Developing the Concept of an Integrated Emergency Response System for the Tourism Industry: Case Study of the Cruise Ship Industry

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Copyright Statement

Selection of Terminology: 'Disaster' – 'Emergency'

Across the world, and within much of the academic literature that has underpinned this thesis, there remains an inconsistency in the use of the terms 'disaster' and 'emergency'. It is generally accepted by authors that natural disasters lead to crises. For example, the eruption of the Icelandic volcano Eyjafjallajökull led to a crisis in the European air industry. What is not so well agreed upon is the difference between the use of the word 'emergency' and 'disaster'. Developing nations prefer to use the word 'disaster', since in declaring a 'disaster' they seek to unlock specific national legislation allowing the use of (for example) the military and other expensive state services. The word 'disaster' also creates an urgency to any request for external assistance. The travel and tourism industry prefer to use the word 'emergency' when referring to accidents at sea, hotel fires, and other hazardous tourism related events. This is because they perceive the word 'emergency' as less negative; both to their stakeholders and their clients. The reduced perception of negativity also helps to protect their image as being 'resilient'.

In this thesis I have chosen to use the word 'emergency', although I do refer to 'disaster' management theories and concepts. In the context of this thesis therefore, I regard the two words as inter-changeable across the literature and bearing the same meaning.

Refer to **Appendix 1** for differentiating criteria between emergency and disaster.

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Developing the Concept of an Integrated Emergency Response System for the Tourism Industry: Case Study of the Cruise Ship Industry

Madja Hamood Mohamed Al Salti

Abstract

The tourism industry is vulnerable to all kinds of emergency events. These events are in turn impacted by further complexities arising from a range of consequences, themselves exacerbated by inevitable knock-on effects. As a result, the tourism industry is vulnerable to physical damage and loss to critical infrastructure and super structure. It is also vulnerable to injury and loss to human life, and loss to the environment. Finally, it is vulnerable to its reputation in terms of the image portrayed of the destinations resulting in a drastic fall in the number of visitors.

Some impact can be mitigated by the improving links and the understanding between the tourism industry and the emergency services thereby facilitating future emergency response to any potential incident, particularly in destinations which receive a high volume of tourists. The complex nature of emergencies requires the involvement of multiple emergency response actors; above and beyond the usual emergency services. This in turn requires effective communication and co-ordination in order to ensure a successful outcome.

Despite the fact that several studies have been carried out into the integration of the tourism industry with emergency management systems on land, very little research has focused on the cruise industry. Cruise ships are an important consideration because with their ever-increasing size, they are now floating destinations, hosting thousands of tourists. This study seeks to fill that gap by using building-block scenarios within which to examine the concept of an integrated emergency response system for the tourism industry in Oman with specific focus upon the cruise ship sector.

To assist in achieving this aim a thorough review of complexity, complex systems and complexity theory was conducted in order to better understand the nature of emergencies and how tourism works as a complex adaptive system. Planning theory

was also examined, in particular strategic and scenario planning, in order to recommend improvements in the planning and management processes of emergencies. This research subsequently highlighted a particular aspect of the emergency management cycle upon which to focus; namely the response phase.

The complexity of emergency response, particularly in relation to tourism, was examined in order to elicit ways to improve the effectiveness of emergency responses to future incidents. The case studies of Costa Concordia, MVs Sewol Korean Ferry and Norman Atlantic were utilised as an approach to evaluate the specific challenges encountered within the cruise-ship industry in the case of emergency responses. The study was conducted within the context of Oman, which has a growing cruise-ship industry.

The study used a range of scenarios to examine issues that arise from emergencies. It proposes future coordinating actions to mitigate loss of life and damage to the tourism industry. The study used semi-structured, face-to-face interviews to evaluate the capabilities of the emergency response system in Oman and used online-semi-structured interviews to identify the capabilities, requirements and challenges of cruise lines in Europe.

The outcomes of this research indicated that the tourism industry in Oman lacks awareness and knowledge about planning and managing emergencies, as well as having poor mitigation and preparedness measures. It also revealed that there is an absence of cohesiveness and communication between tourism organisations, in terms of sharing experiences and feedback. The tourism industry in Oman demonstrated a low level of communication and integration with other emergency services. This was further compounded by a lack of involvement of the tourism industry within any current emergency committees and plans in Oman. To assist in resolving these issues, intra-integration (within the tourism industry) and inter-integration (between tourism and emergency institutions) structures are proposed.

Findings drawn from the online-interviews in relation to European cruise lines showed that, in general, cruise ships lack coordination and collaboration with local emergency services. It was discovered that the sole point of contact for the cruise industry within any given destination is frequently the shipping agent. This in turn highlighted a potential single point of failure, in that shipping agents confessed to lacking the

capability and capacity to provide an effective liaison during times of emergency. To improve future integration and relations between cruise lines, local tourism industry and emergency services, the research suggested conducting joint drills, developing coordinated plans and working collaboratively in the event of emergencies.

List of Abbreviations

CDD	Civil Defence Directorate
CJSO	Committee for Joint Security Operations
CLIA	Cruise Lines International Association
ERC	Emergency Response Centre
FMEA	Failure Mode and Effects Analysis
FSA	Formal Safety Assessment
GDP	Gross Domestic product
HAZOP	Hazard and Operability
ILO	International Labour Organization
IMO	International Maritime Organisation
MSA	Marine Safety Agency
NCCD	National Committee for Civil Defence
NCSI	National Centre for Statistics and Information
NGOs	Non-Governmental Organisations
NRC	National Research Council
NSC	National Security Council
PACDA	Public Authority for Civil Defence and Ambulance
PPP	Public Private Partnership
ROP	Royal Oman Police
SARS	Severe Acute Respiratory Syndrome
SOLAS	Safety of Life at Sea
UK	United Kingdom
UNISDR	United Nation International Strategy for Disaster Risk Reduction
UNWTO	United Nation World Tourism Organisation
WTTC	World Travel and Tourism Council

Dedication

I dedicate this work to my country Oman with the hope that it can contribute to the development of the emergency management and the tourism industry.

My husband Ibrahim with deepest thanks and gratitude for his endless support and encouragement, to my son Sultan and my daughter Maha for their inspiration and patience during the difficult times in my study.

My mother, brothers and sisters for their support, help and prayers. This work is also dedicated to the soul of my father and grandmother; although they are not here, I always feel their presence encouraging me to achieve my aims in life.

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Special thanks to His Majesty Sultan Qaboos, the first teacher in Oman who is supporting the education and development of the human resources to participate in building the country Oman. I would like to also thank Sultan Qaboos University for providing me the opportunity to join this PhD program.

Special gratitude goes to those supported me during the stage of data collection including, Royal Oman Police; the Public Authority for Civil Defence and Ambulance, The Coastguard Police, The Executive Office for the National Committee for Civil Defence, The Maritime Security Centre - The Royal Navy, Ministry of Tourism, Ministry of Transportation and Communication - Ports Directorates, the Omani Association for Port Services and Travel and Shipping agents in Oman who participated in the study.

My sincere thanks to my husband's family, friends and my PhD colleagues for their prayers, support and encouragement.

Chapter 1: Introduction

1.1 Rationale

The tourism industry is considered one of the leading industries worldwide as the data from the WTTC (2016) shows its contribution to the global GDP in 2015 was (9.8%) and tourism generated more than 284 million jobs (1 in 11 jobs worldwide). However, it is exposed to emergencies for several reasons (Laws et al 1998; Henderson 2002; Prideaux et al. 2003; Tsai and Chen 2010; Becken and Hughey 2013). The tourism industry depends on natural resources (Jiang and Ritchie 2017) as many tourist facilities and activities are located in areas frequently affected by emergencies, such as mountains and coasts (Pottorff and Neal 1994; Richter 1999; Evans et al. 2003; Laws and Prideaux 2005; Becken and Hughey 2013). Tourism also often takes place in areas of outstanding natural beauty, which are often in remote locations, far away from the infrastructure needed to respond to emergencies. Moreover, most destinations supply natural and cultural resources to build the tourist's experience, however if these resources are affected by a disaster, tourism demand will fall (Jiang and Ritchie 2017). For example, hundreds of historical and cultural sites were destroyed by the recent earthquake in Nepal in 2015 (including 7 World Heritage sites) which resulted in a 90% downturn in inbound tourists (Government of Nepal 2015). Furthermore, tourists are travelling outside their usual environment; therefore, they might not be familiar with the surroundings (UNWTO 1998; Buckle et al. 2001; Lamanna et al. 2012), local language and hazard or emergency knowledge (Murphy and Bayley 1989; Drabek 1995; Burby and Wagner 1996; Whitehead et al. 2000; Bird et al. 2010; Nguyen et al. 2017). When a destination is confronted by an emergency, it is likely to affect the tourists' facilities, critical infrastructure (e.g. airports, ports, electricity, and water), superstructure and perceptions, and in turn, this may result in negative economic impacts. Yet, some argue that the industry's preparation is insufficient (Faulkner and Vikulov 2001; Prideaux et al. 2003; Mitroff 2004; Johnston et al. 2007; Hystad and Keller 2008; Bird et al 2010; Tsai and Chen 2010; Gruman et al. 2011; Paraskevas et al. 2013). This low level of preparedness can be referred to beliefs that disasters are not expected (Faulkner and Vikulov 2001; Hystad and Keller 2008), a lack of finance, lack of qualified staff, (Spillan and Hough 2003) lack of knowledge, lack of resources and no emergency plans in place. A lack of disaster preparedness in the tourism

industry results in inadequate disaster response and recovery for individual destination stakeholders (Granville et al. 2016). For example, during the 2004 Indian Ocean Tsunami in Khao Lak, Thailand, there was inadequate adoption of disaster preparedness measures by local hotels (Nguyen et al. 2017). This resulted in high levels of tourist casualties (Cioccio and Michael 2007; Calgaro and Lloyd 2008).

Thus, there is a need for the tourism industry to have a more comprehensive and strategic emergency response approach, working with other tourism stakeholders and other agencies like emergency services organisations (Ritchie 2009). The UNWTO's decision to develop a policy approach in 2010 is recognition of the lack of an integrative approach between tourism and emergency services, requiring urgent attention (Beirman 2011). Ritchie (2008) and Tsai and Chen (2011) point to the need for tourism managers to shift from a reactive tourism disaster management approach to a proactive planning approach and recommend future research in this area. On the other hand, Bowen et al. (2014), suggest that there has been a lack of research, especially in terms of cruise ship and maritime terrorism, and highlight the importance of employing or using scenario planning in order to understand and minimise the potential threats that may affect the cruise ship industry. More recently, there has been increased attention on the safety and security of people travelling on large cruise ships (Greenberg et al. 2006) since the capacity of cruise ships is increasing and the plans are in place for cruise ships to carry more than 3,000 passengers (Bowen et al. 2014). When a disaster hits a large-scale cruise-ship it will affect the tourists' perception. This is likely to result in an economic downturn for the industry, as has happened following the case of Costa Concordia, which resulted in a dip of 14.1% in demand for Carnival Cruises and 6.9% for the Royal Caribbean (Howard and Stephenson 2013). This is due to the complex nature of disasters and the knock-on effect it bears.

Complexity and complex systems have been investigated for some time by researchers across different disciplines (Coskun and Ozceylan 2011). Complexity theory was first applied within the field of social sciences in the mid-1980s in the areas of political systems, the working of markets and to study traffic congestion (Hilhorst 2003). Since then, studies have applied complexity to vulnerability, such as Louise Comfort (1995) on self-organisation following a disaster, Anja Possekel (1999) on the impact of the Montserrat volcanic eruption, crisis communications (Murphy 1996; Seeger 2002) and maritime accidents (Goulielmos 2004). In line with previous studies (Beirman 2010; Becken and Hughey 2013; UNWTO Report 2014) this study recognises the

importance of complexity, complex systems and complexity theory. They are highly relevant for tourism and emergency studies, as they provide a starting point to explaining their nature and the interaction between sub-systems of nature and society, or hazards and vulnerability (Faulkner 2001; Hilhorst 2003; Winser et al. 2003). They are also related to stability and changes, which occur between the interacting components in a complex system (Waldrop 1992). Additionally, researchers have studied complexity and complex systems in order to better understand how tourism works as a complex adaptive system (Baggio 2008; Stevenson et al. 2009). The complex interaction of emergency management is inherent through the participation of multi-stakeholders throughout the four emergency phases; mitigation, preparedness, response and recovery (Atlay and Green 2006). The focus of this study will be on the response phase. The challenges faced by these multi-stakeholders is that their decision-making takes place during periods of very high stress. This could in turn induce irrational behaviour, in a highly time-constrained environment with limited and conflicting information (Coppola 2011). In addition, during a response, a lack of confidence and unnecessary delays in responding may turn an emergency into a disaster or a catastrophe (Coppola 2011). The complex events that include interaction between the many components could result in failure of the management, if there is insufficient planning and ill-informed individual or organisation actions (Comfort 2005). Therefore, an integrated approach is required during a chaotic, complex and dynamic situation for an effective and successful response (Alexander 2013b). The uncertainty of the situation and the responders in emergency circumstances may result in the participating players bringing different organisational cultures and opinions on how to handle certain situations (Kapucu and Garayev 2011, p.373). This might create a problem because the different groups may not necessarily agree on critical issues, which results in the slowing down of any cooperation or decision-making processes (Kapucu and Garayev 2011).

The aim of the response phase is to meet the requirement of the affected individuals or groups. Its efficiency is measured by how quick the transition of information among all partners is (e.g. organisations, people) (Avanzi et al. 2017). Its efficiency also depends on policies, procedures, services and roles that direct the coordination of all involved stakeholders (Avanzi et al. 2017). Therefore, the successful emergency management, in specific response actions requires full integration of all involved stakeholders; this integration can be intra- (within the same sector) or inter (across

sectors) (Meissner et al. 2002). Furthermore, the distribution of resources for effective emergency management, during the response phase, requires coordination inside organisations, with stakeholders both within the tourism industry and between the tourism industry and external stakeholders, such as emergency services staff (Ritchie 2009). Yet, few studies have examined integrating the tourism sector and emergency services organisations (Morakabati et al. 2016). Thus, the aim of this study is to develop the concept of an integrated emergency response system for the tourism industry through the use of building block scenarios. This study fills the gap of research by identifying the capability of emergency response systems in the destination (Oman) by conducting semi-structured interviews. Interviews were conducted in Oman as the researcher is based in Oman, so it facilitates the access to information and the meeting of people from the same country. Furthermore, the tourism industry in Oman has been given a high level of importance in order to diversify the national economy. Thus, the researcher sees there is a need for emergency management in the tourism industry in order to build economic resilience and also because of the somewhat precarious political climate in the Middle East. The study also identifies capabilities, requirements and challenges of the European cruise lines by conducting online-semi-structured interviews. The purpose of identifying the capability is to know how to integrate the tourism industry with emergency services and when is there a need for integration. It tackles the emergency response system capabilities to identify to what extent the required resources by the cruise lines are available. Identifying the destination capability and on the other hand the cruise lines' needs, expectations and challenges serve as basis for integration and to establish long-term collaboration. The aim of collaboration is to minimise the future risk and enhance the emergency response systems.

1.2 The Research Aim

The purpose of this study is to develop the concept of an integrated emergency response system for the tourism industry, using building block scenario in the context of complexity. The objectives of this study are:

1.3 The Research Objectives

- To critically review complexity in relation to emergency response planning;
- To draw on the complex adaptive system similarities within the tourism industry;

- To examine the specific challenges presented by the cruise ship industry when undertaking emergency responses;
- To evaluate the capability of the emergency response system of Oman when responding to emergency scenarios on or off shore;
- To identify European cruise lines' capabilities, requirements and challenges when responding to emergency scenarios near to, or alongside, a destination;
- To develop the concept of an integrated emergency response system for the tourism industry.

1.4 Research Questions

The main research question is **How to develop the concept of an integrated emergency response system for the tourism industry?**

1- What are the emergency response system capabilities within Oman when responding to emergency scenarios on or off shore?
2- How can emergency management services assist the tourism industry in Oman?
3- How can the Omani tourism sector assist and enhance emergency response system capabilities?
4- How can the Omani tourism sector be better integrated with emergency services?
5- What capabilities and capacities do cruise ships have when responding to emergency scenarios near to, or alongside, a destination?
6- What additional capabilities and capacities do cruise ships require from a destination's emergency services and local authorities in the event of an emergency scenario?
7- What are the potential shortfalls that might challenge cruise ships as a result of an analysis of their requirements within the given scenarios?

1.5 The Structure of the Thesis

This thesis contains eight chapters**. Figure 1-1** shows the overall structure of the thesis.

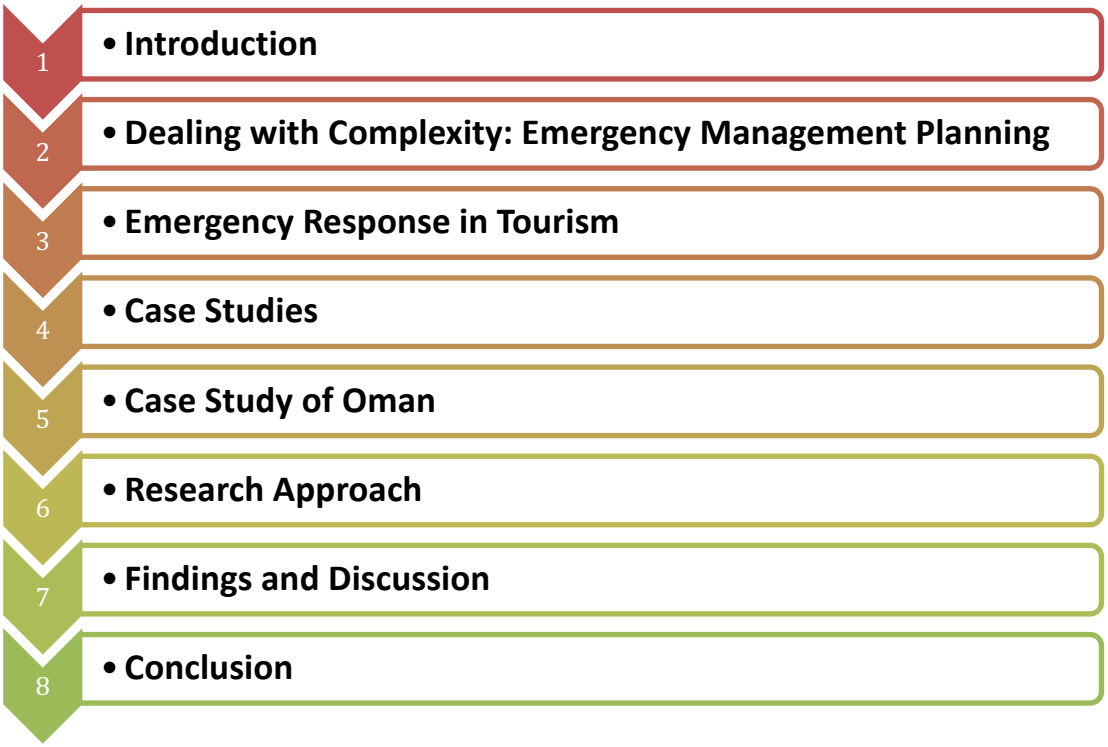


Figure 1-1. The Structure of the Thesis

Following this brief introductory chapter, **Chapter Two** is 'dealing with complexity: emergency management planning'. It critically reviews complexity, complex systems and complexity theory to establish the context and to get better understanding of the nature of emergency situations. The chapter then addresses planning, planning theory and investigates the relationship between planning and complexity. After that, the chapter highlights emergency management planning by briefly describing all phases of emergency management (mitigation, preparedness, responses and recovery). The last part in this chapter is allocated to emergency planning, specifically strategic and scenario planning because the good management of emergency depends on good planning.

Chapter Three is 'Emergency response in Tourism'. It discusses the vulnerability of the tourism industry and what hinders the tourism industry from developing plans for emergency management. Due to the large number of stakeholders in the tourism industry, in time of response there is a critical need to manage response tasks by

applying different strategies. These strategies are briefly highlighted in this chapter (coordination, collaboration, cooperation, decision-making, leadership, resource allocation, communication and information sharing). If all these strategies are managed well among all stakeholders, they help enhance the emergency response resilience; the last topic discussed in this chapter.

Chapter Four presents 'Case studies'. It starts with an overview of the cruise ship industry and the development of the market. It mentions the potential hazards that might occur during the different operational phases of the cruise (Passenger embarkation, departure, cruise, docking, arrival and disembarkation). After that, the chapter highlights the important topic of mass casualty management due to the large number of passengers travelling on cruises. Finally, it illustrates a multiple case study of cruise-ship incidents (Costa Concordia, Mv Sewol Korean Ferry and Norman Atlantic).

Chapter Five sets out the 'Case study of Oman' and aims to provide the study context. It begins with an overview about the country Oman, its location, population and the historical development of the tourism industry. Then it moves to the importance of the tourism industry in Oman. Finally, it critically reviews the emergency management system in Oman.

Chapter Six presents the 'Research approach'. It explains the research philosophy and the approach that guided the study justifying the methodological approach that was adopted by the study. Next, it gives details of the research design. After that, it discusses why the specific data collection and analysis methods were used in this study. This chapter also covers different subjects related to the sampling, pilot study, interview process, transcribing and coding. Finally, it concludes with study ethics, reliability, validity and limitation.

Chapter Seven presents the 'Findings and discussion'. It is divided into two parts; the first part presents findings and discussion of interviews conducted to achieve the fourth objective of the study. While the second part presents findings and discussions carried out to achieve the fifth objective of the study. Finally, it presents the conceptual framework of the study.

Chapter Eight concludes the thesis. It reviews the study objectives and to what extent they have been achieved. It describes the main research findings as well as the contribution of the study to theory, practice and methodology. Finally, it presents the study limitations, recommendations, and opportunities for future research.

Chapter 2: Dealing with Complexity: Emergency Management Planning

2.1 Introduction

The purpose of this chapter is threefold. It starts by examining complexity; complex systems and complexity theory in order to better establish the context and understand the nature of emergencies. The chapter then moves on to explain planning for emergencies by starting with planning theory and then focusing on strategic and scenario planning. Finally, it highlights the emergency management cycle.

2.2 Complexity and Complex System

Complexity is a term used within the complexity sciences to illustrate "a materially identifiable mechanism" and also works as a conceptual framework for a range of supports, understanding and arguments (De Roo et al. 2012, p.3). Complexity science concepts help in gaining a better insight and understanding of flows and uncertainties, which appear in different physical and natural occurrences (Chambers 2008; De Roo et al. 2012). Complexity means, "A state of being composed of two or more parts not simple" (Webster 1956) with features of inaccuracy and vagueness according to Grunau and Schonwandt (2010). Although complexity is still not clearly defined, it is not a concern because one can have a systematic approach to solving a problem (Holland 2014). For example, if a complex incident occurs there must be a strategy or plan to handle it, even the event is complex and may cause chaos, therefore its management should be more organised. Coskun and Ozecylan (2011, p.2) define complexity as "a difficulty metric, particularly with respect to understanding multiple relationships or interactions among two or more components of an object, entity, system, or situation in emergencies". Complexity focuses on "the dynamical properties and structural transformation of non-linear, far-from equilibrium systems" (Martin and Sunley 2007, p.575). For example, there is a complexity if related parts cannot be fitted within the whole system, and if events occur in a system not following linear time (Mol and Law 2002). Therefore, complexity according to Cilliers (1998) results from the interactions between simple elements of a system. Thus, a complex system is not represented by the sum of its elements, but also by the complex

interactions between them (Cilliers 1998). Overall, complexity focuses on interactions and relationships (McDaniel and Driebe 2001). For example, in case of an incident occurring in a destination, the focus is how the stakeholders will act to manage it and what kind of relations they have with other stakeholders.

Moreover, Taborga (2012) relates complexity to a system. This system consists of a group of elements that interact dynamically through processes by following certain procedures (Kuhn and Beam 1982; Nicolis and Prigogine 1989; Taborga 2012). These interacting elements are recognised as an entity concerning the whole environment where its boundaries can be closed or open (Chettiparamb 2013). In an open system, there are no boundaries in exchanging materials and information, whereas in a closed system the boundaries are absolute (Flood and Carson 1988). In a closed system, the determining elements are easily observable and controllable and concentrate on handling particular events (Hayek 1955). However, Hayek (1955, p.27) states that there are no closed systems in the universe and argues the need to try to single out "the points of contact through which the rest of the universe acts upon the system". Cilliers (1998) mentions that open systems are complex systems. Morowits (1995) states that complex systems have common features including a large number of components, high dimensionality and a large number of probabilities. This result in unbalanced system and changes will be unpredictable and non-linear (Hilhorst 2003). Complex systems according to Waldrop (1992) and De Roo (2010b) can be found between order and chaos, where the world is never in balance (**Figure 2-1**).

Figure 2-1. The Position of Complex System

Source: Developed from Waldrop (1992) and De Roo (2010b)

Features of the complex system are listed in **Table 2-1.** by Cilliers (1998) and explained as following.

Table 2-1. Features of the Complex System

Features of Complex System
• Complex systems consist of a large number of elements. • These elements interact dynamically. • Interactions are rich; any element in the system can influence or be influenced by any other. • Interactions are non-linear. • Interactions are typically short range. • There are positive and negative feedback loops of interactions. • Complex systems are open systems. • Complex systems operate under conditions far from equilibrium. • Complex systems have histories. • Individual elements are typically ignorant of the behaviour of the whole system in which they embedded.

Source: Cilliers (1998)

First, the complex system consists of a large number of elements. Cilliers (1998) mentions two examples for complex systems. These are the social systems that consist of a huge number of individuals and languages. He explained how languages are considered to be a complex system by having large numbers of words where their meaning is developed through their relationships with each other. Second, the interconnected elements of the complex system interact dynamically (Nicolis and Prigogine 1989; Cilliers 1998; Bergströn et al. 2016). He explained that the system changes overtime and the interactions do not have to be physical, they can be thought of as the exchange of information. McKercher (1999, p.425-427) mentions an example of business environment dynamics where there are hundreds or thousands of companies entering and existing in the market, changing ownership or repositioning themselves drastically, annually. According to Kozuch et al. (2015), modern organisations and the new world are complex systems as they have connected and interacting elements (Jiang and Zhang 2014).

Third, the interaction between elements is rich because any element can influence, and is influenced by others (Cilliers 1998). For example, the external factors that might affect the elements of the social system might be the culture, the political or the economic situations and vice versa; these systems can be affected by people's activities. Fourth, the interaction in the system has features that are non-linear. This means a minor cause can lead to major consequences and vice versa (Cilliers 1998). This, according to Cilliers (1998), is a prerequisite for complexity. Fifth, the interaction is short range, although long-term interaction can occur; however, the real-world restrictions usually force this concern (Cilliers 1998). Because according to Szabo et al. (2014) the interaction occurs only with neighbours, as one of the reasons for emergence. Sixth, positive and negative feedback loops result from the interactions (Cilliers 1998). Memory and feedback influence the system elements (Cilliers 1998). For example, past incidents have an effect on the present events, and when incidents happen, they have a cascade effect. Regarding feedback, the reactions in the system are results from feedback within the system and from the external environment (Taborga 2012). Both simple and complex systems share the same principles of the feedback, which refer to the dynamics and information flows (Chambers 2008). In the former, the feedback may be linear, predictable and steady (Chambers 2008). While in the latter, feedback is about the effects of non-linear unsystematic changes over time as suggested by Byrne (1998).

Seventh, complex systems are open systems thus their borders cannot be identified (Cilliers 1998). This in line with Hayek (1955, p.27) who declared that there are no closed systems in the world. For example, Cilliers (1998) mentions that elements of the complex system interact with their surroundings like the social system interacts with the ecosystem or with the economic system. Eighth, complex systems operate under conditions far from equilibrium (Cilliers 1998). Thus, complex systems need a continuous flow of energy in order to be able to change and to ensure its survival (Cilliers 1998). Ninth, complex systems have histories. The agent's history and perception have the role to adapt themselves to their strategies (Taborga 2012). Cilliers (1998) mentions that the past cannot be disregarded when one thinks in the present since the present behaviour of the elements in the complex system is a result of the history (Cilliers 1998). Finally, individual elements are typically ignorant of the behaviour of the whole system in which they are embedded (Cilliers 1998). This is because each element responds based on limited and

locally available information (Cilliers 1998). The behaviour of the complex system represents the interaction of the whole set of elements rather than individual elements (Cilliers 1998).

A complex system is adaptive because it influences and is influenced by its environment (Brain Arthur et al. 1997; Harvey 2001). Some complex systems can present features that are not applicable within linear systems (Gleick 1987; Waldrop 1992; Chettiparamb 2013). These include self-organisations leading to overall order, the emergence of order and chaos simultaneously and resilience or adaptive behaviour in the face of incidents (Gleick 1987; Waldrop 1992; Chettiparamb 2013). Specifically, resilience or adaptive behaviour has been the scope of research of a specific division of complex systems known as complex adaptive systems, which constitute entities working at the same time (Chettiparamb 2013). McMillan (2008, p.60) describes complex adaptive systems as "complex dynamical systems, which are able to learn and adapt to changes in their circumstances and their internal and external environment. They can modify their behaviours and to reconfigure their internal structures" unlike the non-adaptive complex systems, and they have many interacting parts that show non-linear behaviour, leading to unpredictability (Apgar et al. 2009). For example, the effect of disasters on critical infrastructure, such as disruption of power supplies can result in a loss of water supplies, breakdown of transport networks and the capacity of medical support, compounding the nature of the disaster. The Tsunami in Japan is also a good example of this with the triggering of the nuclear disaster, which resulted in a level-7 nuclear breakdown, and release of radioactive materials in addition to the original Tsunami disaster (Oskin 2017). They are all complex groups of interacting elements in which modifications may occur because of learning processes; that is, they are complex adaptive systems (Axelrod and Cohen 1999). Hence, complex adaptive systems are not complicated (Anderson and McDaniel Jr 2000). This is because when adapting complex adaptive systems, the researchers' and managers' concentration shifts from looking for the answer to approving the logic of a situation; from predicting the future to designing the future; from finding the ideal structure to keeping the structure flexible and adaptive; and from overcoming the boundaries of the system to releasing the dynamic potential of the system (Anderson and McDaniel Jr 2000). This shows how adapting complexity provides a new and better way of thinking. It is not about solving a problem or answering a question, but it articulates the problem better.

