for attacks and seizures of vessels and cargos (Image 3). In a report published by the Lloyd list, pirates of the 21st century said to “use all the digitals tools to hunt down the next victim” (Lloyd Editorial staff, 2009), whereby pirates use similar AIS (Automatic Identification Systems) used in merchant ships and VTMS station to locate and select ships.

![Image 3: Three major piracy hotspots](Source: Ross Kamp in search for pirates, SKY 1, March 2009)
Piracy is defined by the International Maritime Bureau IMB; an organisation created by the international Chamber of Commerce, as "an act of boarding or attempting to board a ship with the intent to commit theft or any other crime and with the intent or capability to use force in the furtherance of that act" (Young, 2007:10). Other definitions were given by other bodies such as the IMO and the UN. This definition is only useful for an operational purpose in order to assess the situation and distinguish it from armed robbery or terrorism where the response could be different.

3. 3.5.1 Current situation of pirate attacks between January and June 2009

Merchant ships originated from Asia and the Arab Gulf use the Straits of Bab al Mandeb as an entrance to the Red Sea then to the Suez Canal. The Suez Canal Authority declared that piracy in not at all a problem to the vessels using the Suez Canal. (Wingrove, 2009) In an interview conducted with Abdel Moneim, director of Al Ahram Centre for Strategic Studies in Egypt he told VOA news that “The piracy is zero. I mean, because the piracy is now handled by a number of forces, and the international trade, when it was going up last year and the year before was not affected by that factor” (Yeranian, 2009). Nerveless, monthly reports published by the IMB showed that the presence of the international navy and coast guards in the areas of Bad el Mandab and the coast of Oman are not deterring pirates from hijacking ships; instead the number of attack dramatically rose. In March 2009, MV Sultan was hijacked and seized 50 miles from Bab El Mandab (Image 2) by pirates in the watch by both an American navy ship and the British navy NV Northumberland. Both navies could not deter pirates from hijacking the ships fearing that any action could lead to unwanted consequences. In a discussion with the NV Northumberland Naval force officer, Ross Kemp, concluded that the only time a vessel could be saved, is when the navy catch the pirates in the act of seizing the ships as once they are onboard the safety of the crew comes first. In a last radio transmission with the captain of the MV sultan which was surrounded by 3 helicopters, pirates ordered both American and British navy ships and helicopters to "stay away.... As the ship is on its way to Somalia", and it did go indeed (Ross Kamp in search for pirates, SKY 1, munities 30-38, March 2009).
According to a report by the IMB, attacks also reported to extend beyond Bab el Mandab and into the Red Sea, where it could also make ships more vulnerable to attacks than in the larger areas of the Gulf of Aden. (ICC –IMB staff, 2009) The diagram below illustrates the number of attacks in Africa, noticing that 10% or 14 attacks have been reported in the Red Sea.

Figure 14: Number of pirates attacks reported in Africa between January 2009 and June 2009  (Source: ICC–IMB staff, 2009).
To conclude, piracy is growing and spreading to cover the Red Sea, threatening ships heading towards the Suez Canal. The next part of this chapter will look at the economic impact of the piracy at sea on Suez Canal and international trade.

### 3.3.5.2 Economic consequences of the attack in international trade

The economic consequences of piracy in the gulf Aden goes beyond affecting the Egyptian economy and the Suez Canal Authority. Monie indicated in his paper given as part of European commission conference held in January 2009 that these incidents extend to affect Mediterranean port authority causing a decline in the number of ships calling at their ports and loss of cargo for transshipment through Mediterranean hub ports such as Aspasia port in Italy. (Monie, 2009) According also De Monie’s study, the impact also increases the total operating expenditures and decrease carrying capacity for regular shipping lines. (Monie, 2009) The table below illustrates the difference and the elements involved in the choice of routes and their economic viability for charterers. This study was conducted by the US Maritime Administration and various bodies in order to show vessel related expenditure as a consequence of piracy attacks.

| Table 2: Vessel related expenditures as a consequence of the piracy in the Gulf of Aden, (Source: USA Maritime Administration). |
Another study conducted by the USA Maritime Administration illustrates the real cost associated with the transit of the Suez Canal. The findings show that ship-owners need to add an average of 155,000 USD $ per transit to cover insurance, to pay for the licensed guards and other equipments used to deter pirates from boarding the ships such as “SONIC DETTEREENT EQUIPEMT” (Appendix 5). In some cases, where the transit involves large container ships, it was argued in a research conducted on several container shipping companies that SCA receive around $700,000 as tolls for the transit.

Due to the limited data that can be gathered to specify the exact amount lost by the Suez Canal Authority in the period since September 2008, several studies conducted by the IMB and Lloyd Maritime Intelligence concluded that piracy is contributing by up to 20% in the decrease in canal revenue. This decrease is simply because “maritime insurance premiums for vessels travelling in piracy-prone areas are significantly high...owner and charterer must weigh the risk in this situation” (Nast, 2009). A statement made by the spokesman in the SCA to Reuters confirmed that if piracy continues at the current rate, it will certainly affect the Canal revenues, and even more the future plan to expand and widen it. (Yusri, 2008). What this meant is that the ongoing project to expand the Canal to accommodate larger containerships and oil tankers with a larger beam and deep draft will occur massive spending and the reluctance of ship-owners to use the Suez Canal could lead to the failure of the project not paying for itself.
3.3.5.3 Bab El Mandab:

Bab el-Mandab is largely outside the remit of this study as the SCA have no direct influence on the straits, however the author feels it is significant to recognize its importance to the global energy trade. The Strait can be considered as one of the vital chokepoints between the horn of Africa and the Middle East and it has been used since long time as a strategic link between the Mediterranean Sea and the Indian Ocean. Exports from the Gulf must pass through Bab el-Mandab before entering the Suez Canal and access the SUMED pipeline. According to the EIA, an estimate of 3.3 million bbl/d passed by this strait toward Europe, the United States, and Asia, with 75% of the traffic accounting to 2.1 million bbl/d, flows northbound. (EIA Staff, 2008).

Although Bab el Mandab is 18 miles wide at its narrowest point, only 2 miles of its width are navigable for both inbound and outbound shipments. Sampson and Gvosdev argue that an attack on a tanker ships such as the Sirius Star, a crude super tanker hijacked in late 2008, could have a devastating impact that could literally stop all the traffic towards the Suez Canal, leading shipping companies to divert around the Cape of Good Hope, which in turn will lead to a sharp rise in energy costs (Sampson and Gvosdev, 2008).
3.4 Conclusion:

In the literature review chapter, this study assessed the Suez Canal from four different aspects. Initially, the author deduces that the administrative aspects can be improved if formalities and Canal documentations are better structured. In addition, the Suez Canal can improve through close monitoring of their canal agents and their subcontractors. Secondly, in term of the operations aspects, the study of Griffiths shows that amending the convoy systems could increase the capacity of the canal, without making any changes to the physical characteristics of the Canal. Another important finding reveals that Suez pilotage is not conforming to international standards. In terms of the Global recession, the study focuses on container trade as it has been revealed to be the most affected by the global recession and it is affecting the Suez Canal turnover. It was argued that the Suez Canal are not encouraging containerships companies, instead the rate regime is very strict and several surcharges are applied on them compared to other types of vessels who benefit from the SCA rebates systems. Maritime piracy is exposed to be a major threat for the Suez Canal as pirates are spreading their attacks towards the Red Sea threatening a very busy shipping lane.
Chapter 4: Findings

4.1 Introduction

This research has been engaged in looking at the reasons for the recent decline in ship and cargo traffic via the Suez Canal. As previously mentioned, this study investigates the critical factors that are contributing to this decline. Reflecting on the objectives of this study; (1) to assess the internal efficiency of the Suez Canal Authority, (2) to assess the impact of global recession and maritime piracy in the Gulf of Aden on the SCA, and (3) to critically evaluate ways of enhancing the performance of the Canal. This chapter attempts to introduce the findings from the fieldwork I conducted. My methods or ways of presenting the data collected from interviews follow a thematic analysis approach, which means I am going to present what I found through looking at different themes and trying to organise the data accordingly. As for the questionnaires, Turkey argued that exploratory data analysis is useful for quantitative data analysis by using graphs and diagrams to illustrate and understand, meanwhile keeping in mind the research questions and objectives when exploring the collected data (Turkey, 1977: 3). As part of this project, I conducted interviews and questionnaires with different experts in the field, based in Tunisia and UK.

In the beginning of this section, the administrative and the operational efficiency of the Suez Canal will be examined. In addition, the effect of how their present framework of work can affect the Canal users. After the analysis of the mentioned section, the critical factors in respect with global recession and pirates attacks in Somalia will be analysed sequentially with views from relevant key players interviewed in the industry. As different shipping companies have their own framework and decision making mechanism making every one of them unique in their opinions.
4.2 Interviews results:
4.2.1 Formalities and Dealing with officials from a Captain’s point of view:

According to Captain Mohamed the process involving booking a place in the convoy, the documentations and payments of tolls are well structured and organized. Information is also published online and canal agents usually give reminders and updates to all canal users with new regulations coming in place. He added that the Suez Canal have synchronised and coordinated all their canal agents with the authority and shipping companies through email networks in order to facilitate the transfer of documents. During a phone interview with captain Aftav, he confirmed what Mohamed claims and he added that the Suez canal Authority have a “very effective and well coordinated” administrative process. One of my questions during the interview was: “don’t you think that emails are not as an effective proper IT system that can handle many functions at one time?”. Captain Mohamed replied that the Canal has 134 agents, these agents deal with more than 300 canal users, therefore an IT systems especially designed to deal with paperwork and documentations will have to be used by every canal agents and shipping companies. These IT systems will be expensive to setup and maintain and require specially trained staff to operate.

Another question was asked about the certified canal agents working with the Suez Canal Authority. Both captains Mohamed and Aftav argued that problems and pressure start when they reach the Canal and the convoy was ready to start moving. Mohammed indicated that the SCA are not controlling what’s going on within the Canal or once the vessel reaches the anchoring or waiting areas. He added that as a normal day to day practice, several inspections are carried out such as immigrations verification, medical inspections and suppliers of amenities for the crew and spare parts for ships. These procedures are inevitable and there are “good and not good agents”. On the one hand, the captain argued that they come onboard with a lot of questions and forms to complete which are time consuming and tiring after several hours in the sea. Both captains commented on the lack of professionalism in the job as 70% of officials are ‘dishonest’ and look for gifts or “bribes”. So, as matter of “Suez norms” as one of the captains called it, every ship has to have in stock some gifts in stock like cigarette packets, wine, or expensive things to please officers and to facilitate the transit. On the other hand, Aftav said the transit can be difficult for some
and easy for others. It depends how much work your agents have already prepared before the ship reaches the Canal. In addition to that the personality of the captain plays a role in the transit, especially when the Canal agent knows that it is his first transit.

4.2.2 Ship chandler from a captains' point of view:

Ship chandler supplies the crew's food, ships maintenance supplies and spare parts. Most of the large shipping companies have their own ship chandler arranged by the Canal agents. According to captain Aftav, who worked for large and small shipping companies, shipping companies do not trust the Suez ship chandler as their quality of service is not good especially when it comes to bunkering with fuel oil as it can be of a low quality and can affect the ship engine. Captain Mohammed argued from his perception that ship chandlers prefer to deliver at night time, when the crews are resting and not much inspections can be made to check the quality of deliveries. He added that ship chandlers send their requests via VHF radio disrupting communication with the Suez Authority and their shipping companies. A question was asked about why the SCA are not regulating ship chandlers in order to ovoid many unwanted ship chandlers, Both captains argued that there are real problems during the transit and the SCA needs to take dramatic measures in order to inspect them regularity and certify the ones that are more reliable.

4.2.3 Pilotage from a Captain's point of view:

Although the Suez Canal is wide and deep, pilots and tug boats are essential for transit. The Suez Canal has its own simulation, equipped with advance bridge simulators. According to both captains, pilots are not well trained and regulated and most of them are Ex-Navy officials with no experience on merchant ships. Captain Mohammed argued that most of them do not have much experience in handling large vessels and they come on board for and I quote “Show Business”. He gave the example of a pilot who had ordered the captain a “full astern” in a short distance. This has caused the ship to run aground and to up the bank of the Canal causing a major electrical failure in the Ismailia. The next day the captain was blamed for the accident.
Captain Aftav indicates that the lack of experience is clearly a major problem, but the human errors occur and the SCA authority are putting this issue high in their agenda. Therefore, I will not consider it as major problems and shipping companies are obliged to transit the canal using up to five different pilots in some cases. To finalize this part, the interviewed shipping company argued that the captain and the crew are paid for their jobs; therefore it is their duties to deal with the issues mentioned above.

4.2.4 Convoy systems and navigation through the Suez Canal from a captain's point of view

As part of this research, the navigation and convoy systems are categorised under the operational aspects of the Suez Canal. According to both captains, the Suez Canal is well maintained and equipped with the latest navigation technologies such as advance radars and several VTS stations, as well several powerful dredgers which are required due to the nature of the sandy canal bed. He added that the Suez Canal has in place 24 tug boats with bollard pull of between 30 and 40 Tons and 3 with a Ballad pull between 100 and 160 Tons. One of my questions with regards to the convoy system was ‘If the convoy systems were re-structured, would this increase the number of ships through the Canal?’ The captain indicated again that the current convoy systems accommodate between 50 and 70 ships a day, he added the only way to increase this number is by increasing the double parts sections of the canal and straightening the middle sections. He also added that the waiting time for both southbound and northbound could be dramatically reduced to a few hours. However, this project will be time consuming as the middle section is a long distance not less than 50 km, and secondly the project is very expensive and it will disrupt the traffic. This idea was proposed to Captain Mohamed and Captain Zakariah, who agree on the fact that, although the project is very costly adding to that a more Traffic Separations Schemes (TSS) are required to manage the inward and outward traffic; nevertheless they were more optimistic about the idea. They argued that this project could reduce the waiting time at each side in Port Said and Suez Port and could double the number of ships going through the Canal each day. Captain Zakaria added that the SCA could implement this project in phases and during time when the convoys are unproductive. He added that increasing the double sections could in some emergency situations help the traffic not to be blocked and the other line could be used, so not disrupt the
convoys. When both captains were asked if this project would affect liners! They indicated that liners are flexible and can easily reschedule their services and the SCA authority can publish new regulations online and updates the canal users with the new projects months before the start. Another way to increase traffic is to increase transit time cycle from 12 hours to 24 hours; this project was proposed to the all interviewees. The response was negative as some of them argued that increasing the cycle time will increase the number of ships transiting during night time, where visibility could be reduced dramatically especially in some parts of the Canal and might lead to incidents. In addition, expanding the cycle to 48 hours instead of 24 hours reduces the resting time for the crews as they will be obliged to transit.

According to Mr. Sahbani Ben Fathel, who used to be captain and now the managing director of one of the ports in Tunisia, when I asked about the extent to which the Suez Canal could be improved, he answered that the Suez Canal is one of the old waterways that shaped the world’s trade, merchants and shipping companies. He further pointed out to the fact that the short sea shipping and liners are the highest users of the Canal. These companies have been operating since long time and have planned their business schedule according to the Suez Convoy Time Systems. He added that due to the globalisation phenomenon and the increase in demand for product, shippers needs a quick turnaround of their cargo. To further explain his point, he argued that in Tunisia, the Office de la Marine Merchants et Port (OMNP) are now experiencing problems and slow in traffic, because we are improving and deepening some of our ports to accommodate larger containerships and tankers, therefore we had major opposition for this project; as this will interrupt the service of some liners. This has led some shipping companies to load or discharge their cargos in other ports located in the south adding another six hours of transit. The weakness of the Suez Canal is that it is prone to lose business if it amends its convoy systems as this will dramatically influence its clients’ business. At the current stage, Mr Sahbani Ben Fathel added that this project is really important to the survival of this canal especially that this it is a major contributor to the Egyptian economy.
4.2.5 Maritime piracy:

The issue on piracy has been a recurring theme in the interview and questionnaires which point out to the highly international concern on trade and especially via the Suez Canal. The experts I interviewed with regard to this issue argued that piracy has become not only a regional problem but it is going international, as 60% of ships transiting the Suez Canal belong to the Asia-Europe trade. In an extensive interview I conducted with the Managing Director of GMT, Mr S. A, a bulk and container carrier in Tunisia from Rades Port and La Goulette Port, Tunisia to Singapore and Indonesia, who indicated the fact that piracy is becoming a rather very problematic issue for them. Despite that, during the last meeting, his company decided not to divert around the Cape of Good Hope, although his ships are more prone to pirates attacks as most of them have a very low freeboard "which is the distance between the water and deck of a vessel". Therefore they decided to keep using the Suez Canal and to upgrade their ships' security plan by including more stringent anti-piracy measures in order to mitigate the risk of pirates' attacks. During the month of April 2009, Mr S.A added, the company conducted a general meeting with senior officers and crew and decided to include security preparedness, vigilance and watch keeping in the instructions and training especially at night and in “blind radar spots”. In addition, they have equipped their ships with anti-piracy equipments such as hoses that use generators to suck seawater and pump out from all the ship side in order to deter pirates from climbing on board. The director further pointed out to the fact that the number of vessels being hijacked out and in of the Red Sea are increasing and the attacks are spreading towards the Suez Canal. Mr S.A added that the piracy is becoming a lucrative business in the Red Sea and Southeast Africa led not only by Somali pirates but also by pirates from other neighbouring countries. In an interview with Mr Zakaria, an ex-Ship Captain and senior lecture at Warsach Maritime Academy (United Kingdom), he argued that piracy will not be reduced until stringent measures are taken by littoral states. He added that piracy will spread rapidly towards the Red Sea, and as long as Egypt can be considered the most influential country in the area and it has interest in protecting the Suez Canal, therefore the SCA has to encourage the government to engage some of the Red Sea states into a regional agreement to improve their ability in regulating and policing the areas.
4.2. **Global recession:**

Because of its commercial sensitivity, the question about the economic slowdown and its impact on the Suez Canal was discussed in Chapter 3 and it would be better to get the opinion of Suez Canal authority themselves. But as mentioned in the methodology, no reply has been received from them. Since then, I have decided to look at and understand this issue from a shipping companies standpoint by identifying the elements that are influencing the decision of shipping companies to transit the Canal or not.

In a phone interview with Mr Cris David, an Operational Manager, argued that the economic slowdown has reduced demand for commodities. Suppliers or buyers have become more flexible in terms of delivery schedules as demands on their products diminished. He added that the cost of bunker consumption, the daily running costs of the vessels and next port dates are very crucial to liners because 40% of the capital expenditure is spend on bunker prices. With comparison to 2008 and 2007 trends, the prices are much lower and it will be economically viable for containerships to re-route around the Cape of Good Hope avoiding heavy Suez surcharge on containership, high insurance premium and risk of pirates’ attacks. Mr Cris, added that, in this certain economic condition, and being late in the convoy, means either shipping companies pay a premium rate or an extra 3% to 5% on top of the tolls, resulting in an increased expenditure.