Overall, a complexity accepts that the relationship between cause and effect in complex change processes is unpredictable and is associated with high levels of uncertainty (Ling 2012; Baggio 2007) and evolving consequences (Rogers 2008). However, it also prepares projects to be adjustable and responsive to any changes that might occur in their surroundings (Ling 2012). For example, the occurrences of unpredictable and uncertain events like emergencies require a proactive response. Therefore, a more thoughtful development of plans and scenarios to respond to uncertain and complex events may depend on the adoption of complexity theory. Ferreira (2001) added that complexity theory studies and analyses complex systems in order to understand their structure and behaviour.

2.3 Complexity Theory

Complexity theory was integrated into social sciences in the 1980s (Hilhorst 2003) and was derived from the study of "complex systems and theorisations of the same in the natural, biological and social sciences" (Chettiparamb 2013, p.8). Waldrop (1992) argues that complexity theory generally refers to instability and changes in a complex system that comprises of many interacting elements. Complexity theory according to Chettiparamb (2013, p.9) "deals with the study of entities that reveal non-linear dynamics; entities that though having determinate properties, yield indeterminate results". Whereas a linear system is "one you can understand by understanding its parts individually and then putting them together", a non-linear system "is one in which the whole is different from the sum of the parts" (Mitchell 2009, p.22-23). Thus, Bergströn et al. (2016) declared that one of the basic standards of complexity theory is that it is not easy for any actor to get comprehensive understanding of the working system as a whole. This is due to the large number of elements and their non-linear interactions. For example, complex incidents are by their nature multi-organisational, it is not possible for one organisation to handle a complex incident solely. According to Parrish and Edelstein-Keshet (1999, p.99), "Complexity theory indicates that large populations of units can self-organize into aggregations that generate patterns, store information and engage in collective decision- making." In terms of disaster response systems Comfort (1994 and 1995) argues the phenomenon of self-organisation makes the response system more complex. Hence, different challenges occur during the response since many stakeholders are involved with different objectives, different priorities and bearing different information. These all result in poor coordination and communication. A further example is that of Sussman

(2000) who mentions the application of complexity theory to the complex and dynamic system of transportation and how policy makers introduce non-linear strategies that affect the whole system by modelling the system on different scales (e.g. city level, state level and country level).

Moreover, complexity theory and its main principles of "emergence, self-organization, non-linearity, adaptiveness, and connectivity" are very suitable for examining "the dynamic and collaborative nature" of emergency or disaster management (O'Sullivan et al. 2013, p.238). Regarding emergencies, incidents cannot be controlled or planned for as the interaction will be random. Therefore, the dynamic nature of emergency management is inherent in the different effects of an emergency in the short or long run. While the collaborative nature is inherent in the number of involved stakeholders to manage an incident, they could be from one country or different countries. These dynamic complexities and collaboration arise because of the knock-on effects of an emergency. To clarify the knock-on effects or the indirect effects of disasters or emergencies is that if an emergency occurs at local or national level, it might have an international effect or vice versa. For example, the Icelandic volcanic eruption, which occurred in 2010, had a worldwide effect especially on the airline industry. Furthermore, in case of emergency management, although there is a linear plan on different levels (international, regional, national and local) the system is still dynamic and complex. In the case of an emergency occurring at the national level for example, there will be a dynamic interaction between different stakeholders across different locations. For example, if an international hotel branch in a local area is affected by a terrorist attack, the main international branch will be involved in the management of the incident. Another example is that emergency cases are managed locally, but when its impact crosses the country and overwhelms the available resources it becomes complex. This indicates that the complexity is not only inherent in the incidents and their effects, but also in their management. Accordingly, the wider effect the emergency has, the more complex it is in its management. Thus, understanding the complex nature of an emergency can facilitate and support good preparation and effective response.

2.4 The Complex Nature of Emergency

According to Shen and Shaw (2004, p.2110) "Emergency is any natural or man-caused situation that results in or may result in substantial harm to the population or damage

to property". An emergency is defined by Alexander (2002, p.1) as "an exceptional event that exceeds the capacity of normal resources and organization to cope with it". Four levels of emergency have been identified by Alexander (2002, p.1-2) according to their magnitude and scope of impact. The lowest and first level includes the daily routine cases or issues, for example a guest falling down in a hotel or the crash of a single passenger car. The second level involves a situation that can be managed by a sole responsible organisation without substantial need for external resources. A major case or incident is on the third level and requires regional assistance and resources. The last level is an event that can only be tackled by the national government and sometimes with the aid of international organisations.

Although complexity is "an undesired" consequences of an emergency case, it should be clearly explained and better understood to enhance the level of its management and response (Coskun and Ozecylan 2011). O'Sullivan et al (2013, p.238) add that complexity is not only a feature of large-scale incidents but also many routine and frequent incidents like floods, tornados etc. This is because these incidents bear high levels of uncertainty, as well as having indirect effects and the need to be managed in collaboration with different stakeholders, which are part of complex adaptive systems (Ansell et al. 2010; Okros et al. 2011; Wyche et al. 2011). Examples of disasters that showed the complexity of the response across different countries and organisations are the Indonesian tsunami (2004), global pandemics like SARS and H1N1, and the earthquake in Haiti (2010) (O'Sullivan et al. 2013). Managing these disasters was complex because they were unexpected, their scope of impact was high, handling them was a collaborative effort with the participation of different countries, and the number of affected people was high as well as the lengthy time taken to recover the affected areas. The complexity of such incidents and disasters indicate that the prepared plans or the available plans are ineffective, and resources are insufficient. According to Coskun and Ozecylan (2011), emergencies have become more complex in nature as well as in their management process, due to the extended effects on large numbers of people. In addition to this, the impact of emergencies on the critical infrastructure, for example the Tohoku Earthquake and the following tsunami in Japan in 2011 left more than 430,000 households without gas and electricity (SEEDS Asia 2011). The complex nature of emergency management creates many challenges to emergency responders and decision makers according to the study of Coskun and Ozecylan (2011). Therefore, emergency is complex, but complexity is not an

emergency. Coskun and Ozecylan (2011) identified six types of complexity for emergency management and disaster response information systems. These are human complexity, technological complexity, event complexity, interaction complexity, cultural complexity and decision-making complexity.

Coskun and Ozecylan (2011) referred the first complexity (human complexity) to the responders' wrong doing (not following the given instructions) or to decision-makers who make decisions based on unclear information. This is might be a result of organisations not having appropriate response plans that have been tested. To overcome this complexity, organisations must have clear plans and responders should be trained. In addition, there should be a platform for information sharing among all involved stakeholders that facilitate decision-making. Unclear information in the limited time of incidents makes it a challenge to make the right or decisive decision, resulting in the wrong decision creating another incident. For example, Moore (1994) suggests that human errors during operations caused 65% of catastrophic marine-related accidents; wrong doings in a complex system can cause complexity (Coskun and Ozecylan 2011). The second complexity (technologic complexity) can affect the functioning of the system. Computer technology and software can help accomplish tasks quickly, enable rapid decision-making, increase information flow and raise situational awareness among systems and operators according to Coskun and Ozecylan (2011). However, if the system itself is affected, it will lead to complexity, especially when several stakeholders are involved and totally dependent on the technology. For example, during major incidents, communication channels can be affected. This is what happened in New York City on September 11th due to communication failures around 300 fire-fighters lost their lives (Coskun and Ozecylan 2011). The third type (event complexity) is inherent in the event (e.g. floods, earthquakes, tsunamis, storms, hurricanes etc.) that caused the disaster and requires immediate emergency responses (Coskun and Ozecylan 2011). This is because the response to each event is different in terms of the required resources, personnel, tools etc. (Coskun and Ozecylan 2011). The fourth type of complexity (interaction complexity) is inherent in organisational, coordination and management complexity. Although in times of emergencies organisations and responders share common goals, their practice or values may conflict (Grabowski 2010). This occurs in cases where the stakeholders are from different countries, or within the same country but from different sectors. The interactions occur between different stakeholders,

between systems, between responders, all of which make the system more complex (Coskun and Ozecylan 2011). If the country is multicultural, perhaps due to immigration, the fifth complexity (cultural complexity) may occur (Coskun and Ozecylan 2011). It may be the case that expatriates are working at managerial level and in charge of decision-making. Cultural complexity in times of emergencies can also occur, such as the case in this study, a European cruise ship affected in a local destination (Oman) where cultures differ greatly. Finally, decision-making complexity, where the shared knowledge among different individuals, teams and organisations makes decision complexity, if information is not accessible to those involved and unclear to them (Chen et al. 2009; Coskun and Ozecylan 2011). This results in decision-making difficulties during emergencies (Coskun and Ozecylan 2011). Unclear information in the limited time available during an incident is a challenge and wrong decisions can create further incidents.

According to Faulkner (2001) emergencies are chaotic situations and demonstrate the complex relationships between human and natural systems. They increasingly become complex in nature, without boundaries and interrelations (Hills 1998; Boin and Lagadec 2000; Ren 2000). Deleuze and Parent (2002) agree and argue that there are far more stakeholders involved today, but that the relationships between those stakeholders are often not stable and subject to change over time (e.g. variables and individuals). Their argument recognises that even when the individuals remain the same, the relationships between them do not, therefore, relationships cannot be considered to be stable 'things'; they are the outcome of practices. Kwa (2002) took this argument even further by suggesting that if you could identify particular patterns in the ways these relationships are formed, they are only short-term and multiple relationships can cause changes that are outside such patterns. Therefore, from the point of view of management, it is necessary to take cognisance of the fact that politics and relative power will change relationships (Hiller 2012). For that reason, relationships between stakeholders are more important than the stakeholders themselves. So, to assume that there is a linear relationship involved when looking at disaster management may result in the response to an emergency being sub-optimal. It would be better to have a decision-making system , which extends beyond the approaches generally accepted in social sciences, a system more informed and subjective. Whether the number of emergencies is increasing annually or is fixed, their

effects are becoming more devastating. This indicates that we are living in an increasingly open and complex world (Richardson 1994).

The reason for the ineffectiveness of the traditional emergency response approach may be the use of linear cause-and-effect emergency management plans (Paraskevas 2006). Since managing emergencies is not sequential, it is important to link them to complexity theory (Ritchie 2008). The first point is that the organisation, as a complex system, is vulnerable to any early circumstances, which are erratic. Response efficiency will be a result of emergency tactics and not of a linear cause-and-effect emergency planning approach (Paraskevas 2006). The second point is that because of the dynamic nature of internal and external organisational environments, the early circumstances of an emergency continually change, with substantial impacts on the organisation's sustainability (Paraskevas 2006). According to O'Sullivan et al. (2012) complexity is an obvious feature of large-scale, frequent disasters, like floods, tornados and pandemics. These incidents bear high levels of ambiguity and need collaboration between different sectors in order to respond effectively; part of complex adaptive systems (Ansell et al. 2010; Okros et al. 2011; Wyche et al. 2011). Therefore, the boundaries between natural disasters and those that are human induced are vague (Waldrop 1992; Capra 1996). For example, Winser et al. (2003) mention, war and post-war distractions linked with famine, drought and out-breaks of diseases make it difficult for people to survive (e.g. in Afghanistan, Sudan). Furthermore, an emergency in other industry sectors (such as agriculture or manufacturing) could impact on other sectors, like tourism, due to sectorial inter-dependence (Paraskevas and Altinay 2013; Othman and Beydoun 2013). An illustration of this is the case of the foot and mouth outbreak in the UK. This event started as an agricultural incident and ended up as a disaster for the tourism industry (Miller and Ritchie 2003). The model in **Figure 2-2** shows how emergencies or disasters are complex events and how one disaster (for example, a flood) can lead to several disasters, Helbing et al. (2006).

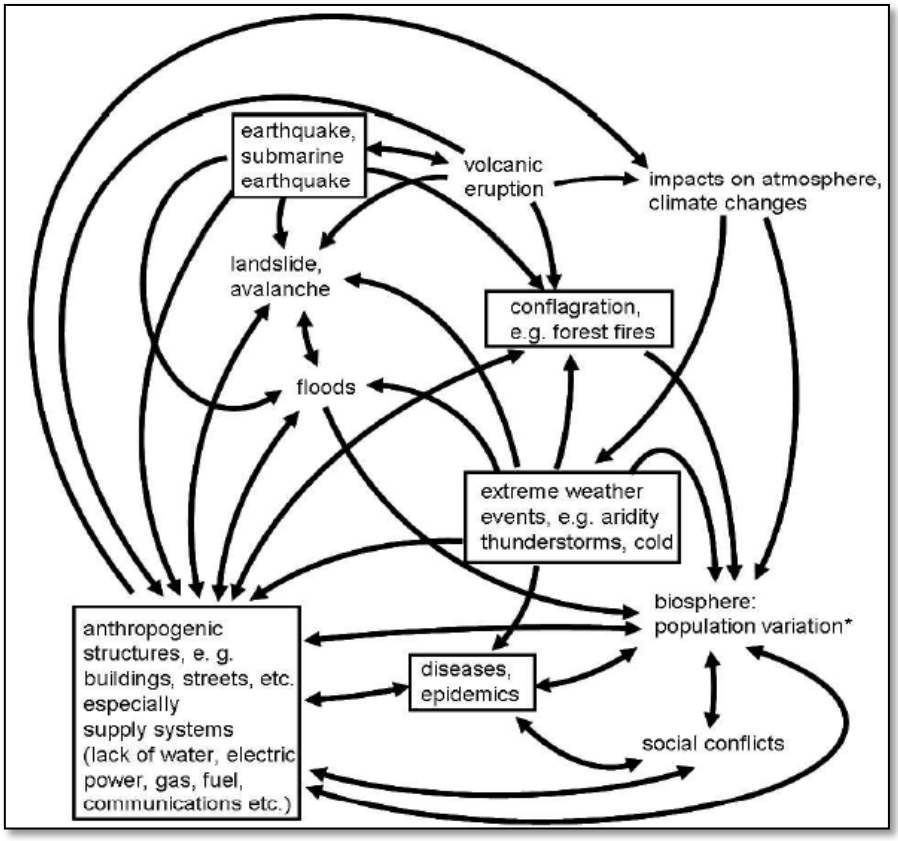


Figure 2-2. How One Kind of Disaster may Trigger Another One

Source: Helbing et al. (2006)

In essence, complexity may be an undesirable aspect of emergencies, but it needs to be understood, explained and considered in the decision-making processes, if effective emergency management responses are to be realised (Coskun and Ozecylan 2011). It also needs to be understood in order to plan well for the responses. The increasing number of complex emergencies occurring around the world require proactive planning to reduce their negative impacts and for effective handling. Complexity of emergencies can have a positive effect on affected countries as it can enhance the country's resilience and ability to handle future incidents.

2.5 Planning for Emergency Management

2.5.1 Planning and Planning Theory

Planning can be a powerful tool to improve life, communities and organisations, especially when people have the knowledge of the planning process and use the tools of ethical planning (Sybouts 1992). Mannheim (1940) believes that planning is

inevitable because the world is witnessing rapid technological development and rapid population growth, requiring urban planning, land use planning, economic planning etc. Planning has been defined as a process of setting goals and identifying the way to achieve them as well as a process for solving problems by following certain procedures (Cullingworth 1997) and directing changes in a social system (Friedmann 1967). Faludi (1973) notes that planning is a logical accomplishment supporting human progress. Cullingworth (1997) argues that planning in different disciplines has a common factor that is future oriented, and Waterman emphasises that it must be directed to change (1987) with its different categories. Planning has been put into three different categories: strategic, tactical and operational (Hartl 2004; Lassner 2008; Mikoluk 2013). Strategic planning comprises all organisation management areas, so it is the role of the organisation's director and executive (Lassner 2008) and its content is at a high-level overview (Mikoluk 2013). Its main objective is determining the organisational priorities, describing its vision, clarifying its values and stating its strategic goals (Hartl 2004). The scope of its plan may extend from two to ten years (Mikoluk 2013).

Strategic planning is often directed by many participants, works on unpredictable future concerns and comprises strategic matters that will affect the already existing mission, goals and priority settings (Sybouts 1992). Tactical planning is more specific and pays attention to certain programmes (Lassner 2008). It identifies tactics and objectives that are followed by the organisation in order to accomplish its strategic plan (Hartl 2004), so it is more flexible (Mikoluk 2013). It is handled by mid-level managers (Mikoluk 2013), and its scope is medium-term extending up to one year (Hartl 2004). The tactical plan is an answer to "How?" while the strategic plan is an answer to "What?" (Mikoluk 2013). Operational planning describes the daily work of an organisation (Mikoluk 2013) so; it has short-term scope (Lassner 2008). Operational plans can be single use plans created for a specific event or continuous plans that can be used in multiple situations (Mikoluk 2013). It is the task of the working teams representing any operational unit (Lassner 2008; Mikoluk 2013). All these types of planning are crucial in planning for emergencies depending on their types (natural or human-induced) and its effects (high-medium-low). Additionally, the increasing number of incidents occurring around the world require proactive planning for effective responses. Planners, according to Galloway and Mahayn (1977) are dealing with open and complex systems where science is limited in representing and

anticipating changes in such a system. To ensure the vitality and continuity of planning as a profession, it should be linked to planning theory according to Friedmann (2003).

Planning theory is the basis of planning practice as well as being important to planning practitioners to understand the epistemology that constitutes their actions (Rukmana 2011). It is not easy to define planning theory for the four main reasons identified by Campbell and Fainstein (1996). First, planning theory overlaps with other theories in the social science disciplines, so it is difficult to bind its scope to the planning field. Second, there is no mutually exclusive interaction between planners and related specialists, like real estate developers, or architects. This means that planners don't just plan; non-planners also plan. For example, in the field of disaster and emergency management emergency organisations managers and other organisations' managers can plan for future incidents, they do not need to be specialist planners in disasters. Third, the planning field may be divided by the intention of planning, either according to its purpose, like land use, or its approach, for example, the process of making decisions. Fourth, the theoretical base of planning theory cannot be stated easily because planning derives its various methodologies from different disciplines, where many disciplines are defined by a specific set of methodologies.

The focus of planning theory is concentrated on the practical side of planning as well as pushing the work into modern tracks and challenging reactions (Stiftel 2000). Furthermore, Watson notices, "over the last several decades planning theory has shifted towards a closer engagement with practice" (2008, p.244). It perceives planning practice and determines the required skills, either individual or interactive ones that planners should have in order to work effectively (Schon 1991; Healey 1992; Forester 2008). The importance of planning theory clarifies and explains models, mechanisms, techniques and toolkits that can support planners' understanding and enable them to do their job perfectly (Chettiparamb 2014). In addition, it fulfils the objective of explaining the planner's role, what should they do as such and the required knowledge depends on evaluating the current situation accurately which facilitates the planners' job (Fainstein 2000). Planners today are working on reflections of what they have understood about the practical side and what they have read and heard about planning theories or the ideas and opinions of others, which in turn are introduced by theories (Beaurgard 1995; Sanderock 1998). Both within the practical and theoretical sides, it always examines the ability of the planner to be a good leader, decision-maker

and enabler (Thomas 2004; Chettiparamb 2005; Van der Broek 2008). Overall, it is crucial to link planning to complexity as it helps to improve the planning and management process by taking advantage of complexity, rather than striving to simplify it (Axelrod and Cohen 2000). The next part discusses the relationship between planning and complexity.

2.5.2 Planning and Complexity

It is still not clear how complexity might work as a concept within planning, as it has several meanings according to De Roo (2010a). In contrast, Christensen (2012) indicates that planners can make use of the complexity considering it as building blocks and ways to solve problems and add new patterns (after Webber 1978). Furthermore, he emphasises that to achieve effective planning outcomes, planners should understand or be familiar with complexity and complex systems dynamics. One approach to manage complexity is to simplify the planning assignments either by disregarding complexity or by establishing regular tasks and techniques for coping with it (Christensen 2012). Additionally, Axelrod and Cohen take advantage of complexity rather than simplifying it (2000). Moreover, effective planners to accomplish their goals can and do work within the complex system by using a certain set of actors at specific time and place in order to decrease complexity and ambiguity in a specific situation (Christensen 2012). However, they cannot make planning in a straight way and "make their planning situation simple, clear, ordered and rational", hence their approved clarification will need to be corrected and will alter over time (Christensen 2012, p.89). Planners in the open system are dealing with "wicked" problems **(Table 2-2)** as opposed to "tame" problems in sciences indicate Rittle and Webber (1973). According to Rittle and Webber (1973), a tame problem can be solved in a linear way like the mathematical equation where it has a clear mission and validity of testing the solution. Contrary to this, wicked problems are not clear and have uncertain and ambiguous goals like large-scale emergencies (Morakabati et al. 2015). Examples of wicked problems are climate change, globalisation, obesity, strategy and sustainability (Batie 2008; Camillus 2008; Head 2008; Periyakoil 2007; Frame 2008).

Table 2-2. Characteristics of the Wicked Problems

Characteristics of the wicked problems
1. **Wicked problems have no definitive formulation**. The required information to understand the problem depends upon one's idea for solving it. That is to say: in order to describe a wicked-problem in adequate detail, one has to develop a comprehensive list of all possible solutions in advance.
2. **Wicked problems have no stopping rules.** As the process of solving the problem is like the process of understanding its nature, because there are no measures for appropriate understanding and because there are no ends to the causal sequences that link interacting open systems, one can always try to do better.
3. **Solutions to wicked problems can be only good or bad, not true or false.** Normally, many parties are equally prepared, interested, and/or authorised to critique the solutions, although none has the command to set formal decision rules to determine correctness. Their judgments are likely to differ widely to accord with their group or personal interests, their special value-sets, and their ideological predilections.
4. **There is no immediate and no ultimate test of a solution to a wicked problem**. With wicked problems any solution, after application, will create waves of consequences over an extended period of time.
5. **Every solution to a wicked problem is a "one-shot operation".** With wicked planning problems, every applied solution is important – every trial is considered.
6. **Wicked problems do not have a set of potential solutions**, nor is there a well-described set of acceptable procedures that may be integrated into the plan.
7. **Every wicked problem is unique**. Despite long lists of correspondences between an existing problem and a former one, there always might be an additional distinctive property that is of overriding importance.
8. **Every wicked problem can be considered to be a symptom of another problem.** One should try to resolve the problem on as high a level as possible.
9. **The existence of a discrepancy representing a wicked problem can be explained in various ways.** The choice of explanation decides the nature of the problem's resolution. There is no rule or procedure to determine the "correct" description or a combination of them.
10. **The planner has no right to be wrong**. Designers are responsible for the effects of the actions they cause.

Source: Rittle and Webber (1973)

Large-scale emergencies are wicked problems because managers are dealing with unknown circumstances that are complex and uncertain (Edzén 2014). Many emergencies bear the characteristics of wicked problems (uncertain, complex, and having no clear solution) as opposite to tame problems (simple or complex but having possible-to-define solutions) (Stubbart see Edzén 2014, p.1978). For example, terrorism attacks can be considered as wicked problems because nobody knows who is planning them, when, why and how they are going to happen. Although several terrorism attacks happened in developed and developing countries, there is still no definite solution to prevent them from happening or to control them. While, tame problems can be managed by using the traditional command and control system in managing incidents, this approach cannot handle wicked problems. Command and Control is defined as "the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission" (JP1-02 2016). The traditional command and control is derived from the military domain where participants act upon orders received from a commander (Alexander 2016). However, Roberts (2000) suggests we need collaborative strategies to tame wicked problems, which is a view also supported by Verweij et al. (2006) Camillus (2008) and this study. Because wicked problems when they occur affect large numbers of people, wider geographical areas and their impact often cascade, so collaboration among several stakeholders is required. When saying collaboration, it could be either between organisations within one country or between even different countries. Because managing wicked problems in developed countries is not like the developing countries, due to lack of resources, awareness, plans and other capabilities. For example, managing an earthquake in Japan is not similar as managing an earthquake in Haiti. Japan as a developed country has more capabilities than Haiti, as a developing country that mostly depends on external funding. Having said this, the magnitude of the earthquakes destroyed the good and poor infrastructure of both countries. Managing wicked problems requires more work in the pre-disaster phases (mitigation and preparedness phases; see pages 44-45) (O'Brien 2010). Alexander (2016) argues that the direction of managing emergencies in the modern world is shifting from command and control towards a more supportive and collaborative approach. This is because command and control system is ill prepared "to deal with uncertainty, complexity and variability" (Chaudhury et al. 2012). Hence, overcoming wicked problems (e.g. large-scale emergencies) requires communication and collective action among all involved stakeholders (Fodness 2017).

Overall, it is crucial to link planning to complexity as it helps to improve the planning and management process by taking advantage of complexity, rather than striving to simplify it (Axelrod and Cohen 2000). Christensen (1985) introduced complexity as "a phenomenon that could help construct a view of planning that has to cope with a reality that differentiates degrees of complexity". The degree of complexity increases from operational to strategic planning due to the number of actors involved in each type, the higher the number, the greater the complexity. **Figure 2-3** shows the relationship between planning and complexity; for example, strategic planning can reach different bodies in a country the more it reaches, the more the degree of complexity increases (Sybouts 1992) because of the large number of stakeholders involved who are representing different areas of knowledge.

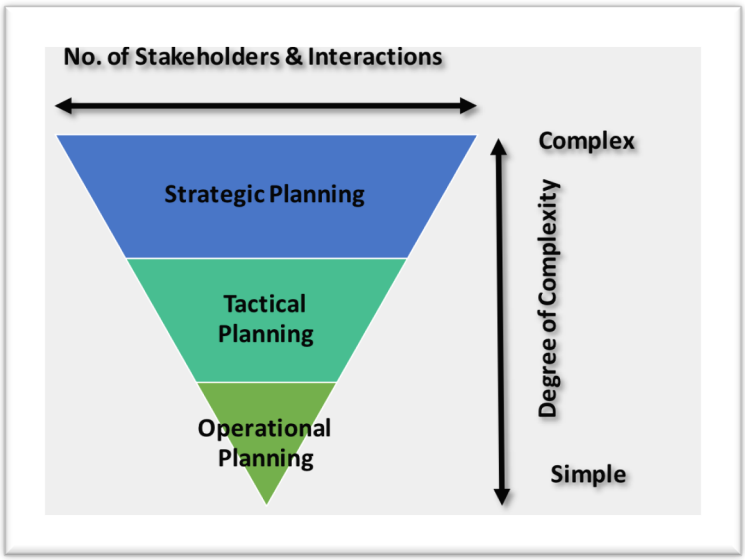


Figure 2-3. The Relationship between Planning and Complexity

Source: (Author 2018)

Using the degrees of complexity (simple or complex) as a criterion enables planners to deal with problems of certainty and uncertainty (De Roo et al. 2012) like planning for predictable and unpredictable emergencies. Although there is a need for planning, complexity challenges this planning because there are different stakeholders with different objectives and priorities. For example, even if something bad happens, it does not matter if all stakeholders are involved, they might not have the same objectives or priorities. Therefore, the way to handle an incident will be different based on the priorities set by stakeholders.

2.6 Emergency Management Planning

Emergency management is not a new field, but has roots as old as early hieroglyphics when people took shelter during natural disasters or wars, in other words when dealing with incidents (Haddow et al. 2011, p.1). Emergency management is defined as "The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps" (UNISDR 2009, p.13-14). Accordingly, an emergency is a threatening situation that requires immediate response to prevent it turning into a disaster (UNISDR 2009). The term "disaster management" is sometimes used instead of emergency management (UNISDR 2009, p.14). Emergency management involves plans and organised arrangements to direct and coordinate all comprehensive efforts of all involved stakeholders (governmental and non-governmental agencies) to fulfil the whole range of emergency requirements (UNISDR 2009, p.13). While, emergency Services "The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations" (UNISDR 2009, p.14). Emergency services include police, fire, ambulance, civil defence, coastguard, specific emergency units of electricity, transportation, communications and other related services organizations (UNISDR 2009, p.14). Generally, emergency management is divided into four phases: mitigation, preparedness, response and recovery (Waugh and Hy 1990; McEntire 2007; Edzén 2014). These phases are related to each other (Uhr 2009). however, each phase has different objectives and different degrees of complexity in terms of time required, involved organisations and practical needs to work with others (Kahan et al. 2009; Wyche et al. 2011).

The management of emergency and disaster events requires the participation of many organisations and agencies (Haddow et al. 2011) in order to share knowledge, experience, to quantify the available resources and to evaluate the current capabilities. As stated before, emergencies are multi-organisational due to their complex nature. According to Alexander (2002) the first two phases occur pre-emergency, while the last two phases occur post-emergency. Dividing this process into phases has the advantage of simplifying the understanding of disaster management as a process by "breaking the complexity and uncertainty" resulting from a disaster into a specific number of phases, where each stage could be inspected with respect to its concentration, policies, actions, involved organisations and players (Ireni Saban 2014, p. 24). However, O'Brien et al. (2010) noted that although the phases may divide the

model equally, the actual focus is on the response phase. They pointed out that for instance the response phase with its long-term recovery, creates more interest in media coverage more than the mitigation and preparedness stages. In addition, the response phase has the solution for the incident, so it determines to what extent a country or organisation is able to deal with an incident. It also determines to what extent there is a need for further development of plans or resources. The focus of this study will be on the response phase and the emergency procedures taken at this stage in addition to the deployment of the required resources. These phases are explained briefly on the following paragraph.