4.2.6.1 **Rate regime of the Suez Canal:**

Further in the interview conducted with Mr Cris David, Operation Manager in one of the UK shipping company, he revealed that the Suez Canal Authority tolls structure is not well structured and the rate regime is too complicated, as ship-owners are always paying premium rates and surcharge in order to join a later convoy or to ensure quick passage and limit their waiting time. He goes “their daily revenue received is enormous”, and thinks that the administrative aspects of the Suez Canal and the current regime of gifts/bribes will not be removed unless the SCA raises the pay of their staff, especial pilots and officials. In addition, he indicated that one of the main reasons why such expansion projects cannot be undergone is because most of the
money received from tolls is not used for the Canal development in term of the infrastructures around it. Then he gave the example of the Panama Canal and the role of privatization of the authority running the canal in developing the country, the canal infrastructure and attracting foreign investments
4.3 Questionnaires Results:

4.3.1 Introduction:
One standard questionnaire was sent to twenty shipping companies operating via the Suez Canal. This questionnaire attempts to support the finding presented in the previous section through interviews. The first part of the questionnaire comprises close-ended questions about the administrative efficiency of the Suez Canal in terms of their effectiveness of the booking and paperwork process. The second part deals with the operational aspects in terms of the efficiency of the convoy systems and waiting time. The third part looks at the economic slowdown by assessing the perception of shipping companies with regards to tolls and effect of fluctuation of bunker prices. The last section looks at the impact of maritime piracy through insurance premiums and the fear of ships being hijacked. The sample is limited as only a small number of shipping companies (about 25% of the total number) returned the completed questionnaire. Most the replies were received from containers shipping companies. These questions are presented in graphs and diagrams, which are then analysed and interpreted.

4.3.2 Questions presentation and analysis:

Question 1: How frequently do you transit the Canal?

Figure 15: Frequency of the respondents' transit via the Suez Canal
The frequency of transit via the Suez Canal was a refresher question; however, this result showed that more than 40% of the respondents transit the Suez Canal twice or more per week. Hence, shipping companies have frequent contacts with the Suez Canal Authority and their contractors. This will enhance the research reliability in terms of answers' accuracies.

4.3.2 Administrative Aspects:

Questions 2: Is the process (Booking, regulations, and paperwork, inspections, and tolls payment) well structured, formulated and comprehensive?

![Pie chart](image)

Figure 16: Efficiency of the Suez Canal's formalities

The pie chart above represents the proportion of the respondents per percentage with regards to question number 2, with each proportion representing a variable and is represented in different colors. It was expected that the reliability of the SCA process is a little lower. Here the results are a lot higher as 40% of respondents claimed that they “Strongly Agree” that the process involving the booking of a place in the convoy and the paperwork are well structured and formulated. The same share of
respondents has accredited "Agree" with regard to efficiency. And it appears that an average of only 20% of the respondents ranked "Disagree". To sum up, 80% of respondents are generally satisfied with the SCA formalities and paperwork procedures. From my observation, the SCA and their canal agents provide an online public database illustrating a comprehensive and complete documentation aiming at explaining the Suez's paperwork requirements, methods of communication and deadline for submission of booking and payments of at each stage. In addition, the company informs its existing customers with regular newsletters for the purpose of updating with new developments and new changes in policies and regulations. However, these findings should be treated with cautions as this only presents a small number of the Canal users and the findings might not be generalized as a large sample needs to be surveyed in order to confirm this outcome. Despite that comparing the perceptions of shore based personnel questioned and onboard captain's interviewed, it appears that there is a similarity in opinion, as both samples have given positive credit to the SCA administrative systems before reaching the Suez Canal. To note, this question explores only the efficiency of the Canal before the transit. Later questions will explore the services at the arrival and during the transit.

Questions 4: What do you think about the toll paid to the SCA, is it worth the service?

A tolls payment to SCA is made before entering the Canal via the Central Bank of Egypt. The canal agent calculates the tolls using the vessel's particulars and other elements. Below is a brief explanation of the elements that are taken into consideration and beneficiaries:

<table>
<thead>
<tr>
<th>Elements taken into considerations</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The type of ship: the SCA categories in 8 different types (Crude Carrier, Petrol Product carrier, Dry Bulk, LPG carrier, LNG carrier, other chemical and bulk carrier, Containerships, General cargo, Ro-Ro ships, Vehicle carrier, passenger ships, special floating units and others vessels.)</td>
<td>1. Mooring and projector charges provided by the Mooring and Light company</td>
</tr>
<tr>
<td>2. The SCNT: Suez Canal Net</td>
<td>2. Pilotage due: Dues are categorized by (Vessel size, Night or Day and Southbound Transit or Northbound).</td>
</tr>
<tr>
<td>3. Maritime ministry charges; Rate are calculated depending from different tonnages</td>
<td></td>
</tr>
</tbody>
</table>
Tonnage is calculated by the classification society and other trade organization.

3. **GRT**: Gross Tonnage is based on the "the module volume of all enclosed spaces of the ship" (Wikipedia, 2009)

4. **SDR**: The Special drawings Right created by the IMF, and is based on international currencies, which is more stable than other international currencies.

5. **Draft**: The upright distance between the waterline and the keel, it is compared with the canal depth for safety reason.

6. **Beam**: the Width of the ship

7. **Laden or Ballast**

8. **Gas Free Certificate**

9. **Destination**: Northbound or Southbound

10. **Number of containers on weather deck**: the SCA applies different percentage on the tolls based on the number of Tiers above the deck: Example: 18% surcharge for 7 Tiers

| 4. Port utilization Charges |
| 5. Port Dues: It includes Port Clearance, Overtime Dues, Cleaning dues and Fiscal stamps |
| 6. Light dues: Only applicable at both end of canal |
| 7. Customs Dues |
| 8. Immigration dues |
| 9. Port Police dues |
| 10. State Security dues |
| 11. Seamens Club dues |
| 12. Quarantine Dues |

Table 3: Rate Regime of Suez Canal (Source: [0% 0%]

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Figure 17: Tolls paid; is it worth the Service?
The above chart represents a proportion of the respondents with regards to question number 4, with each proportion representing a variable which is in turn represented in a different colour. From figure 17, it is found that out of all respondents, 60% or 3 out of 5 have said that they “disagree” as the tolls paid to the SCA is not worth the service. The remaining 40% of the shipping companies selected “Agree”. All respondents have neither “Strongly disagree” nor “Strongly agree”. This suggests that most of the shipping companies surveyed are not satisfied with the quality of services provided by the SCA and their canal agents. As results, the Canal Authority is not creating more benefits since the funds received from the Canal are not used to re-invest in developing and improving the administrative systems. In addition, looking back at the dues required for each vessel brought into focus, the complex rate regime which is difficult to administer and control. As mentioned above, ten different elements are taken into consideration and eleven beneficiaries receive dues for providing services before and while the ship is in transit.

**Questions 9:** Does the effectiveness of the service provided by the Suez contractors (Boatman Company, Canal agents, Pilots Company) influence your decision to transit the Canal?

![Chart showing the effectiveness of the service provided by the Suez contractors](image)

Figure 18: the effectiveness of the service provided by the Suez contractors influence your decision to transit the Canal
This question explores one of reasons that influence some of the shipping companies' decision not transit. It is clear from the findings represented in Figure 18, that 60% of the respondents have ranked this statement as “Agree”. This finding matches the previous findings, as it appears that the numerous numbers of contractors and players, and the tall hierarchical characteristic of the organisation unable the SCA to constantly and effectively regulate and administer its contractors and the people involved in the chain of operations. The above pie chart represents the fraction of respondents with regards to question number 4, with each proportion representing a variable which is in turn represented in a different colour. It was expected that results will show a lower trend; however, only 40% have disagreed with this statement. This explains that some shipping companies do not really pay attention to details especially when it comes to ensuring the port’s dates are met. All of the shipping companies are container lines and are limited in time and they are ready to pay additional premium by joining the end of the convoy instead of waiting for the next day convoy. In time of high demand and where spot rates for containers are high, shipping companies would ignore quality and focus on increasing the turnaround of their ships. However in low market demand, every penny counts, as a result, liners focus on ensuring that they get what they pay for.

Questions 10: How do you feel about this statement: The privatization of the Canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls?

Figure 19: The privatization of the Canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls
The issue of privatization of the Suez Canal is a complex matter and out of the remit of this study. However, the author attempted to get the perception of shipping companies on the matters as both questions were designed not only to collect statistics, but to understand if the current regime of the Suez Canal as a state controlled company has a relation to its poor performance.

According to the results in figure 19, 60% of the respondents strongly disagree with the statement, whereas 20% only disagree, and 20% agreed with privatization of the Canal could solve the issue of poor performance. These results indicate clearly to the researcher that the privatization of the Suez Canal is not the solution forward; however, respondents amounting to 20% agreeing with this statement might have thought that the possibility of the Egyptian government privatizing the Canal is less likely to happen in reality. However a partial- privatization of some of the aspect of the Canal will be more reasonable than giving full authority to a private company.

Both questions 19 and 20 are aiming at the same theme, however they were proposed in a different manner in order to see if the respondents have understood the sense. Results showed that “corruption of the administrative regime, unfriendly staff and inflexibility of the ship-owners” are rated between 6 and 7, which means are “Not important at all” to the decisions of the shipping companies transiting the canal.

In conclusion, the Egyptian government’s regime of the SCA is voted to have not direct relations to the inefficiency of the administrative aspect of the Canal. In spite of
that, and from my perception given the established results, the SCA Authority has to focus its effort in developing some sort of regime to increase transparency of information and more stringent control regulations over contractors.

4.3.3 Operational aspects:
Since, the interviews have shown that the only issue with operational inefficiency of the Canal lies in the convoy systems and the physical characteristics of the Canal, the author decided to focus the questionnaire on both themes. These questions centre on the effectiveness of the convoy systems, the possibility of restructuring the convoy and the waiting time.

Questions 5: What do you think of the convoy systems?

![Figure 21: Effectiveness of convoy systems](image)

Shipping companies themselves transiting the Suez Canal do not have a direct contact with the Suez Canal compared to captains or crew actually transiting the Canal. Therefore, the questions were only asked to get the perception of these companies given their long experience in dealing with the Canal, in respect with the waiting time and delays experienced and reported during the transit. The surveyed companies were asked to rate the factors that may influence their decision in order of importance with 1(very Important) to 7 (the Least important). The results as was expected, 4 out 5 respondents have ranked their preferences between 1 and 3, with the waiting factor being to them very important for their decision. Exploring the results obtained from Figure 21 and 22, a remarkable finding has initially revealed that 60% of the
respondents have agreed that the convoy system is effective, 20% claimed that is very effective, and 20% of the respondents said that it is reasonable. Therefore, it can be considered that 80% of the respondents are satisfied with the systems. However, a question was asked with regard to the opinion with the fact that re-structuring the Canal could dramatically reduce waiting time and speed the transit. The findings illustrated in figure 22, were not encouraging as the author remarked a contradiction in opinions, as 40% of respondent strongly agreed with the idea, whereas the same proportion has completely rejected the idea. One of the explanations that can be understood from the reply is that shipping companies do not prefer the idea of re-structuring the convoy systems even if it has been proved to increase speed and reduce waiting time. These results confirm the interview findings that one of the reasons that discourage the SCA from improving the Canal is the possibility of traffic disruption, reduction in traffic and increase in waiting time while the work is under way.

**Question 6: Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?**

![Question 6: Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?](image)

Figure 22: The transit could be faster, if the Suez Canal re-structures the convoy system
4.3.4 Global recession:

Figure 24: Global recession related questions

Figure 25 presents a summary of results that correspond to three factors which affect shipping companies in a low market demand. These respondents were asked to rate the emphasis placed on each element (Suez canal's high tolls, fluctuation of bunker...
prices and Vessel’s expenditure via the Suez Canal compared to the Cape of Good Hope) based on 1 to 7 scale with (1= very important – 7= Least important). The results in the figure above show that three companies rated “1” and two companies rated “2”. Given this finding, there is no doubt that the Suez Canal Authority has to re-adjust its rate regime. Moving on to the second element, the finding shows that all the surveyed companies have rated (Vessel’s expenditure via the Suez Canal compared to the Cape of Good Hope) between 1 and 3. This shows that apart from the canal expensive rate regime, other elements such as insurance premium coupled with additional manning cost augmented the cost associated with transiting via the Suez Canal against the cost of transiting via the Cape of Good Hope. Finally, only one respondent reported too little emphasis that fluctuation in bunker price could affect the economic feasibility of the Suez Canal. Given the results, the remains respondents reported that this element is substantial to their decision taking into consideration the additional capital cost coupled with further operations and voyage cost via the Cape of Good Hope. As mentioned before, re-routing around the cape of good could take as much as three times the delivery time compared to the Suez Canal in addition some shipping companies would have to add more vessels to increase their total turnaround.
4.3.5 Maritime Piracy:

In assessing the extent to which piracy could influence the decision of shipping companies to transit, the author look at two elements that ship-owners are concerned with; the fears of ships being hijacked and the increase in premium insurance. Since December 2008, insurance premiums have tripled with new additional insurance types emerged covering piracy specifically Kidnap and Ransom Insurance. Respondents were asked to rate in order of importance the following elements (Fears of ship hijacked and increase in insurance premium) based on 1 to 7 scale with (1 = very important - 7 = Least important). It is clear from the results retrieved from the interviews that piracy is a priority for ship-owners, as most of the interviewees have expressed their concern for the safety of their crews, ships and cargos. Nerveless the author attempted to get the perception of some containers liners and to strengthen the quality of this study. As it was expected, all the respondents claimed that piracy is a major concern by rating between (1-3) as shown in figure 26. This result shows without doubt that shipping companies are fully aware of the daily dangers that face them in transiting the Canal, especially with recent increase of attacks on containerships from Stern as it is the lowest part of the ship. In assessing the insurance high insurance rates could deter shipping companies from transiting the canal. The results shown in figure 26 illustrates that the number of respondents are distributed between scales (1 to 4). This explains that insurance premium depends on how many
ships the company is operating and how frequent they transit the Canal, and insurance cost is always recoverable as ship-owners can always pass the cost by increasing freight rates.
Chapter 5: Discussion:

5.1 Introduction

This chapter attempts to bring both primary and secondary data into the forefront discussion. It attempts to evaluate and engage in analysing the results obtained from the interviews and questionnaires against the existing literature on the topic. The research results have yielded a clear picture from the different stakeholders on the current situation of the Suez Canal in terms of its internal efficiency and the impact of global recession and maritime piracy on the traffic via the Canal.

The decline in traffic during the year since 2008 was the trigger of this research, this have lead to exploring other areas that are contributing to this decline, a part of the current economic slowdown and the global recession, the aims of this study has been to identify and critically evaluate ways of enhancing the Suez Canal regime for a better performance.

Because not much research has been undertaken in understanding the ways one of most important Canals in the world operates, the researcher found the process of collecting data and conducting questionnaires and interviews quite difficult. However the end result was quite revealing. Some information that could not unveiled from the secondary data such as the administrative part of the canal has been reported in detail within the primary data.

As shown in the diagram next page, the author has categorized the project into fours themes, these were discussed separately in both the literature review and the finding. However, the discussion chapter will not follow the prescribed order and the author fell that there is need for inter-chapter consistency.
5.2 Discussing the results:

5.2.1 Administrative Obstacles and ways of addressing them:
Although in the literature review, scholars have argued that the underlying assumption that the internal administrative and operational regime of the Suez Canal influence the volume of traffic via the Canal, this relation has been proved to be true after analysing the interviews and questionnaires, in the sense that the internal efficiency plays a key role in facilitating the movement of ships via the Canal and ensures trade off between high tolls and the quality of service. The findings lead the researcher to unveil several obstacles that if tackled or improved could put the SCA in a better position.

The Analysis of the interviews conducted and questionnaires shows that the lack of coordination, inspection and monitoring regime of the different parties involved in the administrative operations of the Canal after the ships reach the anchoring areas is causing an increase in the inefficiency of the quality of the service provided and unprofessionalism in the behaviour of some the Suez Contractors or staff. A second major issue is the increase in waiting time which was unveiled to be closely related to the complex rate regime, numerous documentations and lack of IT systems that could coordinate all the parties involved in the operations under one umbrella. From the interviews conducted it was revealed that despite the satisfaction of canal users and ship masters with the current booking and formalities procedures, and the use of emails as an electronic means of communication, there are still opportunities for the Canal to ensure a better, efficient and secure exchange of information by introducing an optional reservation portal system based on the Electronic Data Collection Systems.
ECDS that simplifies the process, increases current systems efficiency and groups several functions under one system. This system will not be compulsory but optional. Customers will have access to this system at all time using computer and internet connection. The Suez Canal Reservation Systems will be web-based and with practical and easy to use interface. Using this online database, Canal users can access the systems to make booking, check their order statues, and add request, check SCA News updates and Navigation Rules and request cancellation. Another advantage of this system is that it will reduce the interference of Canal users with Suez Contractors. Order will be available in the system and the SCA dispatch them to their contractors. This system will also link contractors and Canal agents with the Canal users, whereby each customer and registered agent under this system will have his own user name and password. Suez Canal Reservation System could be initially optional, thus to give more flexibility to shipping companies that are not willing to change.

The implementation process of such project will not cause interruption in the service as a trial notice will be published online giving shipping companies a time to test and train their staff to use it. This project is not costly and it could be considered one off payment, though it will require regular update and maintenance. The software will be web-based and canal's users and agents or contractors will use it without any cost associated with it. The only limitation to this project is the reluctance of the Suez Canal to implement the IT systems and to introduce the new measures to control Contractors and Canal agents, as public owned companies are identified in Chapter 3 to be less efficient and less prone to develop and change than private companies. However, full privatization of the Canal would not be the way forward and will not solve the issues as it could create economic distortion in the country especially during the low market demand. Therefore, semi-privatizing the SCA by sourcing the administrative aspect of the Canal to a private company, while maintaining a highly standards service of operations. This company will work closely with Canal Agents and Contractors and will be an entity certified under the SCA. This will create competition and increase challenges to increase quality and satisfy the canal users and create in the long terms more jobs, improve infrastructure through profit turned into investment for further progress and investment. Also it will, in the long term, improve the market value of the Canal as tolls could be increased as long as the quality of
service is improved and waiting time is reduced. These strategies will require the SCA to reprocess the ways thing are done, this could be implemented with the help of BPR Business Process Engineering, which is a method used to promote efficiency and effectiveness of the business practice that exists within and across organizations. Harmon argues that the key to BPR is for an organization to assess the current business processes and identify how they can reprocess these processes for better and superior quality. " (Harmon, 2003:24).

5.2.2 The operational obstacles and Ways of addressing them:

The results from the interviews and questionnaires revealed that the SCA’s traffic management systems and safety regime are effective. The VTMS covers only Port Said and Tawfik with radar coverage of 30 km. However, an ongoing project to setup four VTMS in Great Bitter Lake and the other three radars in Kantara, Ismailia and Geneifa. These radars will improve supervision of the entrance and exit, anchorage areas and while vessels are moving. In addition it will monitor the movement of beacons and buoys and it will provide real time information about vessel speed, separation and position within the convoy. It will also update the authority with methodological information.