Mitigation

The first phase in the emergency management process is mitigation, which according to Haddaw et al. (2011), is the measures taken to reduce the effect of emergencies and to increase the resilience of the vulnerable community (Emergency management Australia 2004). Mitigation is defined by the UNISDR as "the lessening or limitation of the adverse impacts of the hazards and related disasters" (2009, p.19). **See Appendix 2** for related activities and procedures taken in the mitigation phase. When planning for mitigation, it should be clear that the public are fully aware of the potential hazards to protect themselves as much as possible and support the measures provided to protect them (Nateghi 2000). Some examples of mitigation measures, stated by Lindsay (2012), are building codes that refer to risks such as fires or earthquake, flood mapping to relocate homes, building dams to prevent flooding etc. information is an important element in planning for disaster mitigation (Nateghi 2000). This information can be collected from literature, previous experiences of having such emergencies or through asking experts, for example collecting information regarding the potential hazards, vulnerable groups, areas etc. Sanjeewa et al. (2012) highlight the advantage of taking a professional expert's opinions on disaster identification and mitigation as they can provide more practical and the latest information. Besides consulting experts, it is important to integrate the community in managing a disaster in the mitigation stage according to Nateghi (2000), who mentions that it may be by conducting public meetings and consultations, free inquiries and discussing the decisions in order to design the mitigation plan. Accordingly, mitigation measures are a collaborative process between the government and local community not only to reduce the impact of an incident, but also to enhance their resilience to bounce back after incidents (Berke et al. 2012). As it is a cycle management process, mitigation may include applying

policies after recovering from certain disaster, for example, rebuilding anti-seismic houses based on a good standard as a result of earthquake damage (Ireni Saban 2014). However, when taken mitigation measures the complexity of incidents should be considered because some mitigation measures might be very expensive like the anti-seismic houses or placing tourists resorts in areas less vulnerable to cyclones. Therefore, mitigation is the opportunity to pass an incident with least cost. In sum, most mitigation measures are lessons from previous incidents and correcting what went wrong in previous cases. However, mitigation measures should put into a priority scale in terms of the impact of the incidents like the mitigation measures applied to the critical infrastructure should be a high priority. Hence, the more advanced mitigation measures that help reduce the impact of future incidents, the more the country or community are able to recover.

Preparedness

The second phase is preparedness and it is "The knowledge and capacities developed by governments, professional response and recovery organisations and communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current hazard events or conditions" (UNISDR 2009, p. 22). **Appendix 2** lists the related activities and procedures taken in the preparedness phase. The development of the preparedness strategies or emergency plans is vital in order to provide support in times of emergencies (Ritichie 2009). Ireni Saban (2014) mentions that the preparedness phase is complementary to the mitigation phase activities, while Blaikie et al. (1994) highlight its importance in providing strength and resilience to emergencies, thereby contributing to reducing community vulnerability. Similarly, Cavallo (2014, p.48) views that it is "about preparing communities and response systems to face the risks that have been identifies in a certain area ". To differentiate preparedness from mitigation, Alexander (2002) explains that planning for evacuation is a mitigation procedure, whereas its implementation is preparedness. Consequently, preparedness phase focuses more on training and educating people because responders should be trained how to execute the evacuation. This phase has more inputs in terms of transmitting knowledge, developing plans, enhancing awareness and culture of emergency management and other activities that improve overall preparedness. Moreover, preparedness is not only at the organisational or country level, but it is also at individual level. When there is a possibility for an incident to happen, people care about their safety first and then other things come later. In addition, to ensure its

effectiveness a collaborative coordination should be established among emergency management program of actions, volunteers and vulnerable communities in order to improve local capabilities and coordination (Ireni Saban 2014). Overall, the main aim of the preparedness phase is to ensure that the response will be effective.

Response

The focus of this study is on the emergency measures taken during the response phase. Response is "the provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected" (UNISDR 2009, p.24). Related activities and procedures of the response phase are presented in **Appendix 2**. Response phase activates preparedness measures and plans to use effective procedures to deal with emergencies and disasters, if and when they happen (Emergency Management Australia 2004, p.4).

Responders represented by public and private organisations, individuals, and societies provide the activities and resources, such as search and rescue, provision of food and water, medical assistance, shelter, and advice (Ireni Saban 2014). These activities are explained briefly Coppola et al (2011, p.310) who divide actions involved in search and rescue as "1) locating victims; 2) extracting (rescuing) victims from whatever condition has trapped them; and 3) providing initial medical first aid treatment to stabilize victims so that they may be transported to regular emergency medical practitioners". Emergency medical services, is one of the first steps taken by responders to manage an emergency's first aid, this is establish a triage, which is "a system by which many victims are ranked according to their seriousness of their injuries, ensuring that the highest priority cases are transported to medical facilities before less serious ones" (Alexander 2002, p.190; Coppola et al. 2011, p.311). Evacuation and shelter is the process of transferring people and other living creatures from vulnerable or affected areas to more safe and secure areas (Evacuation and Shelter Guidance 2013, p. 9). The type of disaster indicates whether it should be total or partial evacuation to remote or close locations and if it is a long or short-term process (Apte 2009). While "shelter is a place where evacuees can stay and receive support (Evacuation and Shelter Guidance 2013, p. 9)" it "includes buildings, humanitarian assistance and support for individuals" (Evacuation and Shelter Guidance 2013, p.31). The fourth activity is casualty-tracking systems, which aim to

work as a central point to reply to all public enquires regarding missing people in case of disasters (Cappola 2011; Jackman and Beruvides 2013; UNWTO 2014). It enables the responders to look for missing people in the affected area when they receive information from their relatives, friends, work colleagues, embassies and employers (Cappola 2011; Jackman and Beruvides 2013; UNWTO 2014). The fifth activity is victim identification and according to Alexander (2013a) there are several ways of identifying bodies, including visual recognition, fingerprints, dental records, surgical scars, personal effects, and estimation of the age. One of the largest and most complex disaster victim identification operations was the Thai Tsunami because the group consisted of a multi-national, multi-agency and multi-disciplinary team (Wright et al. 2015).

Although the response phase is the more critical phase as it determines the effectiveness of the emergency response system, it is very complex. Its complexity is inherent in every single activity of this phase. In addition to the above-mentioned activities, there is a need for communication, coordination, cooperation and collaboration for information sharing, resources allocation, decision-making and effective leadership. However, each single strategy has its own complexity due to the large number of involved stakeholders and the interaction between them. Overall, the wider impact of the disaster and the more casualties it has, the more complex its management.

Recovery

The last phase of emergency management is recovery and is defined as "The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disasters-affected communities, including efforts to reduce disaster risk factors" (UNISDR 2009, p.23). Its activities are listed in **Appendix 2**. It is also defined as the development and application of certain strategies and measures to return the affected area to its pre-emergency situation (the new normal situation) and it could start immediately after the emergency or may be postponed until the affected area is able to recover (Mair et al. 2016). Additionally, it has an important part to play in encouraging the community and stakeholders to reflect on their past and review their plans for future incidents (Ritchie 2009). Overall, Coppolla (2011) concluded that recovery is always a long-term process that could extend to decades and communities recover quickly when provided with suitable assistance. According to Stahura et al.

(2012) the success of emergency management depends on a good emergency planning.

2.7 Emergency Planning

Alexander (2000) notes that emergency planning and emergency management should be regarded as interrelated activities as planning is the starting point to form the structure for emergency management. Emergency planning can help in times of disaster or emergency which can affect positively to strengthen the resilience of an organisation and decrease the susceptibility of communities to the effects of such incidents (Blaikie et al. 2003; Ritchie 2008). Emergency planning is defined by Alexander (2015, p.2) as "the process of preparing systematically for future contingencies, including major incidents and disasters." The main purpose of the planning process is to develop and maintain up-to-date emergency operation plans (FEMA 2011). Although the end product of emergency planning is a document (Plan), emergency planning is more a process than an outcome, especially as the plan itself will need to be updated over time as circumstances change (Alexander 2015). Emergency planning is a continuous process and its plans are to some extent considered to be adaptable to different industries and situations such as planning for industrial sites, medical facilities, agriculture or tourism industry (Alexander 2002). However, sometime there is a gap between what happens and what was planned in a major disaster as a result of the poor planning and the incapability to differentiate crisis management from disaster or emergency planning (Quarantelli's 1988, p.374). Thus, planning in emergency should be a plan for action not for situations meaning do not plan on what can happen, but plan for what actions can be taken (Drabek 1995; Piotrowski 2006). At its most essential, it must match urgent needs to available resources, and do so in a timely way that avoids delay.

The plan is a shared document between participants and all stakeholders that identifies their roles and responsibilities (Alexander 2015, p.2) as well as documents "the required knowledge, skills, resources and abilities" (Edzén 2014, p.1978). It should also assign a clear role for every responder and ensure that all tasks are allocated to identify groups of participants (Alexander 2013b). Some goals of the plan are to keep public safety, to control damage, to protect vulnerabilities and to use available resources efficiently; basically, it is a framework for emergency response (Alexander 2015). Alexander (2015) adds that a plan should be realistic, practical, and consider

the limitations and the capabilities of response. For example, it should not list resources that are not available and there is no chance to be provided within the critical time of the incident (Alexander 2015). He also adds that plan should be flexible and adjustable. He provided an example of that in Florence, Italy the emergency plan is only prepared for flooding as they faced a major flood in 1966. However, for 20 years during the lifetime of the plan, few floods occurred and more frequent occurring emergencies were air crashes and terrorism (Alexander 2015). A good emergency plan should direct responders and organisations to manage all the known and expected hazards as well as the unexpected ones. (Alexander 2015). The good structure of the plans should consider the 'what ifs', but in case the context changes it should be flexible. (O'Sullivan et al. 2013). Planning for emergencies is a difficult duty, and the difficulties increase considerably when the complexity and ambiguity of the emergency increases (Dowell 1995).

There is a paradox, although there is a need for planning and a need for plans complexity makes planning difficult. This is because of the different stakeholders involved with conflicting interests (in terms of having different objectives, especially between the government and the private sector). They may also have different priorities; therefore their handling of the situation may not be similar. In addition, there is the issue of asymmetric information, which results in none of the stakeholders having the full picture. For example, what stakeholder A knows, stakeholder B may not know and there is information that none of them know. In reality there is a need for a huge amount of rapid and current information and a need for people who are able to understand and react to that information in an effective way. Therefore, responses may be ineffective. Thus, complexity theory, whilst not offering a solution, may offer the opportunity to improve the effectiveness of emergency and disaster management approaches. The increasing complexity and uncertainty of an incident requires preparation for the unexpected from different stakeholders. These preparations include strategic planning and scenario planning. As some emergencies are predictable whilst others are not, their planning should be integrated with the strategic and scenario planning.

2.7.1 Strategic Planning for Emergency

Strategic planning dates to the 1950s and gained high popularity between the mid-1960s to mid-1970s as it was considered the answer for any arising issues in business

organisations (Lisiński and Aruckij 2006). In the early 1980s there was a decline in the popularity of strategic planning (Lisiński and Aruckij 2006). However, it regained its popularity and reputation in the 1990s, which positively affected the relationship between formal planning and performance (Schwenk and Shrader 1993; Miller and Cardinal 1994). Steiner (1979, p.) defines strategic planning, as "a process of deciding in advance what kind of planning effort is to be undertaken, when it is to be done, who is going to do it, and what will be done with the results". Strategic planning is the way by which an organisation sees its future and acquires the techniques and actions to achieve it, thus setting clear goals and objectives help the organisation to make managerial decisions based on priorities by following certain guidelines (Goodstein et al. 1986). Strategic planning commences with the organisation objectives, while planning explains how these objectives will be achieved through answering how, when, where and by whom (Harrison 1995). Strategic planning deals with the internal environment of the organisation (strengths and weakness) and with the external environment (opportunities and threats) to develop the progress of the organisation (Vargo and Seville 2011). Byars (1987) states that strategic planning is touted as following a proactive approach as leaders attempting to forecast and project the future while they are planning. Strategic planning is, in some studies, substituted by long-term planning and vice versa. However, some authors argue that there is a clear distinction between them (Mc Cure 1986). First, long-term planning is simpler than strategic planning, which is "more involved and takes into account the environment and complex social parameters" (Sybouts 1992). Second, long-term planning is done by individuals or small groups, while strategic planning is done by a group of people (Sybouts 1992). Third, strategic planning is considered as being a helpful tool in setting out the mission of an organisation, whilst long-term planning is committed to follow the mission within the strategic planning process (Sybouts 1992). Finally, strategic planning is concerned about the future and long-term planning (Steiner 1979). "The more of an organization's activities that are affected by a plan, the more strategic it is…strategic planning is broad in scope…planning at the corporate level is generally more strategic than planning at any organizational level below it (Ackoff 1970, p.5)." Two things indicate the strategic features of a plan; the long level of effectiveness and the complexity so; it is not easy to revise it or to add any changes (Harrison 1995, p.48). Strategic planning involves decisions that, according to Tribe (1997, p.3), are complex, integrated, long-term, proactive, and have an impact on the entire organisation. They involve key changes, magnificent project and are made by

managers and executives. Therefore, managing emergencies needs more strategic planning than long-term planning, as they are complex and require a proactive planning approach.

Strategic planning and emergency management represent an important side to enhancing organisational learning through evaluating strategies and updating them (Pollard and Hotho 2006). Comparing small and medium enterprises to large organisations, the former tends not to follow a formal planning processes and if they do, it is not strategic and systematic like that in larger organisations (Berman et al. 1997). This is because of their limited resources and experiences, as well as the cost of developing such a plan, especially for emergency management. In order to manage an emergency strategically; organisational leaders need to consider planning, the ability to make rapid decisions and the integration of emergency management and mitigation into the strategic management of the organisation by having strategic and tactical plans (Taneja et al. 2014). On the other hand, Smith (1992) declares that although emergency management and strategic management have shared ground, there is no clear study that shows the relations between them. However, Mitroff et al. (1992) argued that there should be an integration of emergency management with strategic management because they bear similar features, like a concentration of environmental relations, a complex group of stakeholders, the participation of the top managers, a concern for the entire organisation and consistent and developing processes. In 1997 Preble suggested that the strategic management process involves an important part of emergency management and stated that top management should understand the strategic significance of emergency management. Similarly, Elliot (2006) states that there is parallelism between strategic and emergency management. Additionally, Pollard and Hotho (2006) state effective strategic management processes can cause organisations to minimise the likelihood of emergency occurrence as reduction is considered the most effective way of managing emergency. Pollard and Hotho (2006) mention that most organisations are emergency-prone than emergency-prepared, and the ability of an organisation to shift from being emergency-prone than emergency-prepared concerns its ability to integrate emergency management with strategic management processes. Thus, integrating emergency planning with strategy processes will enhance the management's ability to deal with future incidents (Pollard and Hotho 2006). However, what helps to list future incidents and set out potential solutions is the use of the scenario approach. Strategic planning enhances the

organisation confidence and reduces uncertainties, which is an important requirement in order to implement any strategy (Pollard and Hotho 2006). Thus, the strategic planning process should involve an important part that is scenario planning (Schoemaker 1993; Verity 2003; Van der Merwe et al. 2007; Herve 2011). According to Page et al. (2010) although scenario planning is realistic and complex, it offers great value when used in strategic planning and emergency management.

2.7.2 Scenario Planning for Emergency

Scenario planning is an organised method that encourages creative thinking regarding potentially complex and uncertain events (Perterson et al. 2003, p.359). Schoemaker (1997, p.45) describes scenario planning as "a disciplined method for imagining possible futures". Scenario planning encourages managers to "think different" and simply imagine a situation in great detail, turning it into a sort of future narrative (Schwartz 1996; De Geus 1999; Smallman and Weir 1999; Brown and Starkey 2000). The roots of scenario planning started with the military and it was used as an analytical tool following the Second World War (Walker 1995). It was then applied to the business world from the early 1970s, when it was introduced in order to understand the impact of major situations like the 1973 oil crisis involving Royal Dutch/Shell (Wack 1985a; Wack 1985b Pollard and Hotho 2006; Gossling and Scott 2012). The important part of scenarios is the identification of future alternatives; what could be; rather than what will be, what has been and what works now (van der Heijden 1996; Raskin et al. 1998; Pollard and Hotho 2006). In addition, according to Perterson et al. (2003) and Dunker and Greig (2007), the idea of scenario planning and building is to describe future images by listing a variety of imaginable and uncertain futures in the system that encounter existing assumptions and expand views; instead of predicting or forecasting particular consequences. When there is a high level of uncertainty in a system, the use of scenario planning is valuable; as we live in a highly complex world (Perterson et al. 2003) and must deal with complex and ambiguous events (Wilson 2000) like emergency incidents. Therefore, scenario planners aim to determine different methods to ensure that the systems can evolve (Perterson et al. 2003). Walters (1986) noted that scenario planning is like adaptive management, which means according to Perterson et al. (2003) an approach to manage uncertainties is by listing alternatives of how things might work and develop policies for these uncertainties. Organisations in order to adapt a proactive planning approach for an emergency should identify the helpful procedures that create potential scenarios and improve plans to

respond to these probabilities (Pollard and Hotho 2006). Walker adopted a definition for crisis management scenarios based on the general definition of Quade (1989) "A description of the conditions under which the crisis management system or crisis management policy to be designed, tested, or evaluated is assumed to perform" (1995,p.1). Walker divided crisis management scenarios into two parts; the context (describing the general background and the environmental framework) and the crisis (the specific description of a crisis). Steps for building scenarios is available in the methodology chapter. Furthermore, scenario planning improves a responders' ability to make rapid and efficient responses to future incidents according to Perterson et al. (2003) and explore any gaps in the strategy and planning for any possibilities, thus linking external analysis at the strategy design phase with relevant emergency planning (Pollard and Hotho 2006). Moreover, Alexander (2000) recommends teaching emergency managers how to use scenarios as a foundation in designing disaster management plans. This is because scenarios help specify the nature of the disaster and the resources needed to deal with hazards and how they must be distributed, as well as testing the ability of responders when assessing them. Perterson et al. (2003) add that they improve the planner's ability to cope with and take advantage of future change. For example, when sending responders to rescue people in helicopters, they may need to be aware of what kind of restrictions might hinder this operation like low cloud cover, strong winds or blockages of flight paths (Alexander 2000). This is because emergencies are very rare, and are probably never duplicated in the exact same way. Hence, there is no one who is used to dealing with specific incidents. Therefore, any disaster happening can be considered as the first occurrence and will be a new experience.

The scenario planning method provides a general technique for the strategy process as it adds up new strategic opportunities for managerial respect and for emergency management development (Pollard and Hotho 2006). Several factors must be considered in order to implement scenario planning, which are team building, organisational culture (Wilson 2000), leadership and management commitment (Wack 1985b; Hanson 2003). In scenario planning, each scenario conveys the story of how the different factors might interact under certain circumstances, compared with contingency planning which focuses on one ambiguous case (Pollard and Hotho 2006). The involvement of different participants representing different organisations and stakeholders with different skills and backgrounds to collect, discuss

and analyse scenarios can enhance better and wider understanding of the issues as well as help in creating and evaluating the policies (Ney and Thompson 2000; Perterson et al. 2003). When assessing the available scenarios, it is better to tackle the main issues with the complexity of the world (Perterson et al. 2003) in order to reach a general understanding because the dynamic systems may have different views from the point of view of the key actors (Ney and Thompson 2000). Walker (1995) claims that there is no certain theory used to evaluate the sufficiency or quality of scenarios, however Schwarz (1996) mentioned in his literature four important criteria when constructing scenarios. First consistency, the described assumptions should not be self-contradictory. Second, plausibility which differentiates a scenario (what might happen) from prediction (what will happen). Third, credibility, explaining any changes from the current situation or those occurred previously as well as the reason of occurrence. Finally, to have a valuable scenario, the form, the role and the content of a scenario should be relevant to the current problem. Smith (2004, p.356) states, "Any scenario has to be grounded in the realities of the organization but sufficiently challenging to expose gaps in the knowledge base of those managers in the various crisis teams". The proper number of scenarios is three to four; because two scenarios usually do not help in broaden the thinking enough, whereas more than four may complicate users and bound their skills to investigate uncertainty (Wack 1985b, Schwartz 1991; van der Heijden 1996). It is better to name scenarios in order to be easy in communication and discussion (Perterson et al. 2003). Once scenarios are built, it is important to test them to discover any potential gap or problem (Perterson et al. 2003) by simulation models to test their dynamics although, modelling has been criticised because people became passive rather than active according to Westley et al. (2002). **Table 2-3** shows the aim of using scenarios in all phases of emergency management.

Table 2-3. Aim of Using Scenarios in each Phase of Emergency Management

Mitigation Phase
• To train emergency responders, • Evaluate the vulnerability of the environment and the community and restoration the effect of previous disaster and responses to enhance future preparedness.
Preparedness Phase
• Train responders as in the mitigation, • Identify the likelihood of hazard occurrence through building effects and responses conceptual models, • Identify the possible implementation of preparedness used equipment like the alarm and monitoring; • Design warning and evacuation system that activated in the response phase.
Response Phase
• Evaluate the efficiency of the emergency response plans and • Identify the required resources and the capability of the relief operations
Recovery Phase
• To mitigate future damage of emergency by evaluating their intensity and scope of impact • In this phase economic scenarios can be used to evaluate impact of emergency on the economy for example on the employment and the financial planning for rebuilding affected areas; • To evaluate the social situation if it will facilitate the reconstruction process.

Source: Alexander (2000)

Scenario planning helps an organisation pay close attention to the more precise matters and helps managers develop a comprehensive view of the future (Pollard and Hotho, 2006). However, their capability in evaluating the cause of the emergency and to find the suitable solutions depends on the competency of the organisation in managing emergencies (Pollard and Hotho 2006). The integral advantage of scenario planning is still not well adapted in the business field due to the unfamiliarity with the best practice method of writing scenario cases (Pollard and Hotho 2006) that is why there are limited resources highlighting it. **Table 2-4** is adapted and developed from Bradfield et al. (2005) and Page et al. (2010) and presents some examples of the scope and application of scenario planning. For the purpose of this study the tourism area is added to the table. This study in building scenarios is going to follow the building-block approach as it is considered one of the four main approaches applied in the UK for

disaster exercises; these are disaster response and adaptability; citizen participation and discussion-based debriefs according to Kim (2014). The building-block approach consists of three types: discussion-based, table-top and live exercises. The focus of this study will be on the discussion-based approach as it aims to create the situational awareness between the different stakeholders in integrating tourism with response planning; and the table-top exercises as it intends to develop scenarios. Live exercises are difficult to perform because it is not easy to coordinate, and it would need to be conducted by the emergency services at certain times. Table-top exercises are discussion-based exercises used to prepare emergency managers for response to large-scale emergencies (Edzén 2014) as well as multi incidents. These exercises are used when there is a need for collaboration between organisations that specialise in responding to emergencies (police, fire, ambulance, etc.), private sector organisations, NGOs and others (Payne 1999). "The purpose is to provide training and practice in coordination arrangements and to teach participants how all the elements fit together, as well as to improve the plans, if necessary (Edzen 2014)."

Table 2-4. Examples of the Scope and Application of Scenario Planning

Users	Purpose
Crisis management/ Emergency studies	• To simulate future crisis/ emergency situations, to develop and test the suitability of systems and resources to respond to the situations, and to increase response preparedness; (e.g. testing the UK Pandemic) • Using scenarios to develop crisis managers: applications of scenario planning and scenario-based training (Moats et al. 2008).
Scientific community	• Use scenarios as a way of linking the degree of complexity of scientific models and theories. (e.g. climate change models and econometric models for economic development). • Using scenario planning as a tool for climate change adaption (Moore et al. 2013)
Public policy-makers	• Using scenarios as medium to engage several agencies and stakeholders in policy decisions, to help policy application. An example in this area is the UK government's 'modernisation programme for local government' described by Saunders (2002)

Professional Futurists Institutes	• Independent research and organizations working to spread ideas regarding critical trends that will form the future, and to promote future research methodologies; (e.g the Future Foundation)
Educational institutes	• Support the research and development of future studies and form an educational environment. (e.g. the Hawaii Research Centre for Future Studies, university of Hawaii and the Australian Foresight Institute, Southern Cross University)
Businesses	• Use scenario planning as a long-term planning tool (e.g Shell); and;
Tourism	• To understand uncertainty in tourism transportation in Scotland (2010) (VisitScotland), • Using scenario planning for sustainable tourism planning (Gossling and Scott 2012), and discussing the demographic change for skiing tourism in Austria (Steiger 2012)

Source: Developed after Page et al. (2010)

Responders and all stakeholders should be educated and trained to the level that they acknowledge the complex nature of emergencies and the complex system of emergency management. Thinking complexity is helpful in building the capacity and the capability of emergency response systems and preparing stakeholders to face and deal with unexpected incidents. Overall, complexity and complexity theory are not providing answers or solutions to a problem, but rather they are an explanatory framework. They provide a new way of thinking and they give a new perspective on seeing things. Whereas, strategic and scenario planning can be considered as tools to overcome the complexity of emergencies. For the strategic planning, plans are built on response rather than on particular goals. Scenario planning acts as a framework for developing resilience policies when dealing with unpredictable and uncertain incidents (Perterson et al. 2003). This is because when discussing or conducting drills, built on scenarios, involving different stakeholders, the objectives and priorities can be set clearly and the sources of information can be identified for all.

2.8 Summary

This chapter began by discussing complexity, complex systems and complexity theory in order to understand and have a better insight into the nature of emergencies. Then, it discussed planning and planning theory in order to establish the context for

planning for emergencies with focus on strategic and scenario planning. Although complexity and complexity theory do not provide solutions for problems, they do however enhance the way of thinking and give a new perspective on seeing through things. It highlighted four phases of emergency management and the advantage of dividing them into phases to simplify the understanding of the process. However, the response phase when the emergency affects more than one sector, relevant stakeholders should be integrated in planning before the response itself. Thus, capabilities and the capacities will be easily identified before the emergency occurs. Regardless of the actions and activities mentioned in every phase, the availability of a well-organised emergency-response system helps to manage any emergencies effectively. In addition, the response phase is the determinate factor of the effectiveness of the country or an organisation because it shows to what extent the management of a certain incident is successful. Therefore, the next chapter moves to address emergency responses in tourism and how different response activities can be managed between tourism and emergency services.

Chapter 3: Emergency Response in Tourism

3.1 Introduction

This chapter reviews the tourism system and critically evaluates its similarities with complex adaptive systems and the complex nature of emergencies affecting it. Additionally, it discusses the need to ensure that response strategies have a better integration between tourism and emergency services. It discusses emergency response components, including coordination, collaboration, cooperation, decision-making, leadership, resource allocation, communication and information sharing. Finally, it concludes by discussing the resilience of the emergency response system.

3.2 Tourism as a Complex Adaptive System

Many countries position the tourism industry as an important factor that contributes to socio-economic development (Pforr and Hosie 2007; Carlsen and Hughes 2008). However, the tourism industry features intangible, highly perishable, volatile services and products and complex networks (Pottorff and Neal 1994; Richter 1999; Evans et al. 2003; Laws and Prideaux 2005). It also depends on a wide range of external factors, as well as the effective integration and distribution of many businesses from different industries that together provide the tourist experience (Pottorff and Neal 1994; Evans et al. 2003; Henderson 2007). These features create an integrated and open system affected by external elements, making it vulnerable to emergencies (Ritchie 2009). Additionally, the dynamics of the tourism industry has dramatically increased (von Bergner and Lohmann 2014) due to the new adaptive structure (Pehlivanoğlu 2011), rapid change in customer behaviours (Woodside et al. 2011), improvements and varieties in the transportation modes (Duval 2013). Moreover, the massive growth of the tourism industry in the past 50 years due to technological and transportation advancements, leads to strengthening the connections and complexity within the tourism system (Pforr and Hosie 2007; Baggio and Sainaghi 2016). Tourism as a system according to Leiper (1979, p.404) consists of five elements (1) the tourists; (2) the generating region; (3) the transit route, (4) the destination region and (5) the tourist industry, which mutually works in a larger physical, cultural, social, economic, political and technological environment**.** This system can be affected by natural and man-made hazards; **(Figure 3-1)** therefore, any change in one component of the tourism system will affect other elements (Henderson 2007; Ritchie 2009) because its system is open and interrelated (Russell and Faulkner 1999; Mill and Morrison 2006) and disasters have knock on effect.