Another ongoing project is to widen and deepen the Canal from 62 feet to 66 feet allowing 60 % of the tankers, 90 % of bulk carriers and 100% of the containership to transit the Canal. According to a news report by Aljazeera Channel conducted with the Canal officials, the project is nearly completed (Aljazeera.Net News, 20th July 2009).

From the literature review, two projects were identified and assessed; (1) to straighten the middle sections by increasing the length of the double parts and (2) to replace the 24 hours cycle by 48 cycles. These projects were subjected to some shipping companies, ship masters and experts in the field for opinion. It was found that extending the 24 hours cycle to a 48 hours cycle will dramatically reduce dead time to 10 %. However it will increase the number of ships transiting during nigh time, which makes navigation more hazardous as visibility becomes low. In addition, this project will increase the number of ships per convoy reducing separation distance. However
this idea was not totally rejected but it was argued to be used as temporary measures in order to meet the increase in ships traffic during certain times of the year.

It can be argued that the idea of increasing the capacity of the Canal will be more effective and reasonable if the Suez Canal expands the double part sections of the Canal. This project as mentioned in Chapter Three and Four was subjected to the same sample as the first project, which has received a wide acceptance. To remind the reader, the Suez Canal has 3 double parts sections, and increasing the double parts sections will allow more vessels per convoy and increases speed and considerably reduces waiting time. In addition providing double lanes will be beneficial in avoiding traffic disruption in case of emergency breaks down as the convoy can keep moving using the other lane with less delay than a complete blocked waterway. Assessing the cost benefit analysis of this project, brought to the author attention that competition from the alternative routes such as the Panama Canal with its current expansion project and the undergoing study to understand the feasibility of the Northeast passage could have a major impact on the economic viability of the Suez Canal for certain trades routes. Therefore, the Suez Canal Authority has to study the in-depth the practicality of this project in terms of completion time and to ensure that the expansion project will not disrupt the current convoy. Another limitation of this project is the enormous dredging and maintenance cost associated with the expansion as the nature of the Canal is sandy and regular maintenance is required in order to sustain the same depth, the Suez Canal regularly uses dredgers. A further limitation encompasses the alteration of the current convoy system, as allowing a two-way traffic will require the authority to adjust their systems. This will incur a change in port dates for some liners; however giving prior notices to shipping companies could avoid this from happening.

There has been a focus here on the limitations of this project, this is because the author believes that the current administrative regime will not cope with the increase in demand. Because the number of ships transiting the Canal has been increasing dramatically since its opening for commercial use boosted with new buildings and increase in demands for products and energy, therefore extending the Canal’s capacity without improving the administrative regime could lead to the failure of the project.
The issue of pilotage has also arisen during interviews and questionnaires. The majority of respondents have expressed dissatisfaction with the Suez's pilots' effectiveness claiming that they are not well trained, unprofessional and do not comply with IMO standards for pilots (IMO resolution A.960). During the last decade statistics show that only three major accidents occurred. Two accidents due to engine failure involving two Liberian registered oil tankers in 2004 and 2006 and the Al Samidoon, a Kuwait Oil tanker collided with the bank of the Canal due to the pilot misjudgement and excessive change in course causing a 3000 Ton leak of crude oil. Another recent Near-miss, where almost two tankers collided when passing side by side in the Bitter lake, the captain argued that pilots in both ships misunderstood each other, he added that "I would warn masters under pilotage in the Suez Canal to brief their Bridge Teams very carefully to monitor the actions of pilots closely" (MARS staff: 2009).

It is clear both from the literature review and empirical data that despite the effort undertaken by the SCA in establishing the Maritime Training and Simulation Centre, and claiming to apply the latest advance methods in training, it appears that the Suez Canal needs to revise their pilotage regime. From my observation, there is an average of 70 ships a day transiting the Canal, where pilots change every two to three hours. Thus, one of the assumptions could be due to the high number of pilots needed a day; pilots are not getting enough training. Secondly, different ship manoeuvrability and excessive work load lead to fatigue which also could be another cause for inefficiency of pilots.

The pilotage issues were not given much attention during this study; nevertheless it appears to be it is an alarming issue. The SCA needs to keep this issue high in their agenda, as accidents could spell environmental disasters and could block the traffic for several days causing loss of revenue and slowing down in international trade.
5.2.3 The External obstacles and ways of addressing them

5.2.3.1 Economics slow down mitigations plan

A financial analyst claimed that the world economy is getting out of the recession, however full recovery will take some times (Adam, 2009). China, the third largest economy is taking the lead of global recession as its export dropped by 25.7%, mainly due to the decrease in its spending power (Yanping, 2009). In addition an analyst argued that the world demand for manufactured goods relies on the Chinese production capacity with low cost and low margin and North American and European importers are looking for alternative overseas markets with a better quality and shorter distance to market. With this low performance, adding to that containerized exports shipped via the Suez Canal toward North America and Europe are falling sharply. The Suez Canal's traffic is expected to slump deeper if measures are not taken by the authority to limit their effect.

Despite the Panama Canal authority is witnessing a decrease too in their traffic, the authority have implemented since April 2009, a temporary economic mitigation plan by reducing tolls and reducing surcharges and providing more flexibility to shipping companies, which lead to unexpected increase in revenue. On the other hand the Suez Canal authority has not implemented any changes to its policies, despite several large shipping companies approaching them for fees reductions. From the findings and literature review, it is clear that the global recession is revealed to be one of the main grounds that lead to the dramatic decline in the Suez Canal revenue. These figures have worsened since the SCA authority announced traffic statistics for the period of June and July of 2009. All the questioned shipping companies have declared that the complexity of the rate regime and the high tolls are the main reasons for them to divert around of the Cape of Good Hope. It is clear to the reader by now that, the Suez Canal needs to put together a plan in order to mitigate the risk of deeper slump in revenue. Since the container ship are the most affected by this trade which represents 39% of the overall traffic. The Suez Canal has to introduce a temporary plan by reducing the tolls charged for container ships through cutting down the amount charged on empty containers and reduce fees charged for each tier of containers. A discount could also be applied to tankers and bulk carriers. Another temporary measure is to give flexibility to ship-owners by temporarily suspending or
reducing fees of the 3 and 5 percentage surcharges on top of the tolls for late arrival, as well as for cancellation. A long term project will be to revise and restructure the fee regime and rebates systems. The rebates system gives discount to certain types of ships such as LNG carriers and Long Haul voyages. A future plan is to include other types of ships into the rebates systems. The global recession has been battering all the economies and businesses around the world, the only thing that the Suez Canal can do to reduce the effect of it, is to re-think their strategies and to implement temporary measures, so to avoid more revenue losses.

5.2.3.23 Maritime Piracy mitigation Plan

Although in the literature review, it has been argued by the SCA that piracy was considered as not a major threat to the Suez Canal, Chapter 4 of this study did not support these claims made by authority itself. Scholars have also pointed out to the gravity of the situation as the research conducted with regard to the consequences of transiting the Suez Canal or diverting via the Cape of Good Hope taking in hand the additional cost required by the insurance, ship protection and other additional operational cost for a longer voyage, shows that this matter becomes high priority in every shipping company.

The empirical field study conducted through interviews and questionnaires generated more insight into the current practice of some shipping companies. The results revealed in the findings supported the literature review. Interpretation of the findings, leads the author to the conclusion that piracy is spreading towards the Red Sea. This stretch of water is smaller than the Gulf of Aden; the current international effort could not cover Bab El Mandab, Gulf of Aden and the Red Sea. Up to the time of completing this research, all the respondents and interviewees have expressed that increase in pirates attacks in Gulf of Aden and Red Sea are compelling shipping companies to add additional costs in term of insurance premium and anti-piracy equipments. Despite that part of the costs are recoverable by balancing spending through lower banker prices and increase in freight rates, the fears for the safety of the crews and cargos are becoming an issue of concern, as hijacked ships could stay in the captivity of pirated for long time until a ransom is paid.
Piracy in South East Asia has been dramatically reduced with the idea of establishing a regional agreement between countries in the areas. This agreement is based on share operations in term of pirate's arrest, investigation and the provision of Anti-Piracy regime. Few months after the implementation of this code, pirate attacks started to diminish dramatically reaching few attacks in 2008 according to some sources. Theoretical work showed that despite the increase in the presence of the international naval forces in the Gulf of Aden, Bad El Mandab and the Red Sea, and the established Agreement (Djibouti code of Conduct) in January 2009, which was signed by nine countries, pirates' attacks are still in the increase. This could be due to the fact that not many countries have signed up for the agreement including Egypt. Secondly, these countries do not have the expertise and the Know-how in combating piracy. Another main reason is the continuous instability in Somalia, where many attempts have been carried out since 1991 to reform a proper government. Therefore, from an international perspective, piracy is only a symptom of a larger security and corruption problems in Somalia, therefore reforming the government will be the best solution. However, reforming a government is a long term plan that might take several years to bring results which shipping companies and SCA cannot afford. Hence, combating piracy at sea will be the only solution in order to protect seaborne trade.

As mentioned before, several international agreements have been undertaken in order to bring several countries to the Red Sea on one table, however, lack of experience in combating and not well equipped coast guards, showed that more needs to be done. Egypt needs to set up and develop more concrete measures with the collaboration of Saudi Arabia, Yemen and other neighbouring states, and approach some of the South East Asian countries such as Malaysia, Indonesia and Singapore for technical and experience collaboration.

5.3 Conclusion

This chapter identified several obstacles through the assessment of internal efficiency of the SCA and the impact of economic slowdown and maritime piracy on the traffic via the Suez Canal. Then a set of recommendations have been identified and assessed against several criteria. The last chapter of this study will conclude this research and summarise the set of recommendations.
6.1 Conclusion:

This research has attempted to assess the economic viability of the Suez Canal through looking at internal and external dynamics that might be influencing the current fall in ships' and cargo traffic via the Canal. From the field work conducted, it has become clear that the accumulation of several administrative and operational inefficiency of the Suez Canal Authority coupled with the slowdown in international trade and the upsurge in maritime piracy in the gulf of Aden and the Red Sea, have aided the sharp slump in revenues amounting to 22%.

This study has achieved its aims by investigating the economic viability of the Suez Canal, which resulted in the fact that the Suez Canal is gradually losing its attractiveness as a cost effective solution for shipping companies trading between Europe and Asia. Despite the limitation in locating secondary data, and the few number of respondents on questionnaires, the objectives set in this study were all achieved.

The researcher has categorized the regime of the SCA into two parts, the administrative aspects and the operational aspects. Both aspects have been researched and subcategories were identified and assessed. The results obtained from the empirical data, have showed that the administrative regime of the SCA can be summarized in pre-arrival and after-arrival formalities, booking procedures, toll payments and assignments of contractors and canal agents and handing the transit requirements such as tug boat companies, light search company and ship chandlers. Despite the positive credit given to some of the aspects of these administrative elements, it is clear by now from chapter 4 (Results) and Chapter 5 (Discussion) that the canal users are encountering some administrative issues before and after the arrival of ships in the waiting areas or the anchorage in both Port Said and Port Suez. Analyzing these issues has revealed that there is a scarcity of coordination and unregulated contractors that are putting pressure on ships' crew and delaying the transits. From pre-arrival perspectives, advance communication technology could
allow achieving a high level of performance reducing paperwork, increase transparency and enhance the overall canal administrative procedures.

It could be also argued that SCA are aware of the technologies and practice used in other Canals such as the Panama Canal Reservation system, however Chapter 3 (Literature Review) suggests that the nature of the SCA (a state owned company) is the reason for their reluctance in developing and upgrading their business process. However the idea of privatizing the SCA was identified not to be the way forward. Yet privatizing certain services of the canal could be of great benefit. This is not saying that the current system or regime is not performing at all and needs to be completely discarded. It appears from Chapter 4, that new systems could be setup in place while retaining both systems the new and the old, to allow for more flexibility for shipping companies that are not ready for a change.

Four entities have been used in this study to assess the overall efficiency of the operational regime of the Suez Canal, the pilotage, convoy systems and the Aid to Navigation AtN in the Canal. It appears from Chapter 4, that only pilotage have identified as an issues, however current physical characteristics of the canal are identified to be obstacles for further development and the potential increase in traffic. In terms of AtN, empirical data have not revealed any inefficiency, nevertheless, the SCA needs to continuously upgrade their systems in order to meet new technological developments.

As for the assessment of the impact of external forces on the decline in the ships’ traffic, the unpredictable current decrease in international trade is certainly the major origin for this decline. The upsurge in piracy in the Gulf of Aden stretching toward the Red Sea can be also suggested to be the second most important factor affecting the number of ships willing to transit the Suez Canal. It is apparently clear that these external factors are beyond the control of the Suez Canal Authority, as economies all over the world are experiencing decline. Businesses do survive and maintain their profit; it is a question if the business is flexible enough from a strategic and resources perspective to be able to adjust to survive the crunch while aiming at keeping on benefiting their customers.

It can be concluded that there are enormous opportunities for the Suez Canal to improve. The decline in traffic in the Suez Canal could not be directly linked to its
mentioned administrative and operations inefficiencies. However global recession and maritime piracy are found to be the direct cause for the decline in SCA revenues. Nevertheless, increased flexibility in dealing with customers on the one hand and widening and increasing the double part sections of the Canal on the other hand could have had reduced the impact of low market demand and piracy in Somalia.

6.2 Recommendations:
Temporary remedial actions to solve the problems:

1. Allowing for a temporary discount on tolls for containerships and introduce a temporary rebates systems for containership carrying less than certain containers as well as on empty containers.
2. Give more flexibility to shipping companies by reducing or suspending late arrival charges of 3% and 5%, as well as the cancelation fees.
3. SCA needs to put pressure on the Egyptian government to develop a more concrete piracy reduction plan with their neighbouring states and in conjunction with South East Asian countries especially Malaysia, Singapore and Indonesia.

Long term remedial actions

4. Introduce the Suez Canal Reservation systems SCRS, a web-based systems that will handle all the administrative procedures. While allowing for flexibility by implementing the new IT while maintaining the current systems
5. Introduce a new body with the SCA that exercises regular inspections and monitoring of the different external entities handling the day to day canal operations
6. Revise the pilotage regime by introducing more stringent regulations on pilotage’s training and periodical refresher courses.
7. Dredging and straightening the middle section of the canal between allowing for two way lanes and enhancing safety reduction.
8. Re-structure the convoy systems to meet the expected increase in ships traffic after dredging the Canal.
6.3 Limitation of the project and further research:

This dissertation has brought to light important findings on the current and future economic viability of the Suez Canal. Carol M. Roberts argued that limitations in any dissertation are those aspects that are beyond the control of the researcher, and part of the ethics of writing projects is to honestly state the limitations so the reader could give a better judgement on the results and outcomes (Roberts, 2004: 147). Like every other research work, this study has its own limitations. The main limitation is the relatively small sample gained from the fieldwork. Five out Twenty shipping companies have responded to the questionnaires sent to them. This affects generalizing the findings on large beneficiaries of the Suez Canal.

Also, the researcher's continuous attempts to contact the SCA have failed. As interviews with some of the Canal’s officials would have given a greater understanding of their regime and which would have taken my research into deeper assessment and more accurate results.

Another limitation is the lack of up-to date journals and academic published material on the operations efficiency of the Suez Canal.

This study was partly engaged in assessing the two evolving themes: the economic conditions and the maritime piracy, therefore data and statistics used to support this work are subject to change. Further research in this area should be informed by future published material, official papers and broader scopes of looking at this problem to come up with more reliable results. Securing the feedback of the SCA in terms of in-depth information about the strength and weakness of the administrative and operational aspects of the Canal, and covering a large number of shipping companies as part of wider survey study, will provide more accurate results and propose better strategies for re-processing the way procedures are taken without interrupting the traffic of ships.
Appendices

Appendix 1: Saving distance via the Suez Canal

Saving in distance via SC

The geographical position of the Suez Canal makes it the shortest route between East and West as compared with the Cape of Good Hope. The Canal route achieves saving in distance between the ports north and south of the Canal, the matter that is translated into other saving in time, fuel consumption, and ship operating costs as shown in the table below:

About 10% of the world seaborne trade passed through the Suez Canal in 2007.

<table>
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<td>Cape</td>
<td>Miles</td>
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<td>Laveria</td>
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<td>11 169</td>
</tr>
<tr>
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<td>11 794</td>
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<td>Piraeus</td>
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<tr>
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<td>Rotterdam</td>
<td>11 192</td>
<td>14 507</td>
</tr>
<tr>
<td>Singapore</td>
<td>Rotterdam</td>
<td>8 288</td>
<td>11 755</td>
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Appendix 2: A Panoramic view of the Suez Canal
Appendix 3: Suez Canal Authority Maritime Simulator

Maritime Simulator

During piloting in a narrow channel, or a canal, human errors may yield to ship's grounding, or collision due to inexperience, careless, or a delay in taking into account the effects of natural forces such as wind and currents, the forces of bank effects and shallow water affecting ship's maneuver.

The pilot has to deal with these hydrodynamic forces that affect his vessel through the different navigational areas of the Canal, this can be done by adjusting their impact on the ship by adjusting the speed and distance of his vessel, either to the bank, or to the shallow water.

Forces of nature, wind and currents, the pilot must learn to recognize them and work with them so that his vessel is not affected negatively by them.

All these forces and conditions are present in the Suez Canal in addition to all the other operational characteristics and requirements of the Canal.

Good piloting requires both judgment and experience because piloting is a constant process of analysis and control of variable forces and conditions, a decision-making and action process all the way through.

When maneuvering a vessel in the Canal, the pilot does not have the benefit of friction, and brakes, so he must maintain an equilibrium of motion and forces, in order to be able to control his vessel.

As the international trend in training runs by simulation, Suez Canal Authority established the "Maritime Training and Simulation Center" to be one of the greatest centers specialized in the field of training pilots in the Middle East applying the advanced methods in practical training and educational pilotage courses.

One of the main objectives of this center is to train Suez Canal pilots to gain valuable and superior experiences in the field of pilotage under many conditions, in order to transit safely the Canal to avoid collision and grounding in all environments instead of being directed to anchor, that were not possible before, thus keeping the Canal open all the time for ships transit.

Main Center's Objectives:

- Training of S.C.A Pilots on the main maneuvers for transiting safely the Canal for different ship's tonnage and draughts up to 62 feet for time being and 72 feet in the future.
- Training the Pilots in order to be able to control his vessel on different weather conditions especially in nil visibility, fog, sandstorm, and full darkness.
Appendix 4: Suez Canal Authority Research Centre

- **Research Center**

Suez Canal Authority Research Center (SCRC) - established in Ismailia in 1960 - is specialized in conducting researches, technical studies and consultancy works in the fields of design and development of navigation canals, planning of ports and harbors and design of marine structures and shore protection works. It also conducts studies in the fields of soil mechanics, testing of materials, and quality control.