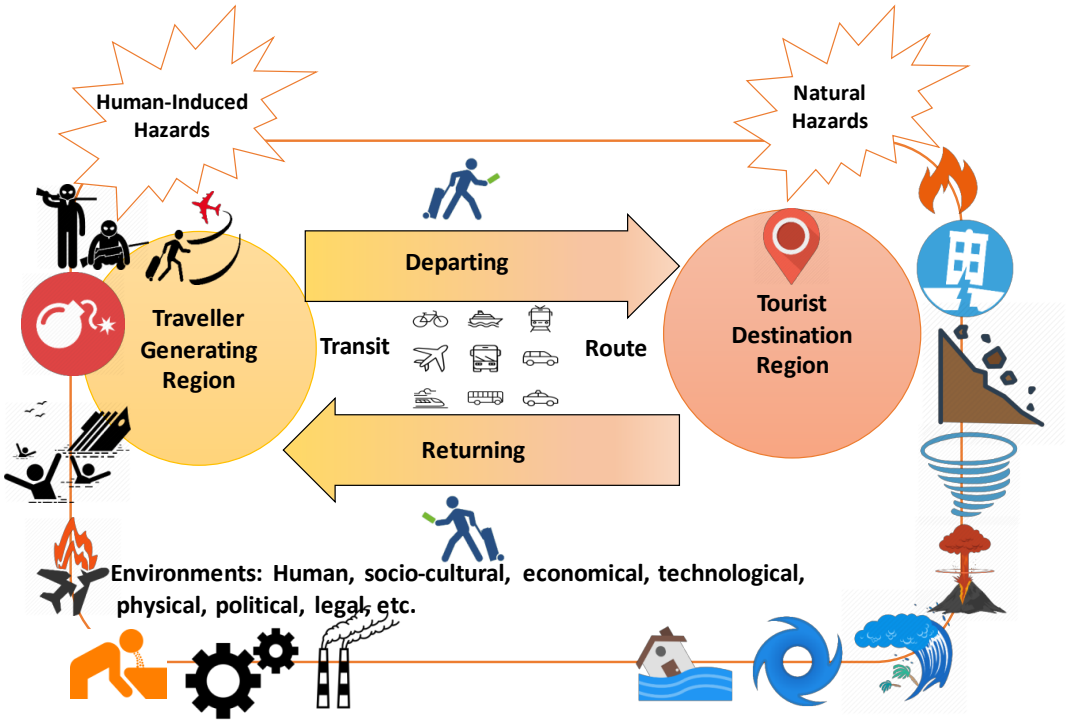


Figure 3-1. Vulnerability of the Tourism System

Source: Adapted from Leiper (1990)

Tourism is considered to be an open system (Rittel and Webber 1973; Galloway and Mahayn 1977; Flood and Carsan 1988); it consists of several stakeholders and complex situations of dealing with potential and uncertain emergencies that may affect this system. Tourism is also considered to be a complex, adaptive system (see Farrell and Twining-Ward 2005; Miller and Twining-Ward 2005; Baggio2007; de Sausmarez 2007; Baggio 2008; Schianetz and Kavanagh 2008; Stevenson et al. 2009; Baggio and Sainaghi 2011). For example, Baggio (2008, p.4) states, there are many features which are used to define the complex adaptive system applicable to the tourism industry as an economic activity like "Accidents of history, positive feedback, increasing returns, social multipliers, lock-in effects, non-linearities, path dependency, evolution, self-organisation, emergence, outbreaks and catastrophes". Baggio and Sainaghi (2016, p.24) noted that tourism destinations could also be perceived as a complex adaptive system that consist of many elements, like organisations and people that are represented by nodes and the different types of businesses (such as official, commercial and ownership) or personal relationships (i.e. family and friends,) that are represented by links and interact frequently with the external environment, and adapting both its interior structure and behaviour. Tourism evolves by responding to external and internal inputs (Baggio 2007) like emergencies, by applying different

strategies and frameworks for emergency management. It recovers from them by adapting to new marketing strategies and campaigns and new programs. For more clarification, Bertuglia and Vaio, (2005) and Lewin, (1999) explain that a destination and tourism system changes during its life; several intermediate structures emerge unexpectedly as a result of the complex system, which highlights the non-linear relationships. When the system aims to enhance the available resources and improving the system in order to face any internal or external influences, this is attributed as self-organisation according to (Baggio and Sainaghi 2016).

The tourism sector is not immune to any kind of emergencies as they may strike at any time and in any place (Ritchie 2004) and might be quick, unexpected and cause shocks (Strickland–Munro et al. 2010). More recently, the tourism sector has been experiencing different forms of emergencies (Consuegra et al. 2008). Faulkner (2001) noted that there was a dramatic increase in the number of natural and human induced disasters affecting the tourism industry. Additionally, being in an increasingly connected world means that emergencies are likely to occur with more regular frequency and affect a wider group of stakeholders. A list of external and internal threats that may affect the tourism industry according to Henderson (2007, p.5) are shown in **Table 3-1.**

Table 3-1. External and Internal Threats that may Affect Tourism Industry.

Domain	External	Internal
Economic	Recession, Currency fluctuations, Taxation	Raising costs, Falling revenues, Unprofitability
Political	Government policy, International relations, Instability, Terrorism	
Socio-cultural	Unrest, Crime	Staffing, Cultural conflicts
Environmental	Natural phenomena, Natural disasters, Pollution, Health scars	Overdevelopment, Environmental degradation
Technological	Computer systems failure, Mechanical failure, Fire	Transport accidents
Commercial	Regulations, Government intervention	Competition, Labour disputes, Management decisions, Human error

Source: Henderson (2007, p. 5)

One of the most obvious risks for the tourism industry is the distribution of many tourist facilities and activities in areas frequently affected by natural disasters (Tsai

and Chen 2010). For example, constructing resorts in coastal areas and building ski resorts in mountainous areas (Ritchie 2008; Becken and Hughey 2013). These locations, by their very nature, constitute a hazard for locals and tourists (Ritchie 2008). Likewise, tourists are even more vulnerable to hazards than local people (Murphy and Bayley 1989) as they tend to have little knowledge of hazards and are not familiar with the resources there for their protection (Murphy and Bayley 1989; Drabek 1995; Burby and Wagner 1996; Whitehead et al. 2000; Bird et al. 2010) and their surroundings (WTO 1998; Buckle et al. 2001; Lamanna et al. 2012). Additionally, tourism depends heavily on the critical infrastructure available in the destination such as, airports, roads, ports and sewage systems (Becken and Hughey 2013) and any disruption to these services will not only hamper responses to a disaster, they can compound the impact and, ultimately further damage the destination's image (Huan et al. 2004). Furthermore, critical infrastructure can be expensive and require lengthy time periods to restore, for example airports (Bach et al. 2013). This will make it difficult for the tourism industry to recover quickly. In addition, the disruption to these services will also make the responses more challenging because the major routes in and out are damaged. Furthermore, tourism consists of many small to medium enterprises SMEs (e.g. hotels, bus operators, museums) (Becken and Hughey 2013) that may not have the resources, knowledge and experience needed to develop the emergency plan in order to reduce the impact of emergencies (Beeton 2001; Cioccio and Michael 2007; Wang and Ritchie 2012). These all make responses to emergencies more complex. A comprehensive understanding of the tourism system and the effects of emergencies is important, as understanding their complex nature is useful in order to enhance the response strategy. The next part discusses planning for tourism emergency management.

3.3 Planning and Managing Emergencies in Tourism

Since the tourism industry consists of many stakeholders, they should collaboratively plan for responses to and recoveries from emergencies. Collaborative planning for emergencies affecting tourism is vital because several incidents have shown that the tourism industry is not well prepared to deal with them (e.g. Hurricane Katrina, SARS, September 11, the Bali Bombing attacks, London bombings, Foot and Mouth in the UK, Tsunamis) (see Ritchie 2004; Gundel 2005; Pizam 2005). Planning for tourism emergencies according to UNWTO (1998) aims to avoid hazards from occurring and control its impact when they occur by relocating tourism infrastructure to more secure

sites in order to minimise the probability of a hazard turning into a disaster. It is about being ready for un-experienced incidents, which means following or integrating a proactive approach that is more effective than being reactive or passive (Pforr and Hosie 2007). So, for example, the vulnerability of critical tourism infrastructure should be considered by emergency managers in all emergency management stages; mitigation, preparedness, response and recovery. The first step in planning for emergencies in tourism is to constitute the planning team, which should involve key representatives from all stakeholder organisations (private and public sectors) as every member contributes with different knowledge and different skills to develop and implement the designed strategy to ensure its effectiveness (Faulkner 2001; Authoritative guide for Tourism Risk Management 2006). According to the Authoritative Guide for Tourism Risk Management (2006, p.62) committees should conduct regular meetings to discuss the following responsibilities: (1) development, creation, distribution and evaluation of tourism emergency management plans and measures; (2) distribution of emergency management tasks and responsibilities; (3) recognition of training essentials; (4) arrangement of training programs; (5) conducting exercises (mock emergencies), and its development, if required; (6) examination after exercises and activation of emergency plan; and (7) examination, assessment and modification of plans and techniques. Tourism emergencies plans should be updated regularly through training and regular testing of personnel (Authoritative Guide for Tourism Risk Management 2006) as staff might move on in their careers and their job functions and roles change over time (Pollard and Hotho 2006). The key foundation of all emergency management planning is a sequence of 'what if' questions for the planning team to tackle: "(1) What if so-and-so happened? (2) What does this mean to us as a destination or tourism operator? (3) What are the implications for our regional operations and for the attitudes and patters of travellers? (4) What must we do as a result of this to protect people and our businesses, and (5) to restore and maintain confidence in our operations and facilities? (Authoritative guide for Tourism Risk Management 2006, p.65)". However, the planning process should not stop during the emergency response and recovery, as the plan could be developed for short-term for the following few hours of operation, which are called tactical plans and strategic plans, which are developed for the 24 to 48 hours following an emergency (Authoritative guide for Tourism Risk Management 2006).

Tourists organisations and hotels that have a written emergency management plan and follow the designated procedures, recover more quickly than those that do not (Barton 1994; Durocher 1994; Sönmez et al. 1999; Faulkner 2001; Faulkner and Vikulov 2001; Hall et al. 2003; Israeli and Reichel 2003; Anderson 2006;) and those who have experienced such incidents before have taken measures to develop their current plans in order to minimise future threats. This is because according to Jiang and Ritchie (2017) that lack of experience results in poor planning. Hystad and Keller (2008) have studied the long-term effects of the massive forest fires in Canada and found that only 28% of tourism businesses had executed recovery initiatives three years after that major incident. Correspondingly, Bird et al. (2010) found that within the hazard area of the active volcano Katla, Iceland, the stakeholders in a tourist destination were not very familiar with the emergency management procedures and early warning systems. They also found that the industry felt that providing related information to tourists would weaken their tourism industry. To compound matters further, they found in a tourist survey that tourists had little hazard information, although they did not mind receiving extra information on potential volcanic eruptions. So, tourism employees should be responsible for directing tourists to follow the warnings and emergency response procedures (Burby and Wagner 1996; Leonard et al. 2005; Johnston et al. 2007; Leonard et al. 2008). A further example is of people in the Central Queensland region because they have not experienced a major cyclone in the past 40 years, they lack the knowledge, experience and knowhow of acquiring the required help should a major incident occur (Jiang and Ritchie 2017). Nonetheless, Consuegra et al (2008) indicate that the tourism industry has limited capacity to deal with such complex events. For example, before the occurrence of 9/11 and the Asian Tsunami 2004, the tourism industry was following a reactive approach in responding to disasters (Cioccio and Michael 2007; Pforr and Hosie 2007). Therefore, the impact of emergencies affecting the tourism industry arising either within or outside the tourism sector was out of the control of its managers and executives (Brookfield 1999; Sonnenberg and Wöhler 2004). Hystad and Keller (2007) discovered a number of barriers that may hinder tourism emergency planning including; a shortage of cash (68% of the sample), scarcity of knowledge on what emergency management plans should include (48%), incapability of making alterations and changes because of the small size of their businesses (23%) and a noticed "lack of cohesiveness in the tourism industry (14%)." Conversely, if the tourist destinations have clear guidelines detailing the appropriate actions to be taken before an emergency occurrence, it will help them cope with these

challenges (Tsai and Chen 2010). Besides the availability of such guidelines, if they are not activated, updated and integrated with emergency services, they will be useless. To overcome these challenges Ritchie (2009) suggests integrating emergency management with strategic management because of the growing number of emergencies affecting the tourism system. The need for a comprehensive and integrated approach in emergency management in tourism systems for enterprises and destinations at local, regional, national, and international levels, and the need for organisations and destinations to shift from a reactive to a proactive approach.

Emergency management as discussed in chapter two includes hazard mitigation; like moving people from flood areas, emergency preparedness like planning and training, emergency response activities like search and rescue and emergency recovery like restoration of basic services (Waugh and Streib 2006). Tourism emergency management according to Henderson (2007, p.13) involves planning for and managing tourism emergencies "in order to protect the interest of the industry, tourists and other stakeholders involved and contain any long-term damage". For instance, the tourism industry is vulnerable to natural and human-induced hazards; handling them depends on taking advantage of "a systematic and strategic approach to disaster management" (Ritchie 2008). Therefore, there is a need for a strategic approach to emergency planning and management to ensure the frequent visits of travellers and to reduce the damaging impact of emergencies on destinations (Ali and Ali 2010) and enhancing the tourist destination image. Anything that has the direct possibility to affect the destination image negatively like an emergency or disaster or even adventure activities (where it works as a main drawcard for international visitors, as in the case of New Zealand) requires careful evaluation to ensure the maintenance of a positive image (e.g. see Page, et al 2006 for an example of how adventure tourism is used to promote a destination). In addition to that, the media can affect the destination image negatively, like the case of the Canberra bushfires in Australia in January 2003 where negative media coverage resulted in decreasing the number of visitors by 50%, thus affecting all tourism stakeholders (operators, accommodation providers, facilities and attractions) (Armstrong and Ritchie 2007). Consequently, a negative destination image created by the media resulted in the elevated risk perception of future travellers. As Calgaro (2010, p.29) points out, "people will not travel if they feel unsafe or associate negative images (often amplified and distorted by the media) with a particular destination". In regard to the tourism industry, Ritchie (2009) justifies the need for

better integration between strategic and emergency management. Firstly, because of the growing number of emergencies around the world affecting the tourism system. Secondly, the need for a comprehensive and integrated approach to emergency management in tourism systems for enterprises and destinations at different levels, local, regional, national, transitional and international. Thirdly, there is a need for organisations and destinations to shift from a reactive (response or management) to a proactive approach (identification and reduction or planning). Taneja et al. (2014) emphasise that the strength of an organisation is inherent in its ability to strategically manage unforeseen emergency situations. For example, the London bombing on 7th July 2005 was managed strategically, resulting in making effective and strategic decisions during the emergency (Fors et al. 2006). Thus, managers and leaders have to be familiar with the strategic management of the emergency in order to gain a better understanding of emergencies (Taneja et al. 2014). Additionally, being flexible to change their management approaches, decisions, and procedures and they have to be socially responsible in managing any emergency situations (Rosenblatt 2002). The level and successful management of change can drastically affect the effective application of the preferred strategy (Alexander 1985). Both emergency management and strategic management encourage embracing an open-system perspective (Thompson 1967; Bowonder and Linstone 1987), for the former in order to identify any changes that may occur (Aguilar 1967) and to develop adaptive strategies that suit the organisational environment (Hofer and Schende 1978; Bourgeois 1980), and for the latter in order for a clear understanding of the dynamics of emergencies and for developing emergency management procedures (Bowonder and Linstone 1987). As discussed in chapter two, planners in the complex and open-system are dealing with wicked problems (e.g. emergencies) where the system consists of a huge number of elements, which interact dynamically. Strategic management has been integrated with the tourism crisis and disaster management model proposed by Ritchie (2004) (**See Appendix 3)**.

There are a number of models and frameworks that have been built to manage tourism emergencies and disasters. Faulkner (2001) states that several of these models (for example, Cassedy 1991; Drabek 1995) failed to provide a more effective and efficient structure for responding to tourism emergencies and disasters. Therefore, Faulkner (2001) developed a framework for tourism disaster management **(See Appendix 4),** which consists of six phases: pre-event, prodromal, emergency, intermediate, long-

term (recovery) and resolution. This framework has been applied to some disasters that occurred in specific areas like the Katherine floods in Australia (Faulkner and Vikulov 2001) and the Galtuer avalanche in Austria (Peters and Pikkemaat 2005) that according to Prideaux (2004) who determined its ability to be utilised as a protective planning tool and as a guide for actual disaster management. Moreover, Peters and Pikkemaat (2005, p.17) declare that, "Faulkner's (2001) scheme seems to be an appropriate framework for analysing complex emergency management steps in Alpine resorts". When Henderson (2007) applied the framework to the Bali bombings in Indonesia of 2002, she commented that the event started at the emergency phase missing the two phases: pre-event and prodromal. This means when complex emergencies or disasters occur, they will not go through the systematic and linear phases of the framework. Prideaux (2003, 2004) and Miller and Ritchie (2003) agree that this framework cannot be applied to large scale and wide-scope disasters like the case of the foot and mouth outbreak in the UK. Another model is Ritchie's (2004) strategic and holistic management framework that consists of three main phases: prevention and planning, implementation and resolution, evaluation and feedback. It has been applied by Armstrong (2008) to a case study of the Australia bush fires in 2003 and consequently improved it to reflect the results. Although Armstrong (2008) incorporates material from Faulkner's (2001) framework, she disregarded the emergency management issues, suggesting this is the responsibility of several organisations not just the tourism industry. Page et al. (2006) propose a crisis management framework for national Destination Management Organisations (DMOs) (**See Appendix 5**), which was organised to follow a scenario planning exercise in which they imagined the influences of a global flu pandemic on Scottish tourism. Although there are a number of frameworks and models for managing emergencies and disasters, many destinations still fail to respond to them effectively, whether it is because of their complex nature, or because of the linearity of these models and frameworks. So, planning emergency response to tourism emergencies is a critical issue to be investigated in order to handle emergencies effectively by involving all relevant stakeholders, as well as its resilience. This will be covered in the next part.

3.4 Emergency Response System for Tourism

Though managing tourism emergencies seems to be complex, it should also be recognised that they are unpredictable (Faulkner 2001) and their nature, as explained before, complex. This means if an emergency is not managed quickly, it may turn into

a disaster and one can lead to another. Therefore, Henderson and Ng state it is not the time to ask if an emergency case will happen or not, but it is the time to ask how to handle it (2004). Several incidents have shown the need for the tourism industry to be well prepared (e.g., Bird flu, Hurricane Katrina, SARS; September 11, 2001; Bali bomb attacks; London bombings; Foot and Mouth in the UK; Tsunamis; Global warming) (e.g., Gundel 2005; Pizam 2005; Ritchie 2004). Tourism as an industry is vulnerable to negative incidents leaving it under threat (Pforr and Hosie 2007). However, the ability and the capacity of the tourism sector to manage and handle such complex incidents or events are limited (Consuegra et al. 2008). For example, tourism organisations might have problems with cash flow, lack of knowledge, skills and expertise (Jiang and Ritchie 2017). Before the occurrence of 9/11 and the Asian Tsunami 2004, the tourism industry was following a reactive approach in responding to a disaster (Pforr and Hosie 2007). Therefore, the impact of an emergency affecting the tourism industry arising either within or outside the tourism sector was out of the control of its managers and executives (Brookfield 1999; Sonnenberg and Wöhler 2004). Alexander (2009) emphasised the significance of emergency response planning due to the lack in well-trained staff, resources, and time; there is a need to make rapid decisions, the lack of the availability of information and there is a need to avoid the devastating impact and casualties of emergencies. "Emergency response is the process of gathering resources and acting upon the problems immediately after the incident happens." (Shen and Shaw 2004, p.2110). The aim of the emergency responses system is to save lives and reduce the damage to the environment at minimum level (Pilemalm and Mojir 2016). However, according to Pilemalm and Mojir (2016) this system can face some challenges like limited and scattered resources that take time to reach the affected population or area. Thus, they suggest developing new strategies to organise the response system. In case of the tourism industry, an integrated response system is required because although the tourism industry is a victim of natural and man-made hazards, it remains often an ignored asset of emergency management agencies (UNWTO 2014). For example, Hystad and Keller (2008, p.159) mention the failure in managing forest fire disasters due to the lack of collaboration between tourism agencies and emergency response organisations. In the case of the SARS McKercher and Cohen (2004) emphasise there is a need for deep collaboration and coordination amongst tourism departments at the international level to achieve effective response to emergencies that cross the borders. Additionally, in the case of the Katherine Floods (1998), Faulkner and Vikulov (2001) noted that there was no destination general

emergency plan available before the floods, as well as no specific tourism plan, and there was little coordination between the tourism industry and emergency services. As a victim, the tourism industry should be involved in emergency management planning and should play a full role in case emergencies affect tourists (UNWTO 2014). All tourism stakeholders should work together to plan and develop simulations based on scenarios to train staff on emergency principles and practice (Ritchie 2008). There should be appropriate coordination between tourism and emergency management organisations (UNWTO 2014). In order to develop a more proactive approach in managing emergencies, the tourism industry should be integrated with emergency response planning. Integrating tourism with emergency services in the planning stage will result in strong resilience through building local capacity (McGee 2011). There are many techniques to be followed, such as nominating a tourism emergency spokesperson, annual stakeholder workshops, devoted webpages (Hystad and Keller 2008), conduction of disaster drills (Bird et al. 2010), and continual revision of material (Faulkner 2001). In a study on emergency management in Greece, Nivolianitou and Synodinou (2011) found that specialised training would develop a collective capacity of emergency organisations and other participants, for example volunteer groups, by sharing specific knowledge.

Kapucu and Garayev (2011) mentioned that the frequency and severity of natural and human-induced incidents, such as Hurricane Katrina and September 11, revealed the insufficiency of the traditional emergency management tools. This traditional approach is characterised by hierarchy-based policies (command and control) and centralisation (Perrow 1984; Aldunate et al. 2005; Bier 2006; Alexander et al. 2013). It should, however, be changed to a decentralised emergency response system (Kapucu and Garayev 2011). These incidents also showed the failure of the emergency response system due to insufficient organisational capacity and a lack of preparedness of responders (Kapucu and VanWart 2006) and a lack of leadership among all actors and an inability to support responses and coordinate aid (Waugh and Streib 2006). According to Waugh and Streib (2006, p.133) “Hurricane Katrina tested the limits of governmental and non-governmental capacities”. Thus, the successfulness of handling any incidents depends of the effectiveness of the emergency response system. According to Haddow et al (2013), an emergency response system is complex. Chen et al. (2007, p.212) and Uhr (2007) describe the complexity of an emergency response system involving responders from different organisations with different laws and

regulations, culture, knowledge, values, tools, information systems, objectives, goals and their dynamical interactions and maybe different languages. This heterogeneity often introduces barriers in communication, information sharing, decision-making and operations. These barriers may result in "a lack of mutual trust, respect" and familiarity, which are critical to collaboration except if they managed well (Pizam, 1999; Chen et al. 2007, p.212). According Msanjila and Afsarmanesh, (2011) Trust amongst organisations is considered the main requirement for the dynamic creation of a collaborative network. Thus Rozakis (2007) suggests, for instance developing a common language and culture for emergency responses. This can be achieved through highly interdisciplinary training and education to ensure the ability of each manager and team leader as well as responders "to appreciate the perspectives and work of other participants and their role in the grand scheme of emergency response" (Alexander 2013b, p.5).

Johnson and Peppas (2003) agree that emergency severity is not similar in all countries and cultures. This reflects the importance of developing emergency response plans for a specific location and the involvement of local management and public office in making some amendments in it as needed. For example, the multicounty impacts of recent incidents, such as severe acute respiratory syndrome (SARS) and the Indian Ocean tsunami highlight the importance of considering cultural differences in order to prepare better for and manage emergencies (Johnson and Peppas 2003). Recent research (e.g. Hofstede 2001; Liu and Mackinnon 2002; Schneider and Littrell 2003) indicates that people from different national cultures tend to have different styles of management (Laws et al. 2007) and culture has been considered a vital element that supports the successful application of emergency management (Adahl 2009). However, cultures rarely help management to clarify the basic causes for the occurrence of an emergency, but they still act ''as a part of the background that has an impact on the emergency in question and maybe even more in terms of the different possible solutions'' (Adahl 2009, p. 16). To meet the challenges of culture and use them as chances to make better interaction, which positively impact on the lives of local people and learning from interaction with others, it requires properly ''designed training and personnel deployed in emergency management operations'' (Adahl 2009, p.7). Thus, the importance of cultural awareness in emergency management is another point to be added here in this case due to the cultural differences. Adahl (2009) emphasised the integration of cultural awareness at all levels of emergency

management strategies from the strategic level to the tactical level. In fact, the more culturally aware emergency management professionals are, the more this will help them to establish clear communication and easier work with different and similar cultures (Adahl 2009, p.8). This is because cultural differences influence the communication and ability of organisations or destinations in handling emergencies or disasters at national, regional or local levels (Adahl 2009). Furthermore, Comfort et al. (2001) and Comfort (1994 1995) argue that response systems described as complex depend on the scale of the emergency, the involvement of multi-organisations in the response and the dynamic and consistent changes of the response system itself (self-organisation). Comfort et al. (2001) explain that the involvement of many stakeholders in the response give rise to challenges that all require coordination and the taking of decisive decisions to facilitate coordination among all stakeholders. Comfort (1999) criticises the hierarchal level in organisations because they can hinder organisations from adapting to the dynamics of emergency (Comfort et al. 2001). According to Bergströn et al. (2016) the self-organisation phenomenon in the response system is viewed as an "emergent property" that proves the complexity of the system and that poses some challenges in the strategies of management. Kiel (1995) and Atkinson and Moffat (2005) advise organisations to apply management strategies because of the complexity of the emergency response systems. On the other hand, Waugh and Streib (2006, p.132) added that although response systems need particular organisation and planning, it is "spontaneous". The structured and well-prepared plans do not often fit situations, so the emergency managers have to "innovate, adapt and improvise" (Waugh and Streib 2006, p.132). Therefore, an organisations' management should consider response as a dynamic system, not a procedure and should support the organisation in being more resilient to any incident and improve its capacity to restore itself post emergency (Paraskevas 2006).

There are many problems that may hinder the response operation in case of an emergency. Horan et al. (2006) attributed response system as time-dependent. According to Chen et al. (2007) regarding performance and reduction, delay may exist due to a lack of situational awareness and inability to understand the incident comprehensively and the time taken by responders to get ready to start their tasks. Organisations in order to respond to emergencies efficiently and effectively should adapt a well-organised and integrated emergency response system (Kanno and Furuta 2006). "For example, in Japan, the emergency response is based on the Disaster

Measures Basic Law, except in the case of disasters caused by malicious acts (in this case the emergency response system is based on the Protection of Lives and Assets Bill enforced in 2004)" (Kanno and Furuta 2006, p.1). Waugh and Streib (2006) declared that some organisations have clear roles in dealing with hazards, while others lack relations with emergency management agencies. Thus, they see creating such linkage and maintaining relations with emergency agencies as necessary, especially when dealing with catastrophes; this is because strong relationships help in building trust and to achieve successful collaboration (Jiang and Ritchie 2017). For example, regular interaction like participation in planning and training or exercises can enhance the capacity (Waugh and Streib 2006) to minimise human response errors, enhance the response time to emergencies and to adjust the current strategy (Ritchie 2009). Although the integration of emergency management is not given a high consideration in some countries, it is important to integrate emergency management in the main government operations (Waugh and Streib 2006). This might refer to organisations that do not have resources to invest in risk reduction or emergency response capabilities or they might see it as unnecessary to do so (Waugh and Streib 2006). The tourism sector, for example consists of several small-to-medium-sized enterprises (Becken and Hughey 2013) that may lack resources and the money to invest in risk reduction. As major emergencies are not restricted to specific areas or organisational boundaries, but are often "transboundary" their effects reach many stakeholders and sectors (Hart et al. 2001; Perry 2007; Ansell et al. 2010; Odlund 2010). Although each organisation has its own strategies and procedures, they might need the help of others in times of emergency to achieve their goals (Hart et al. 1993; Boin 2004; Boin and Hart 2007; Uhr et al. 2008; Van et al. 2009). As well as in this case "there is no clear direction about who owns the crisis and who is in charge of responding to it" (Andrew et al. 2018, p. 243) because emergency management tasks are complex according to Xia et al. (2011). The successful accomplishment of all emergency tasks depends on better coordination, collaboration and knowledge sharing strategies among many responders and agencies across different levels and areas (Xia et al. 2011; Pramanik et al. 2015). This all will help in making decisive decisions, allocating needed resources and facilitating communication.

3.4.1 Stakeholders Coordination, Collaboration and Cooperation

Coordination

Coordination is a collective process when different stakeholders or organisations work together to manage the interdependency of different activities in a logical way to achieve a common goal (Malone and Crowston 1990; Impcoor doc 2000; Drabek and McEntire 2002; Comfort 2007). Some studies refer to coordination as the sharing of information and resources, in addition to the interactions among all organisations (see, for example, Impcoor doc 2000; Corbacioglu and Kapucu 2006). "Coordination means more than providing information about what is happening…[It] means that all stakeholders are informed about and allowed to participate in the process (Phillips 2009, p.64)". In the area of disaster research, specifically the disaster response management a discussion was directed on coordination in the studies of Quarantelli (1988), Dynes (1990), Drabek (2007) and Dynes and Aguirre (2008). Bergströn et al. (2016) argue that it might not be easy to understand other terms used related to the management. For example, according to Drabek and McEntire (2003) the word coordination (coordination model) is substituted with command and control in (bureaucratic models). Many studies highlighted coordination in the context of disasters to evaluate how organisations work together (Drabek 1985; Tierney 1985; May 1985; Morris et al. 2007; Ammann 2008; Keast and Mandell 2012). Bergströn et al. (2016, p.125) suggest that the main aspect of emergency response management in the critical phase of an emergency is to "achieve direction and coordination among available resources in order to meet a range of needs". They clarify this by stating that this approach focuses more on identifying the needs rather than looking at the details on how to respond. Hence, the effective response is built on identifying the required needs and the ability to fulfil them. For example, during the international response to the Haitian earthquake coordinated by the European Union, French and German field hospitals were in charge of treating injuries and providing the basic health care to the locals (Alexander et al. 2013). However, it was difficult for the field hospitals to support each other due to the different procedures and equipment used (Alexander et al. 2013). Additionally, Ekman and Uhr (2015) emphasise the need for direction and coordination during an emergency, in order to use the available capabilities. According to Bergströn et al. (2016), without direction, all capabilities will be useless and without coordination they will be lost and not helpful when required. Direction and coordination are the internal effects required for the emergency response system at all levels to fulfil individual, societal and environmental needs (Bergströn et al. 2016).

Due to the lack of inter-organisational coordination emergency responses resulted in delays, costs, inefficiencies and ineffective solutions (Kettl 2003; Comfort 2007), so better coordination was suggested by Martin et al. (2016). Raju and Becker (2013) mentioned what facilitates coordination is the sharing of information among all involved organisations. Additionally, coordination depends on sharing of resources as well as the organisational hierarchy and the level at which organisations operate (Moore et al. 2003; Stephenson, 2005). For example, in the USA the incident command system was established to coordinate fire operations that require the involvement of several stakeholders or responders (Waugh and Streib 2006). Coordination can be improved by following strict rules and through the operation of stricter authority (Hood 1998; Kettl 2003). Although coordination across different areas is difficult (Comfort et al. 2001), it requires simplifying complex problems into manageable parts (Kettl 2003). For example, when dealing with a large-scale disaster or multi-incidents, the involvement of many agencies might be challenging if they are not coordinated effectively (Kapucu and Garayev 2011). For example, Mozambique, which is a poor country, in 2000, was affected by a massive flood resulting from heavy rain left behind 800 fatalities in addition to massive damage to properties. Therefore, after the disaster, the Mozambique National Contingency Plan added a new coordinated network consisting of communities, districts and provinces in addition to local, national and international agencies who were all involved in emergency training programs in order to minimise future incidents (Ireni Saban 2014). According to Morakabati et al. (2016) the more participants in the emergency, the more improved capability in regards to communication and coordination. Thus, decentralisation of the emergency response system can be achieved by having a flexible structure, by focusing on creating networks for coordination, collaboration and partnerships especially in emergency situations (Kapucu and Garayev 2011).