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**Hydraulics Lab**

**Physical Modeling**

SCRC's model testing facilities serve SCA and customers in the fields of port, coastal and hydraulics engineering. It includes:

- Planning and design of ports and marine facilities.
- Breakwater stability testing.
- Shore protection works.

**Facilities**

- Wave basin for regular and irregular waves.
- Wave flume (40 x 1.5m, with max. water depth 0.5m).
- A canal research basin used for performing studies related to navigation in SC such as:
  - Design of canal cross sections, the optimum ship speed in the canal, stopping distances required between ships, effect of vessels off-track from the canal centerline, and navigation dangers analysis in the canal.
  - Study the hydraulic phenomena accompanying passing of ships in the canal.
Appendix 5: Additional cost associated per transit via the Suez Canal

ADDITIONAL COSTS PER TRANSIT VIA SUEZ AS A CONSEQUENCE OF THE PIRACY RISK IN GULF OF ADEN

Source: USA Maritime Administration and various press articles
Appendix 6: Suez Canal Authority VTMS

**Vessel Traffic Management System (VTMS)**

The scientific development accomplished by the Suez Canal Authority (SCA) in ensuring the safety of transiting ships through the Suez Canal.

With a view to securing the highest standards of safety to vessels passing through the canal, SCA stepped forward to execute a giant project to upgrade VTMS in order to keep up with the latest technological developments. The project conforms with the international regulations stipulated by the International Maritime Organization (IMO) concerning the system of traffic in navigational channels.

**Targets:**

- Increasing the standards of safety of vessels transiting the canal through a radar network covering and monitoring all vessels while arriving at the approaches or ports and while transiting the canal.
- Radar surveillance covering an area of 30 km from Port Said and Port Tewfik, and that gives an automatic announcement of arrival time of all vessels getting into the waiting area.
- Adopting simulating systems of the canal traffic by using the number of vessels in waiting areas (ports, lakes, by-passes) and weather conditions in programming the alternative designs for next day convoys "Ideal Transit Pattern".
- Monitoring all the vessels transiting the canal to calculate average speed, separation distance, passage time at signal stations and to plot the real transit pattern.
- Consolidating the trust of our clients, the International Chamber of Shipping and the world maritime organizations in the safety of transit and the outstanding performance of the Suez Canal Authority.
- Participating in environment protection by decreasing the number of accidents in the canal and dealing with them in the proper way in case they occur.
### Appendix 7: Questionnaires & Interviews:

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Appendix 8: Sample Questionnaire

RESEARCH QUESTIONNAIRE

Topic: An investigation into the current and future economic viability of the Suez Canal

This questionnaire is part of a research project I am conducting for my Masters dissertation. All data will be solely used for academic purposes and will not be passed on to any commercial or other third parties.

Please fill in the questionnaire by ticking the right box (*)

Personal information:

Name: .................................................................

Organisation: ................................................................

Position: ......................................................................

Address: ........................................................................

1. How often do you think your company’s ships transit the Suez Canal?

☐ Once a week ☐ Twice or more a week

☐ Once every two weeks ☐ Once a month

2. What do you think about the request/reply time in order to book place in the convoy
3. Is the process (Booking, regulations, paperwork, inspections, tolls payment) well structured, formulated and comprehensive?

- Very Efficient
- Reasonably good
- Average
- Poor

Strongly agree □ Agree □ Disagree □ Strongly disagree □

4. What do you think about the assistance provided by the canal agents to Captains before and during the transit?

- Highly effective
- Effective
- Reasonable
- Not very effective

Highly effective □ Effective □ Reasonable □ Not very effective □

5. What do you think about the Toll paid to the SCA, is it worth the service?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Strongly agree □ Agree □ Disagree □ Strongly disagree □

6. What do you think of the convoy systems:

- Highly effective
- Effective
- Reasonable
- Not very effective

Highly effective □ Effective □ Reasonable □ Not very effective □

7. Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Strongly agree □ Agree □ Disagree □ Strongly disagree □

8. Do you receive negative complain from masters about the inefficiency of the Suez Canal

- All the time
- Some times
- not many
- not at all

All the time □ Some times □ not many □ not at all □

9. Can you please list up to four type of complains you have received from your masters or crew in the last two years with regard to service provided by the Suez Canal Authority

.......................................................... ..........................................................
.......................................................... ..........................................................
Does the effectiveness of the service provided by the Suez contractors (Boatman company, canal agents, Pilots, influence your decision to transit the Canal?

Strongly agree  Agree  Disagree,  Strongly disagree

10. How do you feel about this statement? The privization of the canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls.

Strongly agree  Agree  Disagree,  Strongly disagree

11. Please rank the factors in this table in order of importance with regard to the way they may influence your company’s decision not to transit. Number 1 for the most important factor. If a factor has no importance at all, please leave blank.

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<tr>
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<tr>
<td>Vessel expenditure via the Suez canal compared to the Cape of Good Hope in the current economic conditions</td>
<td></td>
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12. An ongoing project is being undertaken to expand the Panama Canal by including a third lock and wider canal for large container vessels to accommodate Suezmax, taking some trade patterns from the Suez canal to the Panama Canal. Do you think that the achievement of this project will have an influence on your decision to keep sending your ships via the
Suez Canal toward North East America (Please answer this question, if you have a service to North East America?)

Strongly agree  Agree  Disagree  Strongly disagree

Please add any additional comments in the space below:

Many thanks for your time and kind support.

Bilel Hadidi

Please N.B

If you’re sending the questionnaire by post. Kindly post it to:

Bilel Hadidi
35 Hartington road, Southampton,
SO14 0EW
Appendix 9: Sample from Returned Questionnaires:

Bilel Hadidi (Mr)
MSc in International Maritime Studies-
Ship and Shipping Management
Southampton Solent University
Tel: +44 (0)78446681114
Email: bilelhadidi@yahoo.co.uk

RESEARCH QUESTIONNAIRE

Sloman Neptune

Topic: An investigation into the current and future economic Viability of the Suez Canal

This questionnaire is part of a research project I am conducting for my Masters dissertation. All data will be solely used for academic purposes and will not be passed on to any commercial or other third parties.

Please fill in the questionnaire by ticking the right box (*)

Personal information:
Name: .H. H.................................................................
Position: ..............
Address: .................................................................

1. How often do you think your company’s ships transit the Suez Canal?

☐ Once a week ☐ Twice or more a week
☐ Once every two weeks ☐ Once a month
2. What do you think about the request/reply time in order to book place in the convoy

[ ] Very Efficient [ ] Reasonably good [ ] Average [ ] Poor

3. Is the process (Booking, regulations, and paper-works, inspections, and tolls payment) well structured, formulated and comprehensive?

[ ] Strongly agree [ ] Agree [ ] Disagree [ ] Strongly disagree

4. What do you think about the Toll paid to the SCA, is it worth the service?

[ ] Strongly agree [ ] Agree [ ] Disagree [ ] Strongly disagree

5. What do you think of the convoy systems:

[ ] Highly effective [ ] Effective [ ] reasonable [ ] Not very effective

6. Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?

[ ] Strongly agree [ ] Agree [ ] Disagree [ ] Strongly disagree

7. Do you receive negative complain from masters about the inefficiency of the Suez Canal

[ ] All the time [ ] Some times [ ] not many [ ] not at all

8. Can you please list up to four type of complains you have received from your masters or crew in the last two years with regard to service provided by the Suez Canal Authority
... fear of ships hijacked.......... high tolls of the Suez canal................................. long waiting time

Does the effectiveness of the service provided by the Suez contractors (Boatman company, canal agents, Pilots, influence your decision to transit the Canal?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree,</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

9. How do you feel about this statement? The privization of the canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree,</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

10. Please rank the factors in this table in order of importance with regard to the way they may influence your company's decision not to transit. Number 1 for the most important factor and the number 7 for the least attractive.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Ranks</th>
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<tbody>
<tr>
<td>Suez Canal’s high tolls</td>
<td>1</td>
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<tr>
<td>Fears of ships hijacked</td>
<td>1</td>
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<tr>
<td>Increase in Bunker prices</td>
<td>3</td>
</tr>
<tr>
<td>Increase in insurances premium</td>
<td>1</td>
</tr>
<tr>
<td>Long waiting time</td>
<td>5</td>
</tr>
<tr>
<td>Not safe to navigate</td>
<td>3</td>
</tr>
<tr>
<td>Inflexibility in dealing with ship-owners</td>
<td>7</td>
</tr>
<tr>
<td>Unfriendly SCA staff</td>
<td>7</td>
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<tr>
<td>Corruption of the administration regime</td>
<td>7</td>
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<tr>
<td>Vessel expenditure via the Suez canal compared to the Cape of Good Hope in the current economic conditions</td>
<td>6</td>
</tr>
</tbody>
</table>

Please add any additional comments in the space below:
The Suez Canal has to be expanded to decrease waiting time for ships coming from the north and the south side.

Ship-owners have the possibility to avoid high tolls of the Suez Canal by offering their own crew training courses how to transit the Suez Canal.

Many thanks for your time and kind support.

Bilel Hadidi

Please N.B

If you're sending the questionnaire by post. Kindly post it to:

Bilel Hadidi
35 Hartington roads, Southampton,
SO14 0EW
RESEARCH QUESTIONNAIRE

Worldwide Shipping & Logistic

Topic: An investigation into the current and future economic Viability of the Suez Canal

This questionnaire is part of a research project I am conducting for my Masters dissertation. All data will be solely used for academic purposes and will not be passed on to any commercial or other third parties.