Collaboration

According to Kamensky et al. (2004, p.8) "collaboration occurs when people from different organizations produce something together through joint effort, resources, and decision-making, and share ownership of the final product or service". The most important aspects of collaborations are the end product and effectiveness (Kapucu and Garayev 2011). "Collaboration is more than simply sharing and exchanging information. Collaboration requires agencies to assess the situation together, share ideas on how to overcome the problem and initiate practical responses together."

(Impcoor doc 2000, p.10). Therefore, organisations have to show their willingness and ability to collaborate (Kapucu 2006b) by sharing information and understanding other's situations, what constrains them and what facilitate their collaboration (Comfort 2007). Eide et al. (2012) found that emergency agencies sometimes lack a good understanding of their own and other agencies tasks, needs, plans and strategies that negatively effect on the collaboration. Due to the magnitude of the impact of a disaster, collaboration may be required because the needed resources are spread across different locations and responsibilities are not well defined, so it is not possible to be managed by one organisation (Waugh and Streib 2006). Dispersion generates obstacles to collaboration across sites, which are linked with the coordination difficulties involved in discrete collaboration and with strong local relations and sparseness of connections cross-site (Boh et al. 2007). This demonstrates the inherent complexity in collaboration and the need to invest in establishing and developing relationships locally and internationally (O'Sullivan et al. 2013). Waugh and Streib (2006) mention that too much control can have negative effects on collaboration or can hinder collaboration, while cultural understanding and using public language can facilitate it (Waugh and Streib 2006). Collaboration is highly required in the face of a devastating disaster affecting masses of people (e.g. cruise ship incidents) and its management requires the involvement of many sectors, organisations and stakeholders to handle the incident successfully (Kapucu and Garayev 2011). In large-scale incidents or in the case of multi-incidents where the situation is complex (Mendonça et al. 2007: Salas et al. 2008) collaboration is vital within and between emergency response agencies and other related stakeholders (Eide et al. 2012). One of the benefits of stakeholder collaboration is resource-sharing (Zhang et al. 2008; Sowa 2009; Nyaga et al. 2010) which is related to tourism disaster management (Jiang and Ritchie 2017); this is because tourism consists of SMEs with limited resources (Beeton 2001). Thus, when responding to tourism disaster, inter-organisational collaboration is required (Orchiston and Higham 2016) to mitigate their effect because tourism is "a complex mix" of several stakeholders (Racherla and Hu 2009). However, Eide et al. (2012) state that such collaboration might not be easy not because of the complexity of the situation, but because of the differences of the people involved and the agencies that bear different skills, measures, information and capabilities. For example, the management of the terror attack in Norway on June 22, 2011 because of the involvement of different agencies (fire, police, and health) they were unable to communicate and coordinate their efforts effectively (NOU 2012). This might be

because all of these agencies have never worked together before, never met to discuss emergency response plans, nor coordinate strategies and identify the capabilities of each other. In addition, in a case where multi-incidents occur simultaneously, at one location or in different locations, dealing with two complex and dynamic emergencies they all require collaboration like the case of the designed scenarios of this study (**see Appendix 6**). Thus, in these cases the collaboration is inevitable for different organisations to enhance the effectiveness of the response by ensuring the arrival of the needed resources and to reduce the number of causalities (Kapucu and Garayev 2011). During emergency responses in large-scale or multi incidents, efficient collaboration depends on well-defined roles and tasks of all involved responders, distributing relevant information, and general understanding of the current situation at hand (Eide et al. 2012).

Collaboration and sharing information are adaptive management that enhances organisational learning and encourages modification and creativeness (Waugh and Streib 2006). Collaboration can contribute to minimising the risk when responding to emergency situations in cases when the local capabilities are not qualified to handle the whole situation solely (Waugh 2003). In addition, a lack of experienced and qualified emergency personnel, as happened in the Wenchuan earthquake, when the air force parachuted 2,482 tons of relief supplies into affected areas, although they could help but because of the inexperience of the Chinese army in disaster aid; the relief supplies were damaged. Therefore a collaborative work of different parties, especially in large-scale disasters is recommended (Miao et al. 2013). Eide et al. (2012, p.3) in their study identified three challenge categories which might occur in collaboration "1) communicating within and across agencies, 2) establishing and maintaining share situation awareness, and 3) understanding organisational structure." The first category might occur due to technical problems in communication and lack of radio capacity, lack of knowledge on how to use rescue channels for example and lack of a common language across agencies (Eide et al. 2012). For example, Eide et al. found in their study that the Norwegian emergency agencies, in addition to the use of different terms, they also gave different meaning to the same terminologies. The second category stated by the participants in the Eide et al. (2012) study was that there is no common platform used to share information among all involved agencies. They mentioned, for example that the current means of sharing information is only verbal face-to face communication, without the use of any audio-visual tools. Another barrier

added in the second category is that they lack information about the current resources and how to manage them. Moreover, information overload, listing information on priority, and getting the right information when required were considered as barriers by the participants in the study of Eide et al. (2012). The third category also assigned certain barriers by the participants in the study of Eide et al. (2012) like during an emergency, emergency agencies lack knowledge about their own role as well as others' roles. An example to illustrate that is the incident commander worked more with the police officers than the leader for all involved agencies, this in turn affected coordination negatively. Another barrier added to the organisational understanding that the needs during an emergency are misunderstood by the involved agencies, and each agency works alone (Eide et al. 2012). The last barrier added to this category is the lack of corresponding planning and general strategies across organisations (Eide et al. 2012). All these barriers will not occur if there is collaboration between all stakeholders because collaboration is a long-term relationship between organisations to solve specific problems (Cigler 2001; Keast and Mandell 2012). It also bears a high degree of complexity than coordination, cooperation and communication (Huxham and Vangen 2005). Overall what facilitates collaboration and enhances the management of an emergency is the cooperation (Pramanik et al. 2015, p.242).

Cooperation

Martin et al. (2016) define cooperation literally to mean 'co' 'operate' which means to work together with others. So, meaning similar organisations working together to achieve one goal following similar strategies (Martin et al. 2016). The prominent aim of working together in times of an emergency or working collectively to achieve a common goal is to avoid duplication of roles and responsibilities (Kapucu 2006a). Organisations may co-operate informally for the short-term and it can be a voluntary option, they are not obligated to work with other organisations especially those with low levels of risk (Najam 2000; Cigler 2001; Brown and Keast 2003; Odlund 2010). However, collaboration can be seen as a long-term relationship (Cigler 2001; Keast and Mandell 2012). Regarding organisations that integrated horizontally (Keast et al. 2007), their cooperation is limited and there is no common work (Martin et al. 2016). In the case of an emergency, cooperation is vital in avoiding duplication of roles and responsibilities and in achieving the common goal (Kapucu 2006a). For example, in this case when different military organisations involved in a response, the nature of the work might result in some duplication of roles e.g. if they all carry out search and

rescue or sheltering. However, previous studies on social networks revealed that having information or background about other stakeholder organisations can enhance cooperation (Uhr and Johansson 2007; Uhr et al. 2008). "Therefore, improving the knowledge of the resources and capabilities of emergency management organizations and establishing long-term cooperation agreements among them seem to be viable measures to increase the ability of organizations responding to emergencies to assume new structures and roles." (Pramanik et al. 2015, p.242). Furthermore, it often entails organisation to perform new tasks or roles under new structure (Dynes 1970a, 1970b; Dynes and Aguirre 1979; Dynes and Quarantell 1988; Dynes and Drabek 1994; Drabek and McEntire 2003; Boin and McConnell 2007). However, this might create organisational stress or pressure that leads to problem in coordination and collaboration because organisations are used to their usual structure and work (Dynes 1970a, 1970b, 1994; Dynes et al. 1972; Dynes et al. 1976, 1979; Britton 1988; Drabek et al. 2003). This organisational stress might hinder organisations from adapting to new changes, therefore encouraging emergency management professionals who should be supported to adapt to new responsibilities and duties (Pramanik et al. 2015). Pramanik et al. (2015) found that increasing the willingness of emergency managers to cooperate with other organisations in the future and their familiarity with the capabilities etc. of other organisations will enhance organisational adaptation. Therefore, inter-and intra-organisational tools are required to highlight the available capacity and to deal with incident at hand (Kapucu and Garayev 2011). Any problem or deficiency in the capacity can be detected through the application of some techniques related to emergency management like decision-making (Kapucu and Garayev 2011).

3.4.2 Decision-making, Leadership and Resource Allocation

Decision-making

Collaborative decision-making can be defined as the "combination and utilization of resources and management tools by several entities to achieve a common goal" (Kapucu and Garayev 2011, p.366). Due to the complexity, ambiguity and urgency of emergency management (Comfort 1999; Danielsson and Ohlsson 1999; Aldunate et al. 2005; Moynihan 2008) it is important for responders to have "fast thought, smooth and effective decision-making process" (Kapucu and Garayev 2011). Huque (1998) notes that the available policies and decision-making structures that direct an organisation's activities in normal times may not work in disaster situations, which

according to Faulkner (2001) determines the degree to which emergency services and other organisations to be prepared for disasters. For example, the organisational structure and a series of rules are necessary for internal coordination in normal times, while in times of emergency, because of the stress, they may be unresponsive (Faulkner 2001). Therefore, emergency response systems should be supported to achieve their purpose (Paraskevas 2006). Factors affecting decision-making are complexity, uncertainty, time pressure, stress, risk and previous experience (Kapucu and Garayev 2011). In essence, complexity may be an undesirable aspect of emergencies, but it needs to be understood, explained and considered in the decision-making processes, if we are to derive effective emergency management responses (Coskun and Ozecylan 2011). Complexity can affect decision-making because of the nature of an emergency and the involvement of many responders (Carley and Lin 1997; Bigley and Roberts 2001; Sellnow et al. 2002). When the available or the required information about the case is limited, it causes uncertainty (Janis and Mann 1977; Therrien 1995; Cosgrave 1996; Johnston et al. 1997). Chaotic situations need immediate decisions under time pressure; this affects the decision-making (Lin and Su 1998; Danielsson and Ohlsson 1999; Buchanan and O'Connell 2006; Flueler 2006). Taking decision on critical incident is a risk (Janis and Mann 1977; Bier et al.1999; Buchanan and O'Connell 2006) as suggested by previous experience regarding the case at hand (Flin et al. 1996; Carley and Lin 1997; Flin 2001; Moynihan 2008). There are tools and methods that can be used to improve and enable decision-making in emergency situations like training (Inzana et al. 1996; Lin and Su 1998; Crichton et al. 2000), decision-support systems (Wallace and De Balogh 1985; Lindell et al. 2007) and simulation (Preston and Cottam 1997; Paton 2003). These methods and tools are used to enhance the organisation's capacity and develop the responder's skills and minimise the possibility of the above-mentioned factors that negatively affect decision-making (Kapucu and Garayev 2011). However, it is not an easy job for organisations when it comes to addressing both decision-making and collaboration in emergency management (Kapucu and Garayev 2011). In case a decision has to be made by specific organisations, it should have a comprehensive mechanism to enhance and help the decision-making process through different managerial, organisational and behavioural changes and regulations (Raiffa et al. 2002). During emergencies, collaborative decision-making depends on communication for "transfer, receipt, and integration of knowledge across participants" (Weber and Khademian 2008, p.334). Collaborative decision-making also depends on the quality of information received,

which if not managed correctly will have negative impacts (Kapucu and Garayev 2011).

Moreover, the Cynefin framework is also used for decision-making in times of response to different incidents, as they require different responses; this framework is designed by D.J. Snowden (1999). The framework is divided into five domains that are simple and complicated described as order (Tame Problems); and complex and chaotic domains (Wicked Problems) that are unordered, and the fifth domain is the disorder, which is in the middle **(See Figure 3-2)** (Snowden 2002; Fodness 2017). **Table 3-2** explains the characteristics and the problem-solving approaches of each domain.

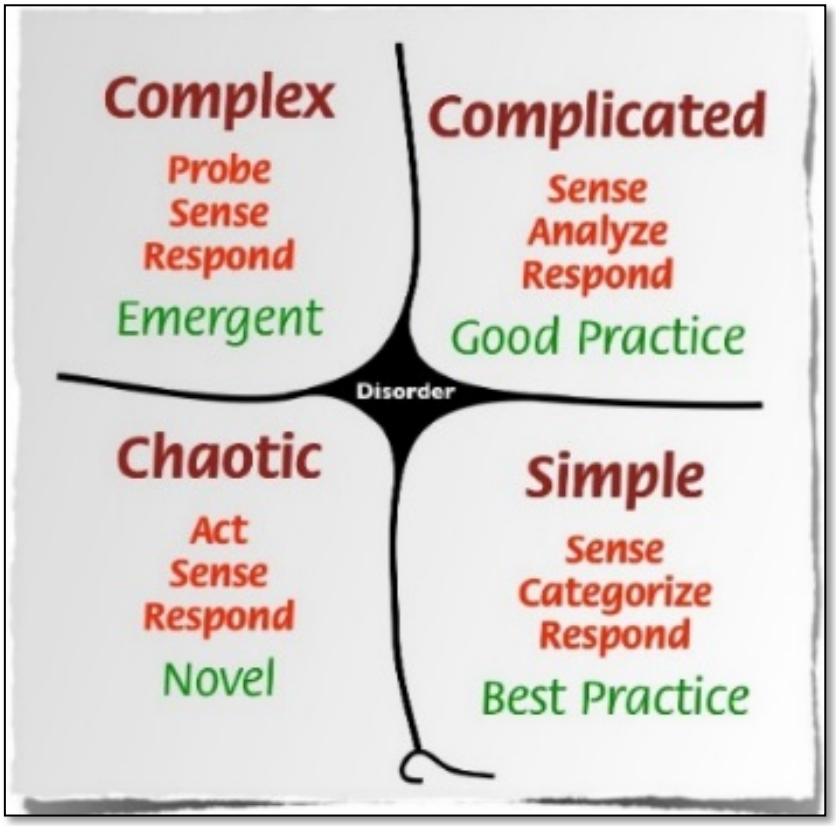


Figure 3-2. Cynefin Framework

Source: Snowden (2002)

Table 3-2. The Cynefin Framework Domain's Characteristics and Approaches

Context	Characteristics	Approach
SIMPLE The right answer is self-evident and undisputed; everyone understands what to do.	● Repeating patterns and consistent events ● Clear cause-and-effect relationships evident to everyone; right answer exists ● Known knowns	● Sense, categorize, respond ● Ensure proper processes are in place ● Use best practices
COMPLICATED Multiple right answers exist; not everyone agrees on the "best" answer.	● Expert diagnosis required ● Cause-and-effect not apparent; more than one right answer ● Known unknowns	● Sense, analyse, respond ● Use subject matter experts ● Compare alternatives
COMPLEX No clear right answer exists.	● Flux and unpredictability ● Many competing ideas about cause-and-effect; no "right" answer (s) ● Unknown unknowns	● Probe, sense, respond ● Allow patterns to emerge ● Stop looking for a right answer; things can only be made "better" or "worse"
CHAOTIC No time to look for answers, but must respond to crisis	● High turbulence ● No time to look for cause and effect or "right" answers ● Unknowable	● Act, sense, respond\take immediate action to re-establish order; sort later ● Look for what works rather than right answers
DISORDER Lack of awareness and no clarity about the real situation	● The first priority is to move to a known domain ● It is serious to understand conflict among decision makers considering the similar situation (Kurtz and Snowden 2003)	● Gather more info on what you know or identify what you don't know ● Get enough info to move to a more defined domain

Source: Developed after Fodness (2017)

The more the organisation information gets, the higher the possibility of taking high-quality and low-risk decisions (Kapucu and Garayev 2011). So, in the case of the management of large-scale incidents and the involvement of many responders "a unified command is created" that focuses on sharing information and coordinating responses, but however participation in making the decision is limited (Waugh and Streib 2006). Making decisions is limited to individuals in case a quick decision is

needed, due to the cultural effect or if all have agreed on who will make the decision. (Waugh and Streib 2006). As a result, several authors have highlighted that decision-making is influenced by national culture (e.g. Fan and Zigang 2004; Heales et al. 2004). Culture, according to Heales et al. (2004) has a prominent impact on making decisions. Schramm-Nielsen (2001) stated that people follow different ways in making decisions based on their cultural background. "The organizational structure and culture in the context of collaborative decision-making in emergencies are important because of the agency actors' habits and preferences while performing their duties. Certain organizations tend to be more flexible, for example, while others tend to be more rigid in terms of their structure, command and control, and management." (Kapucu and Garayev 2011, p.370). To arrive at a consensus-based decision the "knowledge, experience, and information received from others", should all be linked to create a general understanding about the current case at hand, so managers can easily make a consensus-based decision (Kapucu and Garayev 2011, p.373). However, when it is not possible to make consensus-decisions due to a time limit, quick-thinking leadership is required to make an effective decision (Heath 1995).

Leadership

Gary Yukl (2006, p.8) defines leadership as "the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives". Peter Northouse (2010, p.3) defines leadership as "a process whereby an individual influence a group of individuals to achieve a common goal". Many researchers have addressed the issue of leadership when handling emergencies (Cassedy 1991; Turner 1994; Faulkner 2001). Leadership and emergency management are interrelated according to Boin and Hart (2003) as one of the main responsibilities of the leadership is to mitigate hazards and control the damage of an emergency (Laws et al. 2007). Smits and Ezzat (2003) explain that in the pre-emergency stage the leadership's perception focuses on procedures to mitigate hazards as much as possible. While during emergencies, leaders must show their strong personal skills (King 2002; Ucelli 2002) by following the effectively prepared plans and procedures and continuously observing the organisation's response and reacting in an effective manner (Brenneman 2000). Leadership is one of the most important elements of a response because it represents the organisation, destination or country (Ritchie 2009) and it is important in building stakeholder collaboration (Gunton and Day 2003). Consequently, a certain

style of leadership that is formed by a specific national culture is more preferred in that national culture (D'Annmunzio-Green 2002). Leadership is required in times of emergency at the organisational, sectorial, industrial or country level (depending on the scale of the disaster) to guide and direct responders during the response and communication with the media (Ritchie 2009). For example, the inappropriate leadership strategies employed during Hurricane Katrina resulted in a poor response and a lack of situational awareness because of poor communication, this consequently created problems with command and control (Waugh and Streib 2006). What influences leadership in emergency management and in emergency response is the national culture (Pinsdorf 1991; Heales et al. 2004; Zagorsek et al. 2004; Chandler 2005; Ritchie 2009) as the action of leaders and their behaviour are different based on their culture (Scheider and Littrell 2003). However, in some developing countries, culture has no effect on emergency management (Elsubbaugh et al. 2004). Ritchie (2009) highlights what might affect the leadership like the culture while he mentioned that the nature of decision-making and the decentralisation of leadership can create effective leaders. Normally, in the emergency response plans people follow their local ideas and practices to guide their response (Prentice and Miller 1999) so the emergency is managed differently based on the culture of the responders (Laws et al. 2007); this emergency response issue has been recognised by some authors (e.g. Elsubbaugh et al. 2004; Chandler 2005). For example, in some developing countries senior managers are careful to minimise the effect of the personal culture and inspire the effect of a cooperative culture among managers and responders (Elsubbaugh et al. 2004). Furthermore, to explain how leadership is influenced by national culture Laws et al. (2007, p.148) have adopted Hofested's cultural dimension of power distance. They mentioned, for example that in the high-power distance culture, commanding leadership is preferred while in the low power distance culture counselling leadership is ideal. Overall effective leadership is required especially during the response to allocate the required resources effectively, especially when they are scattered or limited.

Resource allocation

Smith (1995) mentioned two aims of providing disaster aid. First, to bring relief immediately after the disaster by providing medical supplies, clothing and emergency shelter for victims. Second, to recover and reconstruct the destruction of the emergency impact; it can, however take years for the affected area to recover.

Although some organisations rarely provide resources for catastrophes before they occur, quick resources are required when incidents do occur (Ritchie 2009). Depending on the scale of the incident the higher the effect, the more the required resources (Heath 1995). Therefore, emergency services should work with other governmental agencies like tourism to assess the likely impact of an emergency and to be able to identify the required resources and distribute them effectively before implementing pre-prepared strategies (Ritchie 2009). According to Ritchie (2009, p.145) the distribution of resources needs coordination in the organisations between stakeholders, both within and outside the tourism industry and emergency services organisations. This is because managing an emergency in tourism destinations necessitates adequate resources (Laws et al. 2007). Thus, managers have to be involved in the planning process and in the time of response according to Bland (1995) to identify the required resources in time of emergency. Ekman and Uhr (2015) added that activities in an uncertain environment are subject to changes to make the possible distribution and allocation of the available resources. Due to the complex and unpredictable nature of emergencies Bergströn et al. (2016) argue that directions cannot be identified in detail and the exact resources required cannot be predicted, nor what collaboration might appear. Pramanik et al. (2015) mentioned for example that emergency responders in some situations are obligated to deal with workers and resources from organisations other than their own, although responders prefer using their own. "Thus, the more prepared the emergency management professionals are to work with or to utilize resources and personnel belonging to other organisations, the more easily a group of organisations can adapt to new organisational structure" (Pramanik et al. 2015, p.236). The emergency resource management in the immediate response to an emergency needs well-organised coordination so that the available materials (e.g., food, water, and medical materials) can be delivered to the disturbed areas (Sheu 2007). However, it is not an easy task to accomplish due to damaged infrastructure and inadequate transportation capacity (Holguin-Veras et al. 2007). This is because critical infrastructure itself is vulnerable when it is dependent on the input of other infrastructure, for example the functioning of transport and communication are dependent on electricity supply networks (Bach et al. 2013). During the Wenchuan earthquake in China, 2008, the road network was destroyed, thus it was difficult to deliver the relief resources to affected areas as well as to provide access to the many people from all over the country to help the affected areas. This caused chaos and a delay in response, which resulted in difficulties in coordinating the emergency

response process (Maio et al. 2013). Another problem according to Maio et al. (2013) are the imbalances between supply and demand and mismatch of relief materials like in the case of the Thailand tsunami in 2004. They received many contributions of clothing (containing winter clothes) that were not suitable for the first emergency relief aid as according to Christopher and Tatham (2011) the main needs in an affected area are safe drinking water, food and medication. During the response, emergency responders should create an operational management triage to communicate with all stakeholders effectively and to have more control on the incident (Heath 1995). Responders are using similar classifications to those used in emergency medical triage (Highest priority, high priority, low priority and the dead) in order to allocate resources as required (Grant et al. 1989; Ritchie 2009). Therefore, the deployment of the required resources will start with the higher priorities while any lack in resources deployment will slow the response (Ritchie 2009). Some countries beside their own resources need external help with the response or recovery (Ritchie 2009). For example, after the tsunami, in addition to financial and materials aid, Thailand asked for overseas expertise to help provide their skills and knowledge to aid recovery (Gurtner 2006). Therefore, sophisticated emergency management strategies cannot be applied at the organisational level if the required resources are not available (Laws et al. 2007). Lack of communication, slow response and a lack of resource distribution may delay the response to an emergency affecting a destination (Ritchie 2009). Overall, through effective communication between all involved stakeholders, resources can be distributed successfully.

3.4.3 Communication and Information Sharing

Communication

Communication is an important collective action in transfering specific messages between organisations or within the same organisation (Kapucu 2006a, 2006b). Salas et al. (2005, p.567) define communication as "the exchange of information between two or more individuals irrespective of the medium". The complex nature of emergencies and their devastating impact make communication more important (Nowell and Steelman 2014), thus any failure can harm the emergency response system (Comfort et al. 2004). Organisations recognise that having strong, resilient and widespread tools of communication will boost their "connectivity" and enhance their

accessibility by others (Aldunate et al. 2005). Regardless of the type of communication technologies used to transmit a message, Celik and Corbacioglu (2010) found that the well-used information and communication technologies have a positive effect on emergency responses and make coordination smooth among all organisations. Consequently, failure in communication can hinder coordination (Nowell and Steelman 2014). Therefore, organisations should build a common operating picture by collecting and sharing information in a useable way during and after a disaster to achieve effective communication (Kapucu 2006a; Comfort 2007). Some problems in communication are the use of different languages, different terminologies across emergency agencies, as well as this; the knowledge and the tools of the agencies involved may hinder the response (Allinson 1994; Heath 1995; Alexander 2000; Eide et al. 2012). This is because the involved organisations did not work together before the emergency (Ritichie 2009), like the example noted by Heath (1995) in responding to the Kobe earthquake where the emergency organisations rarely worked together. Moreover, lack of communication can slow the emergency response and this in turn affects a destination (Ritchie 2009). Furthermore, the destruction in communication networks causes delays in the response operation as the information from the affected area and the communication between the relief workers and different relief agencies is required (Maio et al. 2013). For example, Holguin-Veras et al. (2007) mention the case of Hurricane Katherina in 2005 where around 50% of the radio stations and 44% of the television stations were not working. Another point to be discussed in communication is the cross-cultural communication. This is a communication between people from different cultures, this might result in miscommunication if the receiver misinterprets or misevaluates the sender's intended message (Adler 1991). Miscommunication occurs because we use our culture as a standard of measurement, which becomes a self-reference criterion and because there is no identical culture to our own, we see other cultures as inferior (Adler 1991). Thus, effective communication is vital in order to share information with all involved stakeholders as well as the public.

Information sharing

Information sharing between different associations "was defined to mean exchanging or otherwise giving other executive agencies access to program information" (Dawes 1996, p.382). Consequently, information transfer is the basis for inter-organisational collaboration and is essential for increasing the efficiency and performance of

organisations (Mishra et al. 2011; Yang and Maxwell 2011). Information sharing is a challenging process (Kożuch and Sienkiewicz-Małyjurek 2015). What makes information exchange difficult are the differences in personnel background as well as their expertise (Xia et al. 2011). The complexity of the response system emphasises the need for effective and continual information sharing. However, the information shared depends on the type of the incident and there may be different sources of the information (Kożuch and Sienkiewicz-Małyjurek 2015). Previous research proves that "teams fail to share information when they most need to do so" (Mesmer-Magnus and DeChurch 2009, p.544). Sharing information is mainly determined by viewpoints such as: organisational and managerial viewpoint (organisational boundaries; different origins, values and cultures; lack of experience and resource, trust, leadership, etc.); technological viewpoint (heterogonous hardware, software and information systems, information security, etc.); political and policy viewpoint (legislations and policies, information as power and authority, etc.) (Yang and Maxwell 2011, p.169). According to Helsloot (2005) and Kelman (2006) limitations in sharing-information impact negatively on the decision-making process and the efficiency of the taken actions in dealing with emergency situations. While Kożuch and Sienkiewicz-Małyjurek (2015) state that in some situations organisations are obligated to share information with others to identify the possible procedures to be followed and the required resources to handle the incident at hand. For example, each emergency rescue unit is assigned a commander with a leading role who, in case of threat, has to share information with commanders of all the involved organisations (Kożuch and Sienkiewicz-Małyjurek 2015). Information sharing tends to be a process characterised by the following features in **Table 3-3** (Kożuch and Sienkiewicz-Małyjurek 2015, p.725).

Table 3-3. Features of Information

Features of Information	Explanation
Consistency	information sharing proceeds across the whole process of operations management
Multi-dimensionality	information sharing proceeds at various levels of complex systems between other and the same entities, and in each case, it may refer to different information
Multi-directionality	information sharing occurs between multiple entities, and it regards numerous issues
Asymmetry	information sharing occurs in an unparalleled way; relations between some entities are stronger and between others weaker; superiority is given to the

	information which is necessary at the given moment and between entities which need this information
Variability	information sharing in complex systems does not occur conventionally, but differently in each case, depending on the needs

Source: Kożuch and Sienkiewicz-Małyjurek (2015, p.725).

In the complex system among multi-stakeholders and non-linear interactions, the sharing of information is attributed to be "multi-dimensional, asymmetrical and dynamic" and is directed by "situational circumstances, as well as organisational, technical, and social determinants" Kożuch and Sienkiewicz-Małyjurek (2015, p.727). "It also follows from the role played by the specific entity in the system. Therefore, information sharing in complex systems proves to be dispersed and decentralized" (Kożuch and Sienkiewicz-Małyjurek 2015, p. 727). Information sharing in the complex system is considered to be a basic or fundamental requirement for decision-making, directing the responders, distributing resources where appropriate, allocating financial aid, as well as collaboration and coordination of procedures are also fundamental (Kożuch and Sienkiewicz-Małyjurek 2015). For example, Eide et al. (2013) found in their study that the most important information responders want to communicate is about the incident itself and about the resources. They suggested increasing the awareness to identify the most important information required. For example, those related to resources management (personnel and equipment) and those related to situational awareness (Eide et al. 2013). Situational awareness about existing resources and possible solutions adopts adaptive responses to ambiguous events, and "these outputs are influenced by how people and organizations use information" (O'Sullivan et al. 2013, p.242). Nowadays, due to the sudden outbreak of many incidents around the world, even in the well-prepared countries with advanced and high quantities of the required resource, it is the matter of the response system and how resilient it is. So, the next part discusses the resilience of the emergency response system.

3.5 Towards Emergency Response Resilience

Holling (1973, p.4) was the first to refer to resilience as a "measure of the persistence of systems and their ability to absorb change and disturbance and still maintain the same relationship between populations or state variables". The word resilience has been used extensively in the academic publications of different disciplines in the last decade according to Meerow and Newell (2015). While Castleden (2011) mentioned

major attention has been paid in recent years to considering the importance of resilience. There are many definitions of resilience according to Comfort (1999, p.21) it is "the capacity to adopt the existing resources and skills to new situations and operating conditions". In terms of emergency and disaster management; resilience as defined by UNISDR (2009) is "The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions". Atiken and Leggat, explain it as "the ability of a community to bounce back following a disaster" (2012, p.151). Zhou et al. (2009) indicate that resilience is gradually used as method to gain a better insight into the dynamics of natural disaster systems. Meerow and Newell (2015) found that resilience is closely connected to the complex system theory and in their review highlighted that dynamic resilience dominates in studies related to complexity. However, Pendall et al. (2010) mention that in studies related to engineering, disaster management and economics still follow the equilibrium model of resilience. Resilience can be interpreted as a system of systems (Bristow et al. 2012) and a complex adaptive system (Allen et al. 2005). Disasters and resilience are 'wicked problems' (Rittel and Webber 1973, p.162); as their featured explained in chapter two; according to Gall (2013, p.24) "there is no absolute problem formulation and for which it is difficult to identify a singular root cause or prescribe unambiguous solutions". Jung and Song (2015) mention the characteristics of resilience systems in the disaster perspective are: minimising the probability of risk, defending the risk when it occurs and the ability to recover after occurrence. Though, the rapid occurrence of an earthquakes or hurricanes require immediate response, so in this context the evacuation plan is an indicator of resilience (Cutter et al. 2008). In the slow occurrence of events, such as the rise of the sea level or a drought, context resilience is by developing and applying suitable solutions. Cutter et al. (2008) taking by an organisation, which demonstrate its level of resilience. Organisational resilience is the ability of an organisation to take decisions and actions in emergency situations as well as supporting the community to cope with emergencies when they occur and to recover from them in a specific time frame without massive destruction or loss because of the distributed resources and shared information (Jung and Song 2015). Therefore, they found that when there are high levels of resilience, there could be well-enhanced mitigation, response and recovery. Furthermore, resilience is explained as a system response, including time of recovery and degree of risk reduction (Gall 2013, p.16).

Emergency response systems are considered to be a way of achieving organisational resilience and require an organisation to be prepared in order to respond to, and recover from any unpredictable event (Hollnagel et al. 2006). Cutter et al. (2008) mention that there are two qualities of resilience: inherent (functioning well before an emergency occurs) and adaptive (response flexibly in time of disaster) and they are applicable to infrastructure, institutions, organisations, social systems and economic systems. For example, according to Djalante et al. (2012) many techniques help build resilience in Indonesia like guiding policies and frameworks, and the involvement of different stakeholders, while there were some obstacles like the lack of capacity and skill for disaster risk reduction at the local level, a lack of well-organised learning and a lack of responsibility carried by the government in having disaster risk reduction in general development programs. However, training and practices including discussions among different stakeholders are needed to build organisational capacity and resilience (O'Brien 2006, 2008). Bruneau et al. (2003) and Andrew et al. (2014) suggest four dimensions for measuring organisational resilience: robustness (continued capacity to maintain overall performance), redundancy (keeping spare resources), flexibility (plans, information and resources to solve problem and reduce risk) and rapidity (quick response). Furthermore, Miao et al. (2013) attributed robustness and redundancy as hard resilience, while flexibility and rapidity as soft resilience. Regardless of being natural or human-induced disasters, some disasters may overwhelm the capability of a single organisation to respond due to a lack of resources and the required swift reaction (Jung and Song 2015). For example, in Korea in 2004 a National Emergency Management Agency was formed to handle any type of disaster (June et al. 2014; Yoon 2014). Its structure is assigned a three-tier system for efficient integration that results in an effective response to natural and human-induced disasters (Jung and Song 2014). However, the damages occurred depend on the extent to which the affected people are vulnerable to hazards, the location of the area, and the ability of the affected community to be resilient (Berkes 2007). Jung and Song (2015) mention an example of the southern economic region in South Korea that has been vulnerable to typhoons. According to the Korean Metrological Administration (2013) three typhoons impacted the same area in the duration from June to October. Although they have considered a network of social capital for response, finally they believed in enhancing resilience (Jung and Song 2015).

The consequences of any specific incident are affected by the build-up of resilience both pre and post occurrence of emergencies and emergency management demands multilevel governance systems that can improve the capability to survive with vagueness and shock by organising various resources of resilience (Adger et al. 2005). This viewpoint was acknowledged and developed by Berkes (2007) who mentioned that vulnerability also exists in resilience of affected system and lists four factors help in building resilience: (1) ability to live with modification and ambiguity, (2) fostering diversity for more opportunities and decreasing hazards, (3) rising the rang of experience for learning and answering problems, and (4) generating opportunities for self-organisation. Referring to Berkes' thinking, three studies have been published in the journal of "Nature Hazards". The first study applied to a case study by Frommer (2011) suggested that resilience to climate change could be acquired by supporting assets of resistance, revival and innovation. The second study conducted by Boon et al. (2012) where they investigated the concept of resilience and claimed that resilience can be considered as a type of characteristic or a process. While Sun et al. (2012) found that resilience can evolve from short-term alteration to long-term adaptations through their investigation of the resilience of farmers in paddy field of southern China to agriculture drought. Maio et al. (2013) recommended studying the resource issues required in the management of the emergency as there is a gap between emergency management study and resource management research. One way to bridge this gap is resilience thinking. By understanding the idea that according to Jackson (2009) a collective work done by many stakeholders (Scalingi 2009) is a support to the system and bringing flexibility to cope with the damage. Comprehensively, emergency resource management involves several components and procedures that cover the activities and systems functioned in transporting responders (experienced NGOs, well-trained public organisations and volunteers), resources (food, water, clothes etc.) to help victims (Van Wassenhove 2006; Boin et al. 2010). To manage the required resources during the response, Maio et al. (2013) suggest making a list of the required resources for victims, mapping the affected area, allocating financial resources, buying the needed resources that are not available and delivering them to the affected areas. Meanwhile, the maintenance of the supporting emergency infrastructure must be considered a cautious process because emergencies may interrupt the available plan in surprising ways (Clarke 1999). For instance, the well-structured dam system in New Orleans could not be sustained in the flooding following Hurricane Kathrina (Maio et al. 2013). This indicates the lack of resilience of emergency resources management

systems intended to minimise the threat of the hazard (Comfort et al. 2010). Mechanisms should be flexible and adaptive in responding to any emerging events (Maio et al. 2013).

Emergency planning can help in times of emergencies by strengthening the resilience of an organisation and decreasing the susceptibility of communities to the impact of such disasters (Blaikie et al. 2003; Ritchie 2008). Disaster resilience tends to be more proactive and positive as a result of community actions towards natural hazards reduction (Cutter et al. 2008). Many factors may determine community resilience and the degree of community dependency and the extent to which a community is more resilient than its counterparts. This depends on the type of emergency and its frequency (Atiken and Leggat 2012, p.151). As noted in the Sendai Framework (2015-2030), Risk Reduction focuses its priorities on investing in disaster risk reduction for resilience. According to the Canadian Emergency Management Framework (2011) the capacity of resilience is built through a process of empowering locals, responders, organisations, communities, governments, systems and the society to share the responsibility in preventing hazards from evolving into disasters. For the purpose of this study, empowering the tourism industry is inherent in the public-private-partnership (PPP) because as mentioned earlier the tourism industry lacks resources, skills, money and expertise. Both the Hyogo Framework for Action (2005-2015) and the Sendi Framework for Risk Reduction (2015-2030) highlight the need to establish partnerships between the public and private sector in order to reduce current and future risks and to enhance emergency and disaster resilience (Bajracharya and Hastings 2012; Hochrainer-Stigler and Lorant1 2017). Public-private partnerships (PPP) according to Auzzir et al. (2014) is how governments engage private sector to provide the government infrastructure and services to increase quality and to provide good value for money. Public-Private Partnerships (PPP) in the area of emergency and disaster management "can be used as a strategic approach to overcome or at least to minimise the negative impacts of disasters in developing countries" Auzzir et al. (2014, p.808). In terms of tourism emergency management, this study defines PPP as long-term collaboration between the public and private sector from the risk reduction to the recovery stage of any potential incident. This collaboration includes providing tangible and intangible resources (e.g. accommodation or transportation for tourists, information, skills, training, destination marketing, etc.) for each phase depending on the requirements of the potential/affected group and the capabilities of the private

actor. Abu-Bakr (2012) classified the role of partnerships in emergency management and resilience building as either strategic (focus on mitigation and preparedness actions) or responsive (focus on response and recovery actions). For example, the strategic PPP can reduce a tourist's vulnerability or increase awareness and knowledge of local emergency procedures. While the responsive PPP exemplified in providing affected tourists accommodation, facilitating a tourist's repatriation or organising FAM trips to brand destination after a disaster. However, to achieve successful collaborative work in response and recovery, involved actors need to establish and maintain relationships during the mitigation and preparedness (Jenkins et al. 2015; Simo and Bies 2007). For example, Matsushima City in Japan lacks its own fire department; consequently, in meeting building fire codes as well as annual disaster drills, thus many hotels in Matsushima are working with the fire department of neighbouring Shiogama City (Nguyen et al. 2017). Furthermore, the Matsushima Tourism Association has developed its own disaster emergency plans independent of Matsushima Town Office that could be used by local hotels (Nguyen et al. 2017). All the above-mentioned activities, during a response, must be coordinated between different agencies and stakeholders. In the case of emergencies affecting the tourist destination; the tourism sector should be involved in the response to such incidents and to the planning for the response. In this case the tourism industry is a victim and should participate in the emergency response planning process to enhance its resilience. Understanding the potential threats that may affect the tourism industry and how to respond to them is an important task and it can be done by reviewing different cases around the world in order to investigate the effect of these influencers and how the response was undertaken. As the specific focus of this study is developing the concept of integrating tourism with emergency response planning in the cruise ship industry, the next chapter investigates the three case studies of Costa Concordia, Mv Sewol Korean ferry and Norman Atlantic.

3.6 Summary

This chapter highlighted the tourism system and critically evaluated its similarities with complex adaptive systems and the complex nature of emergencies affecting it to enhance the response strategy. The chapter then moved on to explain planning for tourism emergencies, with a specific focus on the response and its related strategies such as coordination, collaboration, cooperation, leadership, decision-making, resource allocation, communication and decision making. All these strategies are

highlighted to develop a more integrated emergency response between tourism and emergency services. Finally, it emphasised the importance of having resilient emergency response systems.

Chapter 4: Case Studies

4.1 Introduction

This chapter starts with a general overview of the cruise-ship industry and the development of the market. Then it mentions the possible hazards that might occur in cruising and the possible measures needed to handle them. Due to the large number travelling on cruise-ships, mass casualty management is also covered in this chapter. It examines the cases of Costa Concordia, Mv Sewol Korean Ferry and Norman Atlantic to evaluate the specific challenges presented by the cruise-ship industry when undertaking emergency responses. There are many incidents happening in the maritime environment every day. However, these specific cases have been selected as they are the most recent cases related to the tourism industry and passenger cruises and they reveal the gap in crew training and emergency responses in the case of an emergency.

4.2 General Overview of Cruise Ship Industry

The birth of the cruise-ship industry dates to the middle of the 19th century (Qiu et al. 2014) due to advancements in science and technology, contributing to improving "the design, power supply, accommodation and catering facilities of a passenger ship (Lois et al. 2004, p.93)." These improvements enhanced the efficiency of the ship and gave it the possibility to compete with land-based holidays, including resorts (Lois et al. 2004). The latest statistics shows that the number of cruise tourists will increase to 36 million by 2025 (Vidmar and Perkovic 2015). Now, cruise ships are seen to be a kind of tourism destination, not only a type of transportation (Wild and Dearing 2000). They are also considered to be developing a highly advanced tourism product including facilities, entertainment, accommodation and leisure (Qiu et al. 2014) as they offer an all-inclusive holiday (Lois et al. 2004). The generic cruise passenger ship is made up of a group of systems that are technical, engineering, operational and environmental that interact during the transportation phase (Lois et al. 2004), which presents the dynamic interaction between different elements as in the complex system. The main level of the cruise-ship function consists of the "generic hotel function" and "generic ship function" in **Figure 4-1** (Lois et al. 2004). The hotel functions consist of the categories shown **Table 4-1** in and the ship functions consist of categories shown in **Table 4-2.**

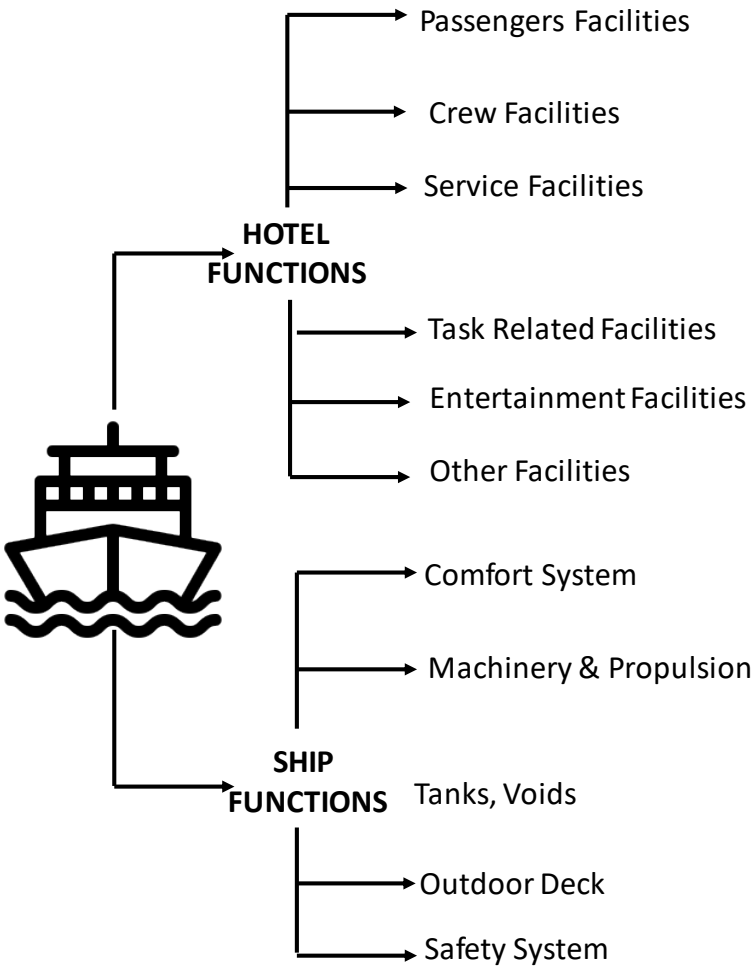


Figure 4-1. Generic Cruise Ship Functions

Source: Lois et al. (2004)

Table 4-1. Hotel Facilities

Facilities					
Passenger	**Crew**	**Service**	**Task related**	**Entertainment**	**Others**
Passenger cabins Public spaces Stairways and halls Outdoor spaces	Crew cabins Common spaces Service Stairs and corridors	Passenger service Catering facility Hotel services	Car decks Tender boats Stern marina Special attractions	Casino Swimming pools Cabaret shows Game room Disco Shore-excursion office	Shops Beauty saloon Internet Self-service launderettes Medical centre Photo shop Sport club

Source: Lois et al. (2004)

Table 4-2. Ship Facilities

Facilities				
Comfort system	**Machinery**	**Tanks, voids**	**Outdoor decks**	**Safety systems**
Air conditioning Water and sewage Stores	Engine room	Fuel and lubricated oil Water and sewage Ballast and voids	Mooring Crew	Life boat Life raft Sprinkler system Detectors and alarms Low level lighting Life jackets

Source: Lois et al. (2004)

Ensuring the safety and security of passengers and crew is the highest priority of cruise-ship organisations (FSA 2008). Cruise lines are required to follow the International Maritime Organisation (IMO) safety standards, as well as the different local, national and international rules and requirements for safety operations and construction (Vidmar et al. 2013). There are different types of operational incidents shown in **Table 4-3** that might happen during the phases of a cruise, both at sea and in ports listed by G.P.Wild (2014, p.8) for CLIA. These incidents include fire, technical breakdown such as engine failure, stranding or grounding, passenger missing overboard and not recovered, storm and rogue wave damage, collision/allusion and sinking. According to Wild (2014, p.8) the operational incidents are classified into significant and minor incidents. According to Vidmar et al. (2013) the incidents reported for cruise ships from 1990 to 2004 show that "other" (44%) are the highest reason for these incidents. This includes hull and machinery related accidents, however there have been low fatalities over the years. Other incidents affecting cruise ships include "grounding and fire/explosion" (Vidmar et al. 2013). However, according to the On Course Magazine (2015) the most common cause of cruise-ships accidents is running aground, followed by collisions. **Table 4-4** lists examples of the worst cruise-ship disasters. When operating cruises, there are general rules that apply to passenger cruise-ships according to Lois et al (2004): (1) 30 years is the average lifetime, (2) 330 days of functioning per year, (3) 24 working hours per day and (4) frequency of the average maintenance is once a year.

Table 4-3. List of Hazardous Events During Operation Phases.

Operation phases	Possible hazardous events
Passenger embarkation	● Passenger and crew injuries while alongside ● Passenger violence ● Fire/explosion in terminal ● Noise ● Overloaded gangway/ collapse ● Injuries to unattended children
Getting underway (arrival and departure)	● Lifting injuries while loading wheelchairs ● Fall in water/man overboard ● Collision with another vessel ● Loss of control (ice, wind, restricted visibility) ● Slips, fall at gangway ● Fire during fueling
Cruise	● Injuries due to machinery failure ● High speed collision, grounding ● Situational management (loss of awareness, distraction, multiple events) ● Electric shock ● Exposure to elements ● Medical emergency evacuation ● Vessel fire ● Engine failure ● Noise due to conflicting group
Docking	● Squish injury ● Dock fire ● Contact with unknown/hidden objects ● Complacency (hard docking)
Disembarkation	● Sewage spills ● Injuries due to overloaded gangway ● Slips and falls while disembarkation ● Careless attendance to handicapped passengers
Outside events (accident on ship neighbour)	● Spills at neighbouring cargo terminal ● Gas or chemical release at neighbouring cargo terminal ● Fire or explosion at neighbouring cargo terminal

Source: Vidmar et al. (2013)

Table 4-4. The Worst Cruise Ship Incidents

Cruise	Incident	Source
The Eastern Star ship	Sunk on June 2015 on China's Yangtze River with 458 people on board	(Sky News 2015)
Costa Concordia	Toppled on its side in 2012 resulted in 32 passenger deaths and 64 injured out of 4200 passengers,	(Cline 2013)
Carnival Triumph	Stuck by engine fires in 2011	(Cline 2013)
Sea bourn Spirits	Attacked by speedboats pirates in 2005	(Cline 2013)
Celebrity Mercury	A virus widespread caused vomiting and other stomach ills for more than 400 passengers out of 2600 in 2010	(Cline 2013)
RMS Titanic	Sank in 1912 with more than 1500 passengers and crew died out of 2200	(Cline 2013)

Source: Sky News (2015) and Cline (2013)

4.3 Planning and Managing Cruise Ship Emergencies

Although marine technology has achieved scientific and technical developments that assist in improving the level of safety in the shipping industry and related activities, accidents still happen and public patience of the effects of severe incidents remains low (De Rademaeker et al. 2014). Vanem et al. (2006) and Vidmar and Perkovic (2015). This indicates that the probability of accidents occurring in modern cruise-liners is very rare, but if they do happen, it is a huge incident as cruise-ships carry several thousands of people. Ensuring the safety and security of passengers and crew is the highest priority of the cruise (FSA 2008). The Formal Safety Assessment (FSA) is a method for risk assessment established by IMO to improve the safety of ships, cruisers and crews and the environment. The FSA follow five steps: hazard identification (what might go wrong?), risk factor evaluation (how bad and how likely?), risk control options (can matters be improved?), cost benefit assessment (what would it cost and how much better would it be?) and decision-making recommendations (what actions should be taken?). The following **Figure 4-2** shows these five steps (FSA 2008).

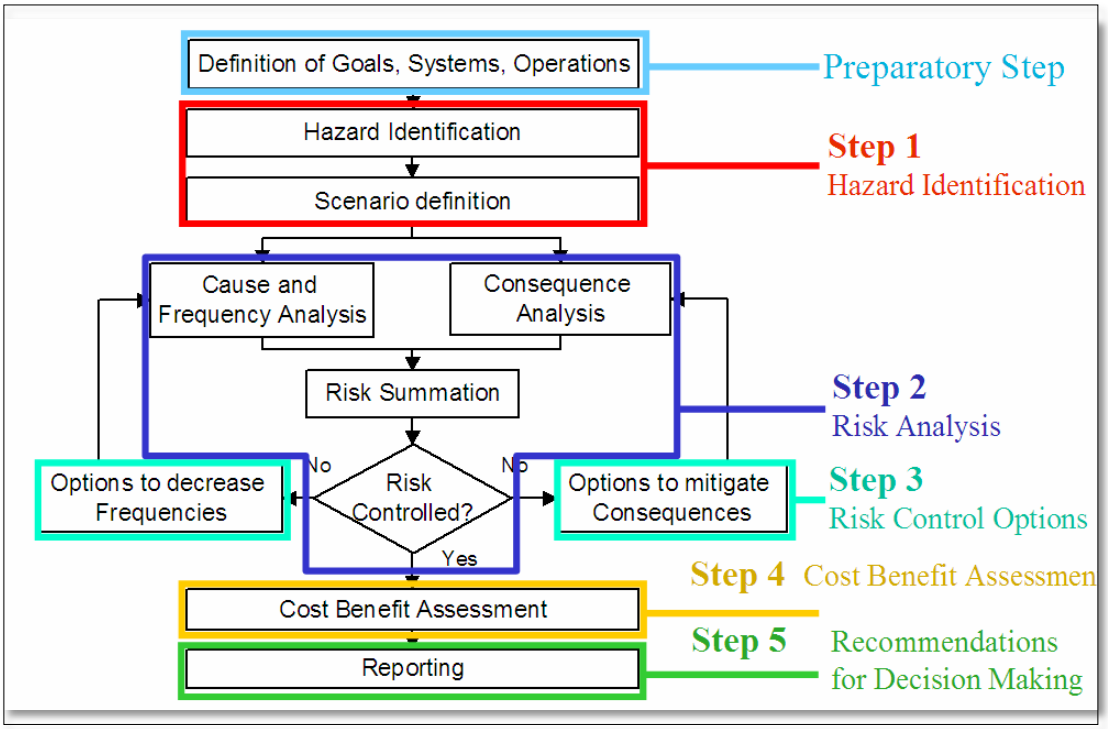


Figure 4-2. Steps of Formal Safety Assessment

Source: FSA (2008)

The benefits of applying FSA are listed briefly as follows (IMO, IMO/MSC circular 829, 1997 cited in Louis et al. 2004):

- A dependable controlling system that includes all safety aspects.
- Cost efficiency, in order to achieve the maximum benefits from safety investments.
- A proactive approach helps in considering hazards before they progress into an accident.
- Confidence that is required in the intensity of the risk.
- A logical foundation to report new risks arising as a result of changing technology.

The framework of FSA is a rational and systematic process of evaluating risks and estimating the costs and benefits of different options for risks reduction (Peachey 1999). The following part briefly explains each step in the FSA framework.

4.3.1 Hazard Identification

The aim of the first step, hazard identification, is to derive a list of all potential hazards and accident scenarios as well as their causes and outcomes (Wang 2001; Lois et al. 2004). When identifying hazards "brainstorming" is a supportive technique incorporating qualified personnel and experts (Wang 2001), in addition to Hazard and Operability Studies (HAZOP) and failure Mode and Effects Analysis (FMEA) according to Kuo (1998). The aim of hazard identification is also to plan and minimise the level of hazards and protect both the cruise and port from any likely hazards (Vidmar and Perkovic 2015). According to MSA (1993, p.10) an accident is defined as "a status of the vessel, at the stage where it becomes a reportable incident which has the potential to progress to loss of life, major environmental damage and/or loss of the vessel". The categorisation of accidents includes: (1) contact or collision; (2) explosion; (3) external hazard; (4) fire; (5) flooding; (6) grounding or stranding; (7) hazardous substances; (8) loss of hull integrity; (9) machinery failure; and (10) loading and unloading related failure. Lois et al (2004) agreed in order to facilitate the step of hazard identification; a development of a flow chart of all operations is required. To develop a flow chart, it is necessary to list all functions and activities being executed (Peachey 1999). **Figure 4-3** shows the five phases of the cruise-ship operation according to Lois et al (2004). Each operational phase of the cruise ship includes the following activities listed in **Table 4-5** by Lois et al. (2004).

Table 4-5. Activities

Passenger Embarkation
● Arrival of passengers at the base port. ● Checking of passenger tickets. ● Open-up an account for their expenses on-board the ship. ● Passengers are given their cabin keys and any other necessary information. ● Obligatory photograph opportunity.
Getting Underway
● The staff on the gangway welcome passengers. ● Cruise staff direct passengers to their cabins. ● Luggage is sent on for delivery to the cruiser's accommodation. ● Passengers are given safety information and a life jacket drill.

Cruise
● While the ship sails, the passengers are free to visit all the public areas of the ship. It is necessary to make sure that they are aware of the daily program and follow the safety instructions of the ship.
Docking
● Passengers who choose a shore excursion are required to disembark first. ● Luggage will have been packed the night before the final disembarkation. ● During the packing process, the cruisers will have been asked to place tags on their luggage indicating the time and method of the onward journey. ● Passengers are required to wait in the public areas until the port authorities allow them to disembark. ● Passengers are also required to settle their accounts before disembarkation.
Disembarkation
● Passengers with the longest daytime journey are disembarked first and those whose onward journey requires a night flight or stay disembark last. ● Passengers will collect their luggage in the port's terminal. ● Ship staff is usually present at the main doors to say goodbye, and porters and assistants are provided quayside, where necessary. ● Transport to the airport or package hotel will be provided for all those not making independent arrangements.

Source: Lois et al. (2004)

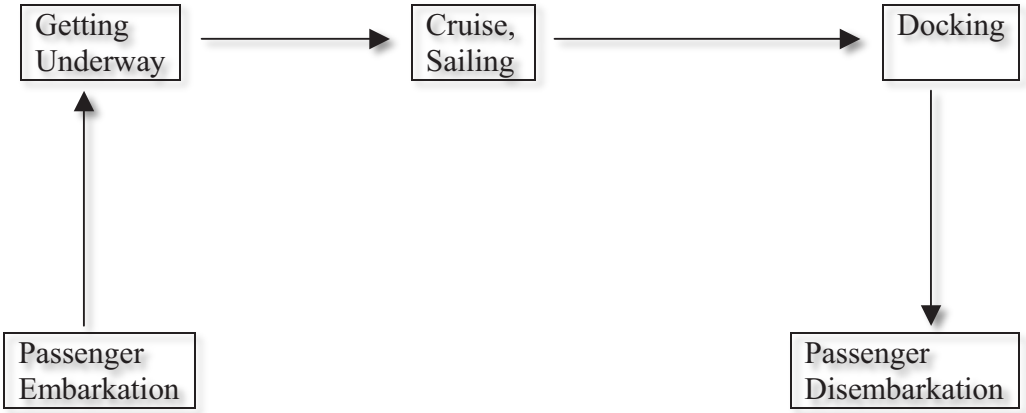


Figure 4-3. Operation Schedule

Source: Lois et al. (2004)

4.3.2 Risk Assessment

The second step is risk assessment, aiming to evaluate risk and its elements that affect the level of safety (Wang 2001) based on priority (Lois et al. 2004). Different criteria

can be used to address risk by the maritime sector: “unacceptable, tolerable and broadly acceptable risk” (Vidmar and Perkovic 2015, p. 191). Risk assessment investigates how hazardous states progress and interact to cause major incidents (Wang 2001). It includes contemplation of the different elements (like training design, communication, and maintenance), which affect the level of risk (Lois et al. 2004). In this step it is necessary to use the “influence diagram” (Risk Contribution Tree **Figure 4-4**) in order to tackle how the regulatory, commercial, technical, political, social environments impact on each accident category (Wang and Foinikis 2001). The influence diagram is a combination of “fault tree analysis” and “event tree analysis” (Marine Safety Agency 1993). According to Tzifas (1997) “Fault Tree Modelling” looks at the combination of events and failures that can lead to an unintentional event, while “Event Tree Modelling” is a means of investigating the possibility of an escalation of such an unintended event in order to establish all potential consequences and their severity according to Peacey (1999) and Tzifas (1997). An influence diagram can be used to deal with the escalation of an incident and reduction aspects like the evaluation of people (Wang 2001). Each influence diagram is essential in outlining the “best” and “worst” cases for each element impacting on specific accidents (Wang and Foinikis 2001).