Please fill in the questionnaire by ticking the right box (*)

Personal information:

Name: .. Davinder Sharma .................................................................

Organisation: .. Dole Fresh Fruit
Carrier ..............................................................

Position: .. Second Assistant
Engineer ..............................................................

13. How many times did you transit the Suez canal

☐ once  ☐ two times
☐ Three  /  more than three
14. How stressful it is to transit the canal, please rate (with 1 meaning very stressful to 10 meaning not stressful at all) Highlight your answers.

1...2...3...4...5...6...7...8...9...10

1. What do you think about the request/reply time in order to book place in the convoy

- Very Efficient
- Reasonably good
- Average
- Poor

2. Is the process (Booking, regulations, paperwork, inspections, tolls payment) is well structured, formulated and comprehensive?

- Agree Strongly
- Agree Slightly
- Agree nor disagree
- Disagree Slightly
- Disagree

3. What do you think about assistance provided by Canal agents to Captains before and during the transit?

- Highly effective
- Effective
- Reasonable
- Not very effective

4. What do you think about the Toll paid to the SCA, is it worth the service?

- Agree Strongly
- Agree Slightly
- Agree nor disagree
- Disagree Slightly
- Disagree

5. What do you think of the convoy systems:

- Highly effective
- Effective
- Reasonable
- Not very effective

6. Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?

- Agree Strongly
- Agree Slightly
- Agree nor disagree
- Disagree Slightly
- Disagree
7. What do you think of the Navigation rules required by the Suez canal authority

Highly effective, Effective, reasonable Not very effective

D  E
D
D

8. Does the effectiveness of the service provided by the Suez contractors (Boatman company, canal agents, Pilots, Search light company influence your decision to transit the Canal?

Agree Strongly Agree slightly Agree nor disagree, Disagree Slightly, Disagree

D
C
D
D D

9. How do you feel about this statement? The privization of the canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls.

Agree Strongly Agree slightly Agree nor disagree, Disagree Slightly, Disagree

D
C
D
D D

10. Rank the elements in the table in order of importance with regard to the factors that influence shipping companies decision not to transit. Number the most important 1, the next 2 and so on. If a factor has no importance at all, please leave blank.

<table>
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<tr>
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<td>Unfriendly SCA staff</td>
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The Corruptness of the administration regime  6
Not economical to navigate  3

11. An ongoing project is being undertaken to expand the Panama canal by including a third lock and wider canal for large container vessel to accommodate Suezmax. Taking some trade patterns from the Suez canal to the Panama canal, do you think that the achievement of this project will have an influence on the decision of ship-owners to keep sending their ships via the Suez canal toward North America?

Agree Strongly  Agree slightly  Agree nor disagree,  Disagree Slightly, Disagree

Thank you for answering these questions.
Bilel Hadidi (Mr)
MSc in International Maritime Studies-
Ship and Shipping Management
Southampton Solent University
Tel: +44 (0)78446681114
Email: bilelhadidi@yahoo.co.uk

RESEARCH QUESTIONNAIRE

Topic: An investigation into the current and future economic viability of the Suez Canal

This questionnaire is part of a research project I am conducting for my Masters dissertation. All data will be solely used for academic purposes and will not be passed on to any commercial or other third parties.

Please fill in the questionnaire by ticking the right box (*)

Personal information:
Name: S.A
Organisation: GMT
Position: 
Address: 

1. How often do you think your company’s ships transit the Suez Canal?

[ ] Once a week [ ] Twice or more a week
[ ] Once every two weeks [ ] Once a month (*)

2. What do you think about the request/reply time in order to book place in the convoy
3. Is the process (Booking, regulations, paperwork, inspections, tolls payment) well structured, formulated and comprehensive?

Strongly agree (*) Agree Disagree, Strongly disagree

4. What do you think about the assistance provided by the canal agents to Captains before and during the transit?

Highly effective Effective Reasonable (*) Not very effective

5. What do you think about the Toll paid to the SCA, is it worth the service?

Strongly agree Agree (*) Disagree, Strongly disagree

6. What do you think about the convoy systems?

Highly effective, Effective, (*) reasonable Not very effective

7. Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?

Strongly agree Agree Disagree, (*) Strongly disagree

8. Do you receive negative complaint from masters about the inefficiency of the Suez Canal

All the time Some times not many (*) not at all

9. Can you please list up to four type of complaints you have received from your masters or crew in the last two years with regard to service provided by the Suez Canal Authority

...Pilots are not very experienced
Does the effectiveness of the service provided by the Suez contractors (Boatman company, canal agents, Pilots, influence your decision to transit the Canal?

Strongly agree   Agree(*)   Disagree,   Strongly disagree

10. How do you feel about this statement? The privatization of the canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls.

Strongly agree   Agree(*)   Disagree,   Strongly disagree

11. Please rank the factors in this table in order of importance with regard to the way they may influence your company’s decision not to transit. Number 1 for the most important factor. If a factor has no importance at all, please leave blank.

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12. An ongoing project is being undertaken to expand the Panama Canal by including a third lock and wider canal for large container vessels to accommodate Suezmax, taking some trade patterns from the Suez canal to the Panama Canal. Do you think that the achievement of this project will have an influence on your decision to keep sending your ships via the Suez Canal toward North East America? Please answer this question, if you have a service to North East America?
Strongly agree Agree Disagree Strongly disagree

Please add any additional comments in the space below:

Many thanks for your time and kind support.

Bilel Hadidi

Please N.B

If you’re sending the questionnaire by post. Kindly post it to:

Bilel Hadidi
35 Hartington road, Southampton,
SO14 0EW
RESEARCH QUESTIONNAIRE

**Topic:** An investigation into the current and future economic Viability of the Suez Canal

This questionnaire is part of a research project I am conducting for my Masters dissertation. All data will be solely used for academic purposes and will not be passed on to any commercial or other third parties.

Please fill in the questionnaire by ticking the right box (*)

Personal information:
Name: ...........................................Cris David..........................................................
Position: ...................................................................................................................
Address: ..................................................................................................................

1. How often do you think your company’s ships transit the Suez Canal?

- [ ] Once a week
- [ ] Twice or more a week
- [X] Once every two weeks
- [ ] Once a month

2. What do you think about the request/reply time in order to book place in the convoy
3. Is the process (Booking, regulations, and paperwork’s, inspections, and tolls payment) well structured, formulated and comprehensive?

- Very Efficient
- Reasonably good
- Average
- Poor

4. What do you think about the Toll paid to the SCA, is it worth the service?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

5. What do you think of the convoy systems:

- Highly effective
- Effective
- Reasonable
- Not very effective

6. Do you think the transit could be faster, if the Suez Canal re-structures the convoy system?

- Strongly agree
- Agree
- Disagree
- Strongly disagree

7. Do you receive negative complain from masters about the inefficiency of the Suez Canal

- All the time
- Some times
- not many
- not at all

8. Can you please list up to four type of complains you have received from your masters or crew in the last two years with regard to service provided by the Suez Canal Authority

- Not permitting bunkers prior to joining
- Gully-gully men
- Pilots expecting food, drink and bribes
- Inadequate Security from criminals
Does the effectiveness of the service provided by the Suez contractors (Boatman company, canal agents, Pilots, influence your decision to transit the Canal?

Strongly agree  Agree  Disagree,  Strongly disagree

9. How do you feel about this statement? The privization of the canal will lead to more regulated and controlled services, increase in traffic and reduction in tolls.

Strongly agree  Agree  Disagree,  Strongly disagree

10. Please rank the factors in this table in order of importance with regard to the way they may influence your company’s decision not to transit. Number 1 for the most important factor. If a factor has no importance at all, please leave blank.

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</table>

Please add any additional comments in the space below:

N/A
Many thanks for your time and kind support.

Bilel Hadidi

Please N.B

If you’re sending the questionnaire by post. Kindly post it to:

Bilel Hadidi
35 Hartington roads, Southampton,
SO14 0EW
Appendix 9: Minutes of my meeting with my supervisor:

1. Date: 15-07-2009; meeting time at 11.00; duration: 30 minutes; Supervisor’s comments: topic identified and objectives not yet clear

2. Date: 27-08-2009; meeting time at 13.00; duration: 30 minutes; Supervisor’s comments: Objective clear and supervisor gives the go ahead to start literature reviews, introduction and methodology.

3. Date: 03-08-2009; meeting time at 11.30; duration: 30 minutes; Supervisor’s comments: Literatures review well structured and written, advised few changes and move on to the finding.

4. Date: 10-08-2009; updated my supervisor with my progress so far via email:
References:

Books:


Siegfried André, Hemming. Henry Harold and Hemming, Doris. (1940). *Suez and Panama*, Harcourt, Brace and company, Virginia


**Journals:**


**Trade Publications (Internet articles):**


Websites:


Marine Accident Reporting Scheme MARS, Available at: http://www.nautinst.org/MARS/index.htm

Panama Canal Authority: Available online at: http://www.pancanal.com/eng/index.html


Videos:

Al Aljazeera English, Egypt suffers from Suez Canal revenue loss- 26/08/2009, Available online at: http://www.youtube.com/watch?v=VAOWOD--nGI

Aljazeera News Channel, Harvest of the Day; Suez Canal 20/07/2009

BBC Documentary The Suez Canal, The other Side of the Suez 1956, Available online at: http://www.youtube.com/results?search_query=suez+canal+bbc&search_type=&aq=f

SKY 1, Ross Kamp, In search for pirates, Episode 1, 05/08/2009

SKY 1, Ross Kamp, In search of pirates, Episode 3, 05/08/2009