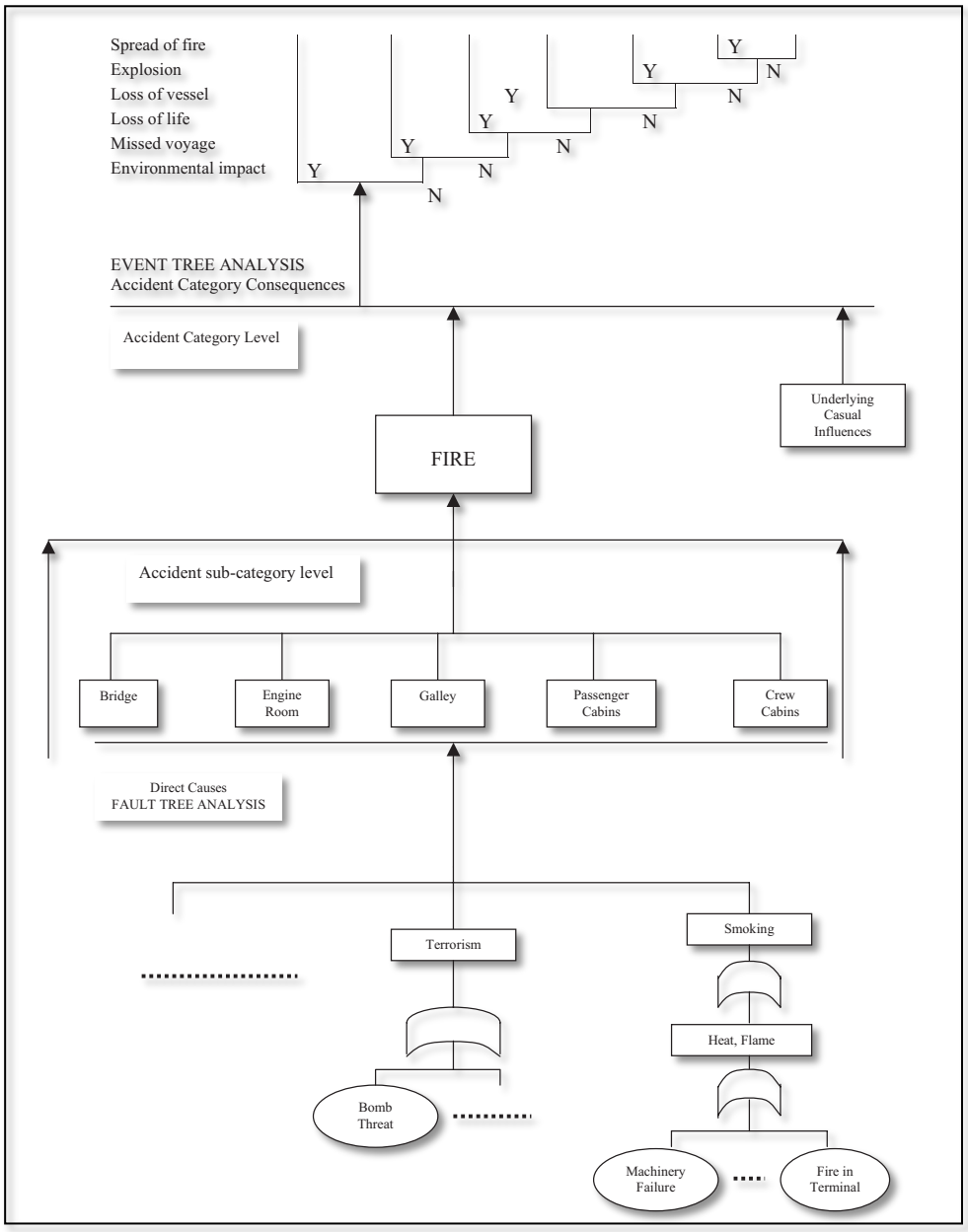


Figure 4-4. Risk Contribution Tree

Source: Lois et al. (2004)

4.3.3 Risk Control Options

A risk control option is the third step, which aims at suggesting effective and practical risk control measures (Wang 2001) to reduce the risk estimated in the second step (Lois et al. 2004). Therefore, the high-risk zones can be identified easily (Wang 2001) and a list of countermeasures can be used to lessen the impact of the potential risk (Lois et al. 2004). These countermeasures according to Lois et al. (2004) will be related

to population, procedures or equipment solutions as shown in **Table 4-6**. Generally, risk control measures have certain features according to Wang (2001) that are:

- Those relating to the main type of risk reduction like mitigating measures.
- Those relating to the type of action required, for example, engineering or procedural.
- Those relating to the confidence that can be placed in the measures (e.g. active, passive or single).

Table 4-6. Potential Countermeasures

Intervention to remove cause	Interventions before the Incident	Interventions before the accident	Intervention before the consequence
Proper equipment Training Detailed procedures Preventative maintenance	Enhanced surveys Communication equipment Alarms Remote sensors Check-off lists for routine evolutions	Drills to respond to common incidents Special procedures for higher risk evolutions (vessel traffic and bad weather)	Response plans Emergency drills Lifesaving equipment Emergency instructions Crew training

Source: Lois et al. (2004)

4.3.4 Cost Benefits Assessment

The purpose of the fourth step, cost benefits assessment is determining benefits because of reduced risks and costs related with the application of each risk control options for comparisons (Wang 2002). To achieve effective cost benefits assessments, it is required to set a base case, as a standard for comparison (Wang 2001). A base case is the reference for the analysis reflecting the current setting and what really happens rather than what is assumed to happen (Wang 2001). Cost and benefit options can be estimated and then the cost of the unit risk reduction can be taken by dividing the net value of costs and benefits (Wang 2001).

4.3.5 Decision-making

The last step aims at making decisions and providing recommendations for safety enhancement (Wang 2001; Wang 2002). The information produced can be used to support in the selection of cost-effective and reasonable changes and to select the best risk control option (Wang 2001: Wang 2002). All these steps are considered for risk

reduction and in case an emergency happens on a cruise due to the large number of passengers, there should be an effective response to manage the mass casualties.

4.4 Mass Casualty Management

This part highlights mass casualty management because of the large number of tourists traveling on cruise ships. Thomas (no date, p. 2) defines a mass casualty incident as "an incident that has produced more casualties than a customary response assignment can handle". Examples of complex incidents, which produced a number on a scale that could be described as mass casualties, are included in **Table 4-7**. "Mass-casualty management has a particularly strong sense of imperative, derived from both the urgent need to save lives and the principle that improvements in efficiency help save more lives during the critical phases of an emergency." (Alexander 2013b, p.7-8)

Table 4-7. Incidents and the Number of Casualties

Incident	Date	Location	Fatalities	Injured
Terrorist attack on the World Trade Centre	2001	New York	2993	8700
Bomb in a nightclub	2002	Bali	202	300
Multiple bombing attacks to a transport system	2004	Madrid	191	1900
Tsunami	2004	S.E Asia	200,000+	Unknown
Multiple bombing attacks to a transport system	2005	London	52	650
Marauding Terrorist with Fire Arms	2008	India	166	293
Marauding Terrorist with Fire Arms and bombing	2011	Norway	85	176
Earthquake and Tsunami	2011	Japan	15,853	6023
Marauding Terrorist with Fire Arms	2013	Nairobi, Kenya	671	175

Source: Resilience Partnership; Mass Casualty Framework (2015, p.5)

Although a mass casualty affects a large number of people, it can be managed within the available resources of the affected organisation or health facility while a disaster requires external aids (Atiken and Leggat 2012). The integrated response system of an emergency to the mass casualty is illustrated in **Figure 4-5** and explained briefly in the following points by BU-UNWTO-Report (2014).

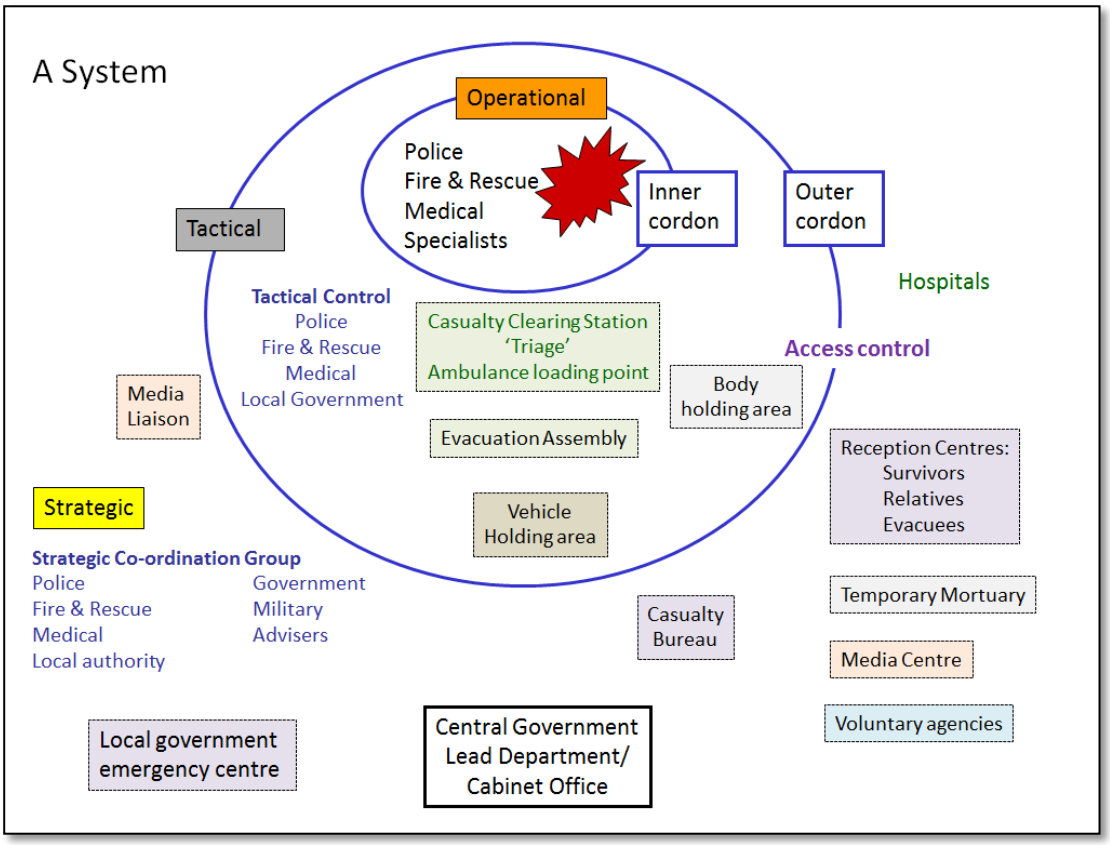


Figure 4-5. The Integrated Response System of Emergency to the Mass Casualty

Source: BU-UNWTO- Report (2014)

- In time of major incidents different organisations need to be involved. Police and other emergency services will set up cordons for operations in order to ensure the effectiveness of the collaborative work.

- The first cordon is Inner Cordon representing the operational level that includes Police, Fire and Rescue, Medical Services and another specialist response.

- The second is Outer Cordon representing the tactical level, which enables the emergency services to coordinate other activities like medical triage and ambulance loading for hospitalisation. This area provides evacuation assembly, body holding area and vehicle holding area. In this area there is controlled access. The tactical control in this area is controlling the activities carried out within the Inner and Outer cordons.

- If the major incident requires governmental support, a strategic headquarter element can be established. This strategic coordinating committee will be

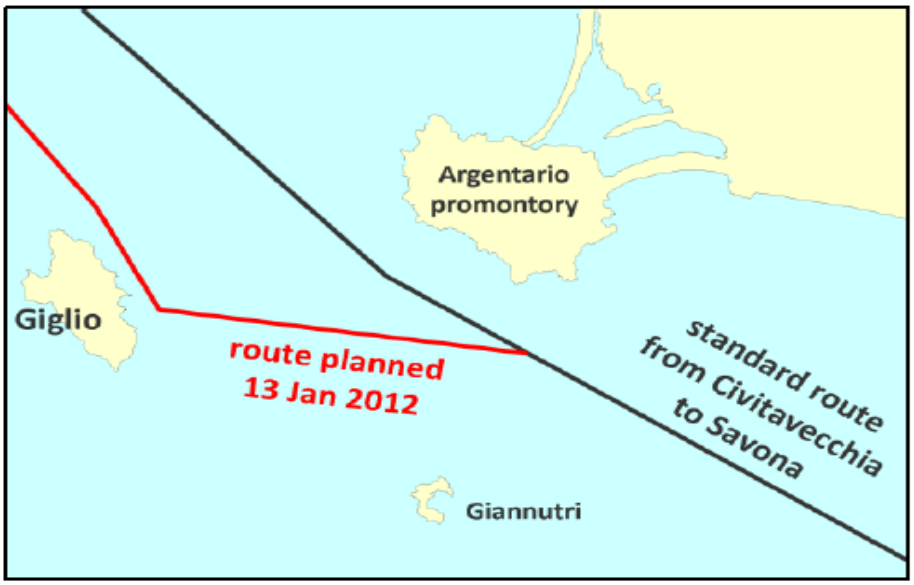
responsible for supporting the tactical controls with guidance and any extra resources and coordinating the requirements of different agencies for any wider response and recovery.

Overall, managing mass casualties required all those integrated elements to save people's lives. Although each organisation or responder (Health, police, fire) is familiar with their work, regular training (based on scenario) gathering them all will help enhance the system. The following three case studies present the emergency response to different incidents, in different countries with different languages and cultures.

4.5 The Case of Costa Concordia

The Costa Concordia was a cruise ship owned and operated by Costa Cruises, a subsidiary of the Anglo-American Corporation, Carnival, which is the largest international cruise-line with a high market share (Alexander 2012)**.** The wreck of the cruise liner Costa Concordia offshore by the island of Giglio, Italy on the 13 January 2012 is considered the most significant (Knightley 2012) and expensive shipwreck in Maritime history with costs exceeding US$1 billion, although there were only 32 fatalities out of a passenger list of 4,252 (Alexander 2012). This incident reduced the demand for cruise ships for the most dominant companies; Carnival lost 14.1% of its business and the Royal Caribbean 6.9% (Howard and Stephenson 2013).

The cruise had a planned seven-day trip from Civitavecchia to Savona and five other ports in the Mediterranean Sea, but the scheduled route was changed to pass near Giglio Island, which caused the ship to capsize after hitting hidden rocks (Raspini et al. 2014) as shown in Map 4.1 and **Figure 4-6.** Additionally, the table in **Appendix 7** lists a timeline of events associated with the wreck of the Costa Concordia. Captain Francesco Schettino of Costa Concordia was blamed for the incident of Costa Concordia because he took the ship near to the shore and then left the ship with passengers and crew still on board (Gallaher 2015).



Map 4-1.The standard route to be followed by the Costa Concordia and the planned route, which led to the accident.

Source: Di Lieto (2012, p.2)

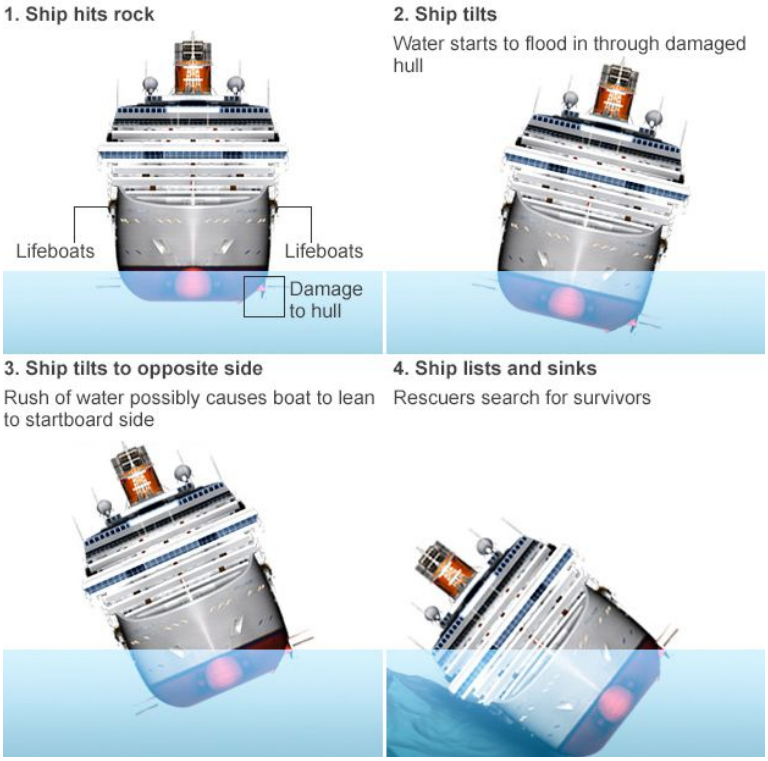


Figure 4-6. The Wreck of Costa Concordia

Source: BBC News (2016)

The sinking of the Costa Concordia proved that accidents can even occur in ships that are constructed with new and state-of-the-art technology (Schroder-Hinrichs et al. 2012). The new technology plays a role in preventing the accidents from occurring like the "Track Control" which automatically steers the ship along the designated route from the departure port to the destination, although Costa Concordia had this feature, the Captain did not use it (ON COURSE Magazine 2015). There are many complex interacting factors involved in an accident that are seen as indirect rather than direct, according to Schroder-Hinrichs et al. (2012). However, Ghirix (2010) and Schroder-Hinrichs et al. (2011) mention there is little attention paid to investigating the complex factors that hinder shipping operations, thus resulting in the lack of availability of technical and administrative solutions for any emerging problems. On the other hand, Di Lieto (2012) states that the sinking of the Costa Concordia was because of an organisational accident and according to Reason (1997) unusual occurring events, but when they occur it is catastrophic within complex organisations, like a product of technological innovation and "it applies to technological, highly hazardous and well-defended systems" (Di Lieto 2012, p.3). It involves many factors and a large number of people operating at different levels of the organisation (Di Lieto 2012); this represents the interacting components in the open and complex system. Further explanation by Di Lieto (2012, p.3) suggests that the accidents which may affect an individual can result in affecting "uninvolved populations, assets and the environment" as explained in the previous chapter the complexity of an emergency and how one incident leads to several. The inherent situations in the accident of Costa Concordia according to Di Lieto (2012, p.4) are "sub-standard design of bridge equipment, unworkable or missing procedures, shortfalls in training, and language differences" that often appear in complex systems. If the plan is sufficient, but the actions taken to respond are not as planned, errors are considered unintentional (Rasmussen 1986). The causes of the Costa Concordia incident according to Alexander (2012, p.17-18) are listed in **Table 4-8**.

Table 4-8. The Causes of Costa Concordia Incident

Risk management
● Insufficient risk management by the company ● Insufficient company policies, monitoring and application about 'salutes' ● Tendency to underestimate the consequence of directional risk-taking by the captain and senior officers ● Insufficient risk management for close approaches to coasts
Planning, training and exercising
● Failure to plan for emergencies sufficiently ● Failure to train and exercise staff sufficiently ● Failure to observe IMO guidelines on staff training for evacuation ● Failure to conduct an exercise with passengers before departure ● Extreme dependence on non-qualified entertainment and hospitality staff to direct evacuation
Crisis management
● General normalcy bias when confronted by alarming information ● In the interests of presenting a reassuring picture of the situation, the passengers were given wrong information ● Lack of timeliness in applying emergency procedures ● Improper priorities, actions and information in communication ● Captain's failure to command operations, and early leaving of the ship.

Source: Alexander (2012, p.17-18)

After this incident international organisations and governments started an evaluation of regulations and laws leading to new cruise-ship Acts (www.awpagesociety 2013; Alexander 2012). Within a month of the catastrophe, the U.S.-based Cruise Lines International Association (CLIA), the Great Britain-based European Cruise Council (ECC), and Bas-based Passenger Shipping Association agreed a new policy that requires all cruise ships to run mandatory muster and safety trainings before departure (www.awpagesociety 2013; Alexander 2012). For example, the evacuation system of Costa Concordia had never been tested (Bjorkman 2014). Where around 600 passengers who embarked from Rome did not participate in any evacuation exercises before the incident (www.awpagesociety 2013). Furthermore, there was a problem of communication between the staff leading the evacuation and passengers through the lack of a common or understandable language, as not all passengers spoke Italian or English (Alexander 2012). Nthia (2015) concludes that what happened in Costa Concordia and other cruise-ship incidents demonstrate the relationship between

language and cultural issues and their influence on effective communication. He mentions that effective communication between crewmembers themselves and with the passengers should be maintained at all time as it can enhance safety and security. Anstey et al. (2015) indicate that "It is estimated that 80% of SOLAS vessels have multinational crews, with one third of maritime accidents having cultural and/or linguistic attributions, significantly on the Scandinavian Star (1990), the Costa Concordia (2012) and the CMA CGM Florida and Chou Shan (2013), reports critical of crews' language proficiencies." Furthermore, Captain Bhargava, (2013, p.1) after the wreck of Costa Concordia states, "With a multinational ship crew comes differences in language, lifestyles, religion and culture. It is therefore not difficult to imagine that interpersonal conflicts due to above differences can create innumerable problems on board. Such conflicts are also one of the main reasons for stress among seafarers on ships." The previous regulation only required the muster and safety trainings to be run within 24 hours of passenger embarkation (www.awpagesociety 2013 and Alexander 2012). Additionally, the CLIA and ECC approved three new regulations that required more life jackets on-board, restricted access to the bridge by non-officers and required a bridge updating and approval process for all passage planning (Alexander 2012; www.awpagesociety 2013). Alexander (2012) claims giving passengers wrong information could easily lead to inevitable deaths and injuries. Essentially, the impreciseness of the messages and the inadequacy of evacuation processes revealed a tacit realisation that staff who may have been inefficiently trained in evacuation techniques and passengers who had had no exercise, together with the uncertainty of the situation, would not result in an organised, competent transfer to the lifeboats (Alexander 2012, p.14). To support the emergency response, this incident contributes to building complex and unique scenarios (Raspini et al. 2014).

4.6 Case study of MV Sewol Korean Ferry

One of the biggest tragedies in modern Korean history is the capsizing of the Sewol Ferry in 16 April 2014, near the southern island of Jindo (Lee et al. 2016; Felden 2015) (**See Figure 4-7**). It was carrying 475 people including around 300 high school students going on a field trip, only 172 were rescued including 75 students (Lee et al. 2016; the Guardian 2015; Anderson 2014). In addition to the passengers, the ferry was overloaded with cargo and many unrequired passenger recorders (Ramage 2015; The Guardian 2015). These were considered the main factors behind the disaster in addition

to the "poor securing of cargo, and lower than recommended ballast" (Safety and Shipping Review 2015, p.16) and to "lax safety standards and regulatory failings in South Korea" (The guardian 2015, p.1).

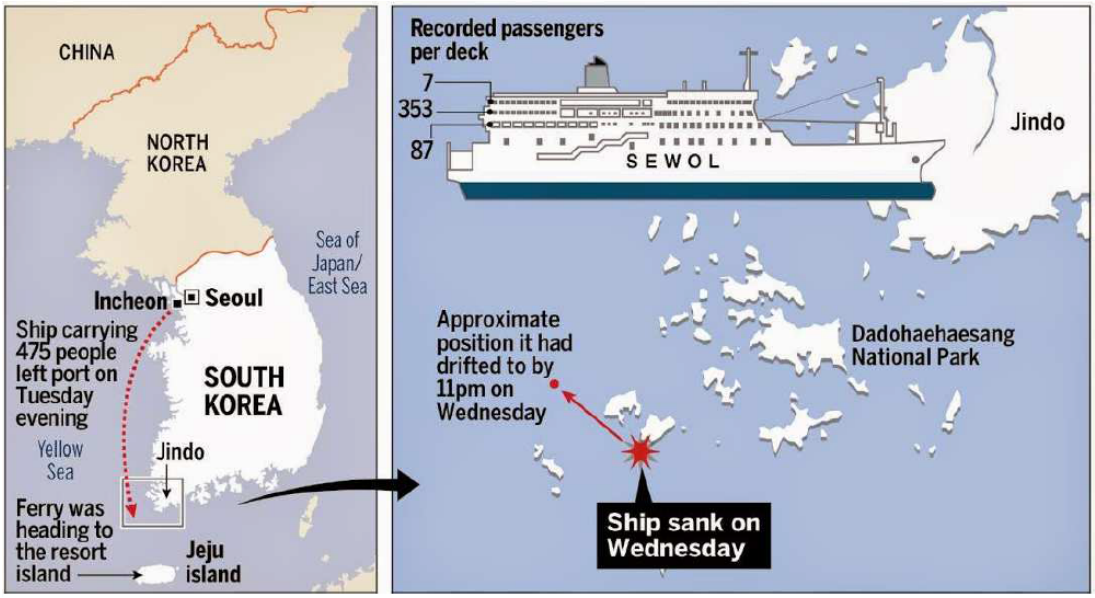


Figure 4-7. The Accident of MV Sewol Korean Ferry

Source: Song (2016)

The ferry disaster investigators of the Sewol ferry declared that their slow response had the effect of increasing the number of deaths (Ramage 2015) (**See Figure 4-8 Shows the timeline of the incident)**. It was claimed that the coast guard emergency postponed early rescue efforts by asking for coordinates when they received a call from an on-board student's mobile phone (Ramage 2015). In addition, the vessel traffic controllers are blamed for their inability to locate the ferry after it was drifting from its designated route towards another dangerous way (Ramage 2015). As it is clear from **Figure 4-8.** that the first helicopter rescue arrived when the ship had already capsized. In addition, commenting on the Sewol, Global Head of Marine Ris Consulting, AGCS, Captain Rahul Khanna adds: "The swift rulings and stringent sentences passed on the crew, the manager, the owner, the sates officials and the stevedores and a very strong message to substandard operators in that part of the world that when you are involved with passenger vessels, substandard operations will not be tolerated. Nobody should be spread for abdicating their responsibilities, especially when it comes to safety" (Safety and Shipping Review 2015, p.16). During the disaster

the captain was accused of abandoning the passengers and said he did not know that his action would create this massive disaster with many deaths and the crewmembers also were accused for their reaction of escaping the sinking ship while the passengers are still on-board (Anderson 2014). Many surviving students said that they did not remember receiving an order to evacuate, but instead were asked to stay on the sinking ferry. The students took things into their own hands and helped each other leave the ship. However, the captain said that he did announce an evacuation order for passengers, but he suspended it because rescuers were on their way and he was concerned for passenger safety in the cold water (Anderson 2014).

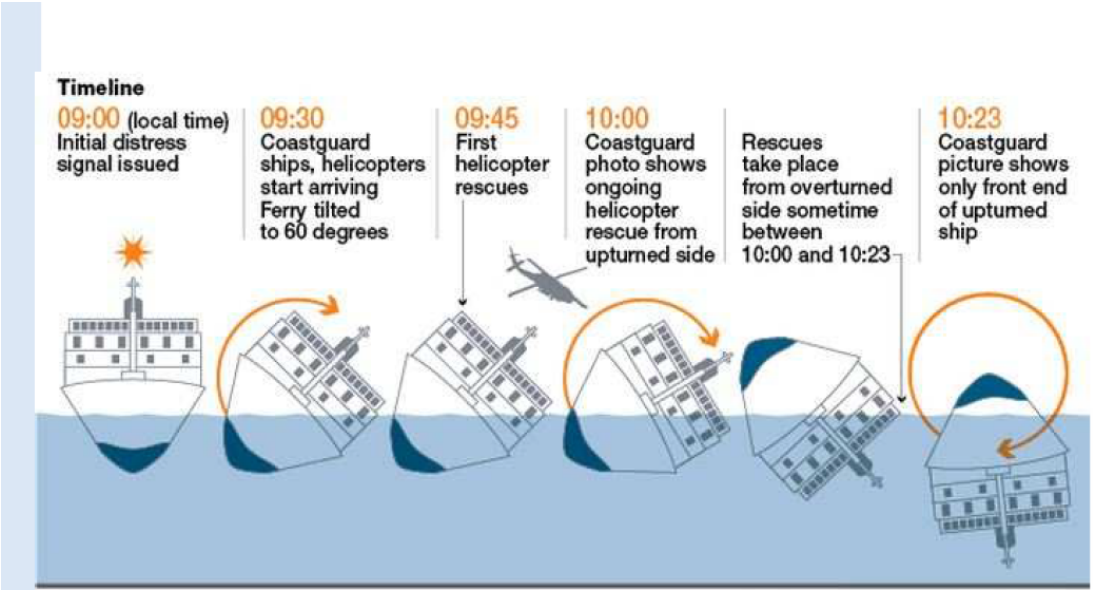


Figure 4-8. The Timeline of the Accident

Source: Song (2016)

This disaster was a turning point leading to the Korean national disaster response and recovery system being reviewed and changed (Lee et al. 2016). According to Anderson (2014) after this incident the South Korean politicians acknowledged new plans to transfer the responsibilities of the coastguard to other government agencies because they were criticised for their slow response. Also, a new Department of Homeland Security was established instead of the coastguard. In addition to this, they introduced and circulated new safety regulations. Shin et al. (2015) in their study of establishing an effective fire prevention and response system, in order to improve disaster response systems, did run many activities for a duration of seven months including; first, fire safety training on using fire extinguishers and how to evacuate in case of a fire; second,

fire evacuation scenarios and simulations were carried out for each department of Seoul National University Hospital; third creating a task force for fire safety management; fourth forming a support team well trained for evacuating patients who need cautious care; fifth, establishing an electronic medical record classifying patients A, B and C in order to easily categorise and locate patients according to the evacuation priority; and finally, drafting, handing out and posting required information in many places and guidance of important things to remember regarding evacuations in case of a fire. On the other side, based on 36 interviews done by Lee et al. (2015 cited in ISTSS 2015, p.8) with emergency responders including (psychologists, psychiatrists, social workers and nurses) who were involved in the immediate response to the Sewol Ferry incident in order to investigate how the current emergency mental health service system actually worked and what could be enhanced; found that "there is a strong need for specialized training regarding disaster mental health as they felt a lack of self-efficacy to deal with disastrous situations". IFSMA (2015) recommends introducing a systematic mental-health screening because these kinds of "incidents can cause incredible damage to human life. Secondly, role conflicts among different agencies during the emergency intervention process were reported. Due to the lack of a consensus on who the controller was, there was much role confusion among service providers as well as inefficient sharing of their resources. Positive aspects were also reported such as increased awareness of disaster related interventions and developing a community-based emergency response system during non-disaster periods" (Lee et al. 2015 cited in ISTSS 2015, p.8).

4.7 Case study of Norman Atlantic

In difficult sea conditions the Italian Owned ferry, Norman Atlantic faced a fire, which had broken out on one of the car decks of the ferry, on 28 December 2014 in Greek Territorial waters, when sailing from Greece to Italy **(See Figure 4-9).** This resulted in the deaths of 11 people and injuring hundreds (Ramage 2015; Vario et al. 2015; Safety, Shipping Review 2015; Gallaher 2015). However, many victims died because they jumped in the sea where the water was cold and according to information from the Italian investigators and the medical examiner, those who jumped in the sea may have been attacked by sharks (Skordas 2015). Italy declared that around 447 passengers and crew were carried out by helicopters to the nearest boats while facing strong winds (Ramage 2015). In addition to the passengers, the ship was carrying around 128 trucks among 200 vehicles (Gallaher 2015, p.3). It seems that the vessel

was overloaded with trucks and cars as Ramage (2015) mentions that it is common in the car-ferry system that most ferries exceed the limits and carry more than their full capacity with around 20% extra weight on every trip. It was believed that the fire broke out in one of the trucks and it overwhelmed the ship, as 477 persons on board outside were faced with black smoke (Gallaher 2015; Zikakou 2015).

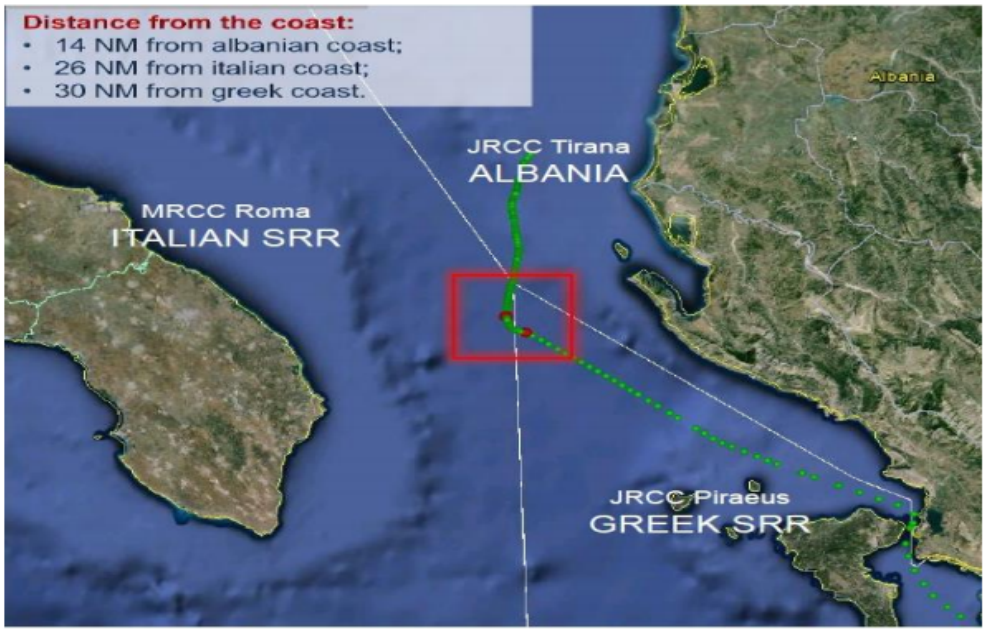


Figure 4-9. Distress Position and Ship Abandonment

Source: M/V Norman Atlantic Final Investigation Report (2014)

According to Wang et al. (2004) fire hazard in cruise ship result from fuel leakages, electrical cables malfunction, engine room troubles or catering and is considered as the worst scenario in the shipping industry because of the high number of fatalities and destructive damage to the environment. When a fire breaks out on a cruise ship, passengers are highly exposed to many hazardous gases and materials like carbon dioxide, methane, chlorofluorocarbons, aerosols, nitrogen oxides, sulphur oxides, carbon monoxide, in addition to the sight invisibility because of the smoke (Vairo et al. 2015). "Passengers reported that the deck with lifeboats were hot enough to cause shoes to melt. Eventually flames would reach the lifeboats destroying them" (Gallaher 2015, p.3).

The search and rescue operation in this incident was not easy because of the bad weather conditions with low temperatures, rough sea waves and strong winds

according to Skordas (2015). Ramage (2015) found the difficulty in counting the number of rescued, dead and missing people because there were many immigrants who boarded illegally. These immigrants escaped from the war in Syria, Afghanistan and Iraq and sneaked into the vessel and sometimes paid the truck drivers money in order to hide in their trucks (Zikakou 2015). Makris (2015) mentions one of the faults in this incident was that the captain had activated the alarm only for the crew only in order to investigate the ferry whilst ignoring the central alarm system. According to Italian newspapers that Captain Argilio Giacomazzi state "crews did not follow his orders in lowering the lifeboats and admitted that the car deck held too many vehicles, contrary to manufacturers specifications" (Ramage 2015, p.7). Some passengers who escaped before the Italian assault ship came to the rescue reported that some crewmembers were the first to have left the ferry after the fire on a lifeboat "amid suspicion that this incident is quickly appearing to be one of corporate manslaughter and corporate negligence" (Ramage 2015, p.5). Makris (2015) highlights the recommendations of the union representatives in the press conference that was conducted in Athens, the need to re-evaluate the investigation safety standards to protect human lives at sea and learning from the past experience of this incident and other accidents. Additionally, there should be a focus on the communication between captain, crew, passengers, responsible authorities and relative of the victims as according to Zikakou (2015) the daughter of a missing passenger mentioned the difficulty in communicating with the Italian authorities because of the language. The case of the Norman Atlantic left behind unanswered questions for more consideration by the maritime community including: (1) "the effectiveness of port security measures, (2) the challenges of mass evacuation under sever conditions and (3) the ongoing criminalization of the shipmaster immediately after the incident" (IFSMA 2015, p.6). According to Dr. Sven Gerhard, Global Product leader Hull and Marine Liabilities, AGCS "what we have seen from the Sewol, and what we have so far heard from the Norman Atlantic, is that, in many cases, construction of the vessel is not always the only weak point. Levels of crew experience, training and emergency preparedness can also often be inadequate, and this can be crucial, particularly on these types of vessels" (Safety and Shipping Review 2015, p.16).

4.8 Summary

This chapter began with a general overview of the cruise-ship industry and the development of the market. It discussed planning and managing incidents that might

occur during cruising. It highlighted the case studies of Costa Concordia, MV Sewol Korea Ferry and Norman Atlantic and what was wrong with the responses to those incidents. It found that advanced and collaborative planning between different stakeholders, intensive training for staff on how to deal with such incidents and conducting exercises, such as evacuation drills pre-departure could all have helped by improving the response times. Besides the cruise construction, which is considered a cause in the accident, other things to consider are the levels of crew experience, training and emergency preparedness measures. The next chapter will highlight the specific topic of this study: the case study of Oman to tackle the emergency response system in order to evaluate its capabilities when dealing with different incidents.

Chapter 5: Case Study of Oman

5.1 Introduction

The importance of the tourism industry to Oman is in increasing the GDP and providing employment opportunities. The first objective of this chapter is to provide a general overview about the sultanate of Oman in terms of location and population. The chapter then provides information about the tourism industry and the cruise ship specifically in Oman. Finally, it highlights the emergency management system in Oman.

5.2 Overview of Oman and the Tourism Industry

Oman is one of the oldest independent states in the Gulf area founded in 1650 (FCO 2006). The strategic location of the Sultanate of Oman has determined its political and economic development (Ministry of Information 2009). It is located in the south-eastern edge of the Arabian Peninsula, covering an area of 309,500 square kilometres **(see Map 5-1)** (Ministry of Information 2012). It shares borders in the southwest with the Republic of Yemen, in the west with the Kingdom of Saudi Arabia and in the north with the United Arab Emirates (Ministry of Information 2011). Its coastline extends for 3,165 kilometres from the Arabian Sea and the entrance to the Indian Ocean in the far southwest to the Sea of Oman and Musandam, where at the entrance to the Gulf, it oversees the strategic Strait of Hormuz (Ministry of Information 2009). There are many small islands that are scattered in the Sea of Oman and in the Strait of Hormuz, including Salamah, as well as Masirah and the Hallaniyat Islands, in addition to other small islands in the Arabian Sea (Ministry of Information 2012). The total population in Oman according to the National Centre for statistics and Information (2018) is around 4,671,230 people including 2,570,772 Omanis (55%) and 2,100,458 expatriates (45%). This population is distributed in 11 Governorates that each has its own characteristic administrative, geographical and economic weight and consists of several Wilayats (districts), there are a total of 61 Wilayats in Oman (Ministry of Information 2012).

Map 5-1. Map of Oman

Source: http://geology.com/world/oman-satellite-image.shtml

The outstanding and diverse nature in the geographical features of different regions in Oman among wadis, mountains, beaches, lagoons and deserts make it a tourist destination that attracts many tourists annually (Ministry of Information 2012). According to Mintel (2013) it is known as one of the most attractive and fastest-growing tourist destinations. In addition to these elements, there are other factors that could attract the international tourism market, such as; friendly and hospitable people, rich culture, and long history (Pearson International limited 2002 cited in Al-Azri and Morrison 2006) as well as the safety and the security of the country. According to the Travel and Tourism Competitiveness Index 2017 Oman ranked number 4 in safety and security out of 136 countries around the world. The first initiative taken by the Omani Government towards opening the country to international tourists dated back to 1980, when His Majesty Sultan Qaboos stated; "It has long been our intention that our economy should be also diversified that our dependence on the one source – oil- is

reduced. To do this, we must exploit our country resources and our industrial potential to be full" (Oman 1991, p. 78-79 cited in Winkler 2007). The country's main sources of incomes were agriculture, fishing, camel and goats herding and handcrafts, until the discovery of the oil (Umar 2016). Due to the downturn in the oil prices in 2015 the country had a deficit of $8.57 billion, forcing the government to raise corporate taxes, increase fuel prices and visa fees (Umar 2016). Thus, the government is diversifying the sources of the economy instead of depending on oil through five economic sectors: tourism, logistics, manufacturing, mining and fisheries (Umar 2016). Therefore, the Omani Authorities in order to diversify the source of national income with other than the oil took slow, but, careful steps to exploit the natural and man-made resources to develop tourism in the country and establish a good reputation as a tourist destination worldwide (Winkler 2007). To attract the international visitors and investors, the visa procedures were facilitated in late 1980s according to Feighery (2012). Recently, in order to facilitate the tourist's visit to Oman and the neighbouring Gulf countries are adopting a new visa system to produce a joint visa that allow tourists to obtain visa entry to Oman and other Gulf countries (Umar 2016). Moreover, in 1995 the Omani government adapted a long-term socio-economic development plan called "Oman 2020" which highlights the tourism development as a major aim (Winkler 2007) with an intention of reaching 5% of the tourism sector contribution in the national economy by the year 2020 according to Times of Oman (2015). Adding to that, a Ministry of Tourism was established in 2004 to manage all tourism activities (Ministry of Information 2009), which in turn developed a comprehensive plan for the tourism sector in Oman called "priority Action Plan" (Feighery 2012). One of the Ministry of Tourism plans is to attract more than five million international visitors annually by 2040 and increase the industry contribution to 6% (Umar 2016; Thompson 2016) by improving the tourism infrastructure all around the country, adding more projects in the field and increasing hotel rooms (PART 2016). In addition to this, completing the airport and transport network around the country, such as Muscat and Salalah International Airports increasing the capacity of Port of Sultan Qaboos in Muscat to receive more cruise ships, and the new opening of the Oman Convention Centre in the capital Muscat for business travellers (PART 2016). According to the Minister of Tourism the Omani strategy for tourism is aiming to increase the tourism contribution to the GDP as sources of income and reduce the dependency on oil as a major source of national income (TimesofOman.com 2015). Thus, the Ministry of Tourism is developing many tourist projects in different governorates in the country

(TimesofOman.com 2015). He added that the strategy of tourism development is based on two purposes; the first is enhancing tourist facilities and the second is enhancing tourist experiences in order for them to stay longer (TimesofOman.com 2015). Today, the Omani government is gaining benefits of the tourism industry as it is clear from the total contribution of the tourism industry to GDP in 2014 was R.O 724.5 million, or 2.2% and it is aiming to reach 6% of GDP by 2040 (The reality of Omani Tourism (NCSI 2016). The total number of inbound visitors to Oman were 1.1 million in 2005, 1.5 million in 2010 and 3.2 million in 2016 (NCSI 2017) **(see Figure 5-1).** The total number of visitors in 2016 increased by 16.2% to 3,042,695 from 2,618,618 in 2015 and the expenditure has increased likewise from 227.3 in 2013 to 250.9 in 2014 and to 288.2 in 2015 (NCSI 2015; Ministry of Tourism 2017). In terms of the purpose of travel, visiting friends and relatives ranked top with 41.9%, followed by 33.5% for leisure and recreation and 17.7% for business (NCSI 2017) **(see Figure 5-1).** According to the National Centre for Statistics and Information (NCSI), (2017) the percentage of leisure and recreation has dropped after it was 47% in 2010. This might due to the recent incidents occurring in the Middle Eastern area such as the many terrorism attacks in different Arab countries (e.g. Syria, Tunisia). These visitors are coming from different origins as **Figure 5-2** shows.

Figure 5-1. Number of Inbound Visitors and Purpose of Visit 2016

Source: NCSI (2017, p.26)

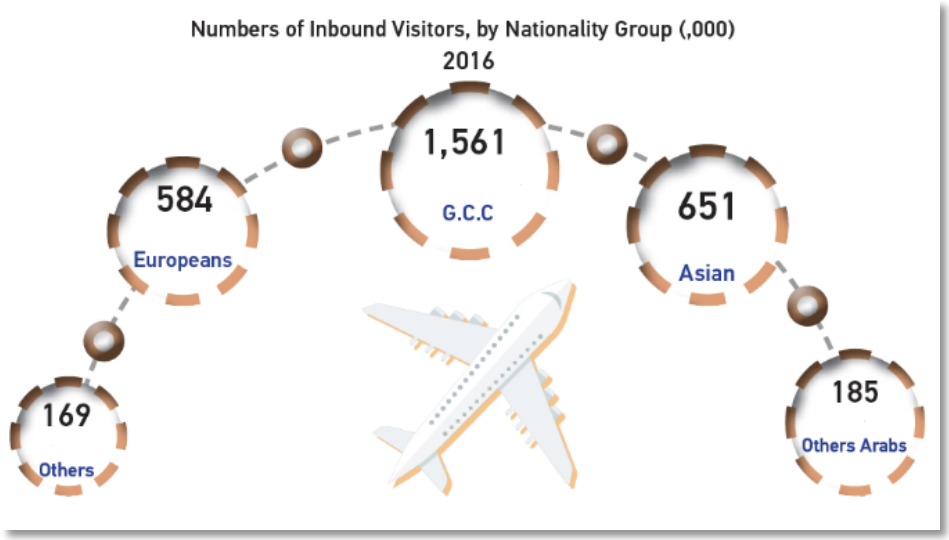


Figure 5-2. Number of Inbound Visitors by Nationality Group 2016

Source: NCSI (2017, p.30)

Moreover, the total inbound tourism expenditure in 2016 was 319.0 million, a 10.3 surge from 289.2 million in 2015. The expenditures were distributed as following 37.3 % on accommodation services, 25.9% on air transport service, 14.9% on food and beverage and 11.1% on shopping for percentage and expenditures distributed in OMR (NCSI 2017). The total tourism production in 2016 was 1.20 billion (OMR) of which 319.0 million (26.5%) was from inbound tourism and the remaining 882.5 million (73.5%) originated from domestic tourism (NCSI 2017) **see Figure 5-3.**

The total number of hotels in Oman in 2016 reached 340 hotels; 195 are one-star hotels, 77 are two-stars, 26 are three-stars, 27 are four-stars and 15 are five-star hotels. (NCSI 2017). Tourism contributes to the economy by creating jobs and according to the NCSI (2017) in 2016 the total number of employees working in hotel activities were 12,441 about 29.2% Omani and 70.8% non-Omani. This increase in the number of visitors might refer to the rapid development in the wider tourism industry recently (oxfordbusinessgroup.com 2017). It might also refer to the new strategy of tourism launched in 2016, regional geo-political factors and international trends in luxury tourism (oxfordbusinessgroup.com 2017). In addition, the strong reputation of the country as a safe destination was behind the increase in European tourists (oxfordbusinessgroup.com 2017). Another reason is the digital marketing campaign launched in late 2017 to reach different markets like Europe, China and India (oxfordbusinessgroup.com 2017). This campaign was acknowledged when the

Ministry of Tourism got the "Best Usage of Social Media" award at the Arab Travel Market Expo 2017 held in Dubai (oxfordbusinessgroup.com 2017). The country has been promoted as the best responsible tourism destination by constituting green lodges and heritage houses (oxfordbusinessgroup.com 2017). In addition to these achievements, the promotion strategy of the Ministry of Tourism including establishing representative offices in countries that supply the largest number of tourists like the UK, Australia, and Germany (Ministry of Information 2011). Overall, the rich natural and man-made resources attract tourists with different interests, so they are coming for different purposes like business, heritage, culture or cruises.

Over the past few years cruise tourism has witnessed a steady growth making it one of the fastest growing sectors in terms of tourists visiting the country (Nair 2017, p.1). The Ministry of Tourism has been promoting the country to the cruise market because it sees that they are the gateway to discover the rich culture and the beauty of Oman (TimesofOman.com 2017). According to a managing director of one of the travel agencies in Oman, "Oman has a huge potential for cruise tourism because visitors see Oman as the safest place in the region" (TimesofOman.com 2017, p.1). According to him, many cruise tourists come back to visit the country for a longer stay after their short cruise holiday, thus this market should be treated as an important segment of the market tourism industry (TimesofOman.com 2016). Due to this, there were many promotional campaigns launched in order to promote Oman as cruise destination, for example the Ministry of Tourism has worked jointly with Tourism Directorates of Dubai and Abu Dhabi to promote and introduce the Gulf area for cruise lines under one umbrella called Cruise Arabia (Ministry of Tourism 2017). Furthermore, cruise industry will also contribute in creating more job opportunities for locals and small and medium enterprises (TimesofOman.com 2016a, 2016b). For example, many four-wheel drives, taxis and busses are required to transport the tourists to different attractions in the country; in addition, multi-lingual tour guides are necessary (TimesofOman.com 2016a, 2016b). In 2014 there were 109 cruises anchored at Sultan Qaboos Port compared to 2015 were the number of cruises increased to 135 representing a 23.8% increase (TimesofOman.com 2017). The number of cruisers has increased from 125,375 (2014) to 148,000 (2015) (Tourism Index Report 2015). **Figure 5-3** shows the cruise tourists statistics from October 2015 to June 2016. The Figure shows the total number of cruise passengers who visited the country (215,266) and those who were planning to visit the country until June 2016 (165,000). It also

shows the number of current and to be made calls in all tourist ports of the country in Muscat Sultan Qaboos Port, Khasab Port and Salalah Port. The total number of vessels are also presented in the **Figure 5-3** that are 129 visited and 99 to be visited. According to the National Centre for statistics and information in January 2017 around 46,000 cruise ship visitors visited Oman, among them 88% were from Europe and out of that 27% were Germens (TimesofOman.com 2017). Representative from the Ministry of Tourism declared the increase in the number of cruise ships in 2015-16 to 230 international cruise lines from 187 in 2014-15 and 177 in 2013-14 (Yousuf 2017). According to a representative from the Ministry of Tourism the cruise tourist spending was $100 (ROM 38), therefore the increase in the number of cruise tourists will result in an economic surge (Yousuf 2017).

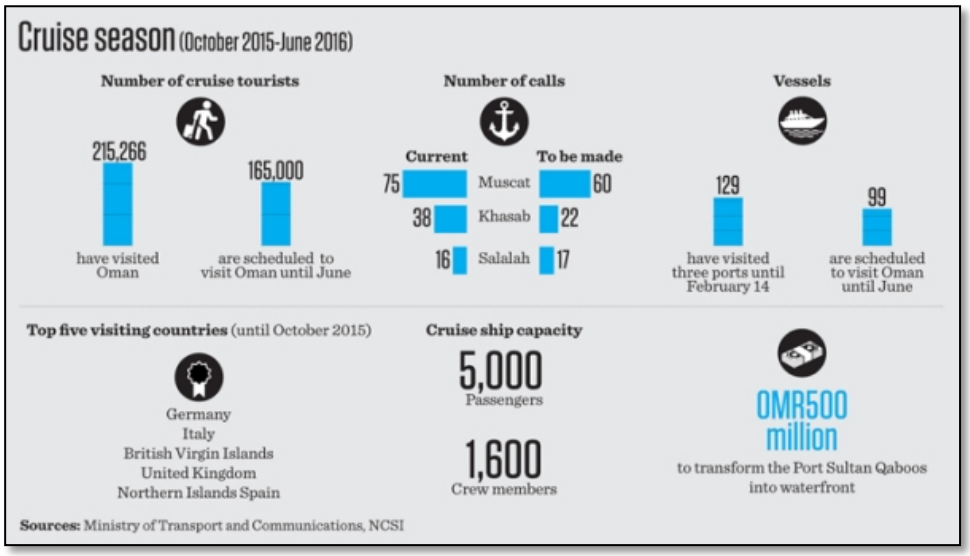
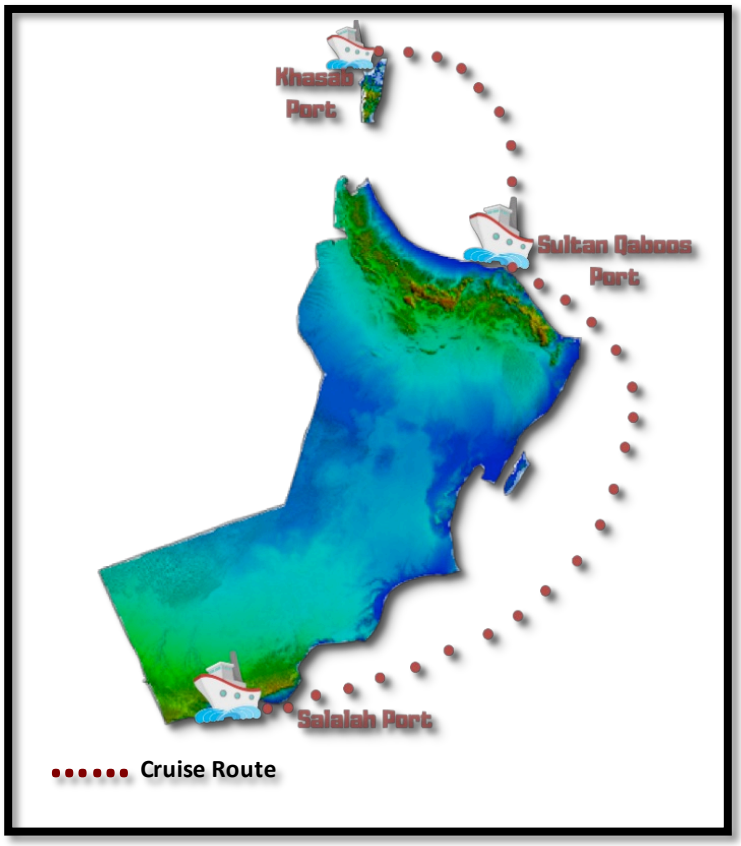


Figure 5-3. Cruise Tourists (October 2015-June 2016)
Source: http://timesofoman.com/article/77851 (2016)

Many international cruises visited the country in 2017 like Seabourn Encore, AIDA stella, MV Minerva, Oceania Nautica, Azamara Journey, Seven Seas Voyager, Crystal Symphony, Celebrity Constellation, Mein Schff5 Costa Cruises, MSC Cruises, TUI Cruises, Carnival Cruises, the Royal Caribbean Cruises, Fred Olsen cruise and Anthem of Seas (TimesofOman.com 2016a; Nair 2017; TimesofOman.com 2017; Yousuf 2017). Some cruises when visiting Oman, follow a round trip from Dubai, to Bahrain and to Oman (TimesofOman.com 2017). The three main ports receiving cruises ships in Oman are Sultan Qaboos Port, Khasab Port and Salalah Port **(See Map 5-2** for the cruise routes and the location of each port). Sultan Qaboos Port is the main port for

cruise liners and it is located in Muttrah in the Capital of Muscat, in addition there are other two ports in Khasab (Musandam) and Salalah (Dhofar) in the South (Marhaba Oman 2015). According to The Telegraph the Sultan Qaboos Port was considered as one of the World's most beautiful Ports in 2014 (Telegraph 2014). The Ministry of tourism has added many facilities and activities for the cruise ship visitors in the ports (Sultan Qaboos Port, Khasab Port and Salalah Port) to enjoy such as different water sport activities ranging from diving and surfing to traditional boating experiences (TimesofOman.com 2017). One of the challenges mentioned by one of the shipping agent director is that "liners are constructing larger ships, with larger lengths and hence ports will have to be modernized with longer berths and marine equipment to safely handle these ships" (TimesofOman.com 2017). The country is now developing the waterfront of Sultan Qaboos Port which will give a boost to the cruise ship business (TimesofOman.com 2016a).



Map 5-2. Ports Location and Cruise Route
(Author 2018)

All these efforts and resources are not separated from the effect of the internal and external (natural and human-induced) emergencies as well as this, tourism can be a

source of threat to a country; therefore, there should be consideration and planning to protect the tourists, locals and resources. The position of Oman as a destination in the model of the area life cycle of Butler (1980) is in the development stage as shown in **Figure 5-4**. The reasons for placing Oman in the development stage are the tourism industry is becoming a vital source of income, the increasing number tourists, the establishment of many projects and the attraction of more investments.

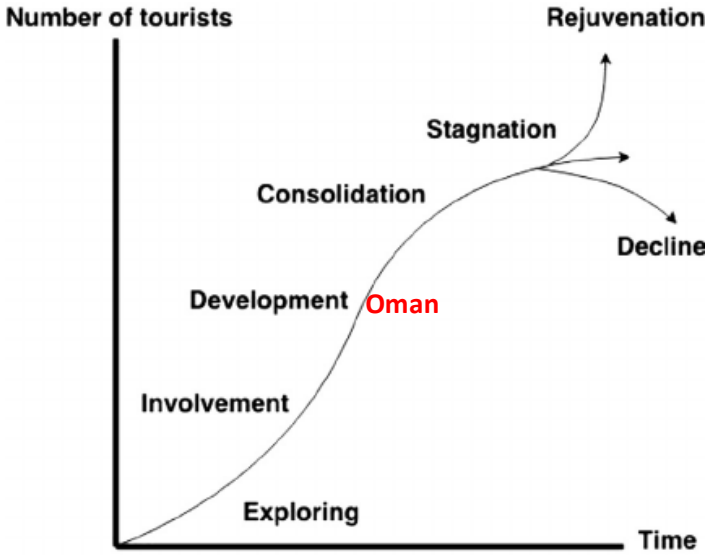


Figure 5-4. Positioning Oman in the Butler Model

Source: Adapted After Butler (1980)

This stage requires more safety and security procedures and increasing the awareness of disasters among the industry stakeholders, in order to maintain its market share and attract more investments. As clarified in chapter three, the tourism system consists of many components (Leiper 1979) and any disorder in one of them will affect the others (Henderson 2007; Ritchie 2009). If natural or human-induced hazards affect tourism, it will affect negatively the destination image according to Huan et al. (2004); therefore, affecting tourists' perceptions may results in a negative economic impact (Paraskevas and Arendell 2007). Contrary to this, a positive image can contribute to a positive reputation in the long-term and thereby increase the popularity of the destination (Paraskevas and Arendell 2007). Paraskevas and Arendell (2007) declared that showing tourists the preparedness of the destination to any incident would have positive effect on its image, which results positively on the local economy; this model was used to examine the impact of crises on tourism destinations by Hitchock and Putra (2005) after the Bali bombing in 2002, and by Cohen (2008) to examine the

effect of the tsunami on Thailand. Similarly, Moss et al. (2003) have used the model for two terrorist acts; the Twin Towers in New York and the Madrid train bombing. The next section highlights the emergency management system in Oman, in order to tackle how emergencies in tourism are managed in the country.

5.3 Emergency Management System in Oman

Al Hajri (2011) indicates that Oman is vulnerable to both natural and human induced hazards. For example, the Centre for Research on the Epidemiology of Disasters (CRED, cited in Al-Shaqsi 2010) highlighted some of the major natural and man-made disasters that have happened in Oman over the last 50 years; country-wide heavy rain and floods in 1977, floods in Salalah 2003, the Nizwa bus crash in 2004, Cyclone Gonu in 2007, and the collapse of a building in Muscat in 2008. As the country is witnessing rapid economic growth and most of the economic projects are located in the coastal areas, this makes the people who are working there vulnerable to all kinds of incidents, such as industrial incidents, major road accidents, and epidemics (Al Hajri 2011). He added the country's location exposes it to many types of natural risks, such as: cyclones, floods, tsunamis, earthquakes and heat waves (Al Hajri 2011). The Sultanate has been working to manage emergencies since the beginning of the modern Omani renaissances when his Majesty assumed control of country in 1970. According to NCCD (2016) in 1988 the responsibility of handling any emergency was managed by four governmental departments (the Royal Oman Police, Ministry of Social Affairs, Ministry of Health, and Ministry of Interior). These organisations constituted two national emergency management committees called "The National Committee for Emergencies" and "The National Committee for Natural Disasters", they were later merged in 1999 into one committee to form the National Committee for Civil Defence (NCCD) which was only a small department, succeeding from the Civil Defence Directorate (CDD) of Royal Omani Police (ROP) (NCCD 2016). In the year 2002, the NCCD detached from the CDD and became a distinct entity under the ROP with an executive office to run its operations (NCCD 2016). Later in the year 2003 in order to make sure that the preparedness level in the country is at a good level, 8 specialised regional-level committees were formed under the NCCD in each region of the Sultanate (NCCD 2016). In the same year 2003, the ROP formed 7 specialised national emergency response teams; the media sector and public awareness, search and rescue, relief and shelter, emergency medical services, basic services sector, victims and missing persons affairs sector, and chemical response team (Al Shaqsi 2011). His

Majesty Sultan Qaboos ordered reforms in the NCCD after Gonu Cyclone in 2007 to become a more proactive entity rather than reactive and to equip it with the needed tools and equipment to enable it to do its roles to the fullest (NCCD 2016). It can be noticed that the development of the Omani emergency management system was subjected to the disasters that affected the country, which shows careful attention from the government to protect the people and the nation's resources. In 2008 after the effect of the Guno Cyclone, the NCCD again reformed to be chaired by the Inspector General of Police and Customs and directed by deputy inspector general of police and customs and members from different governmental organisations in **Figure 5-5.**

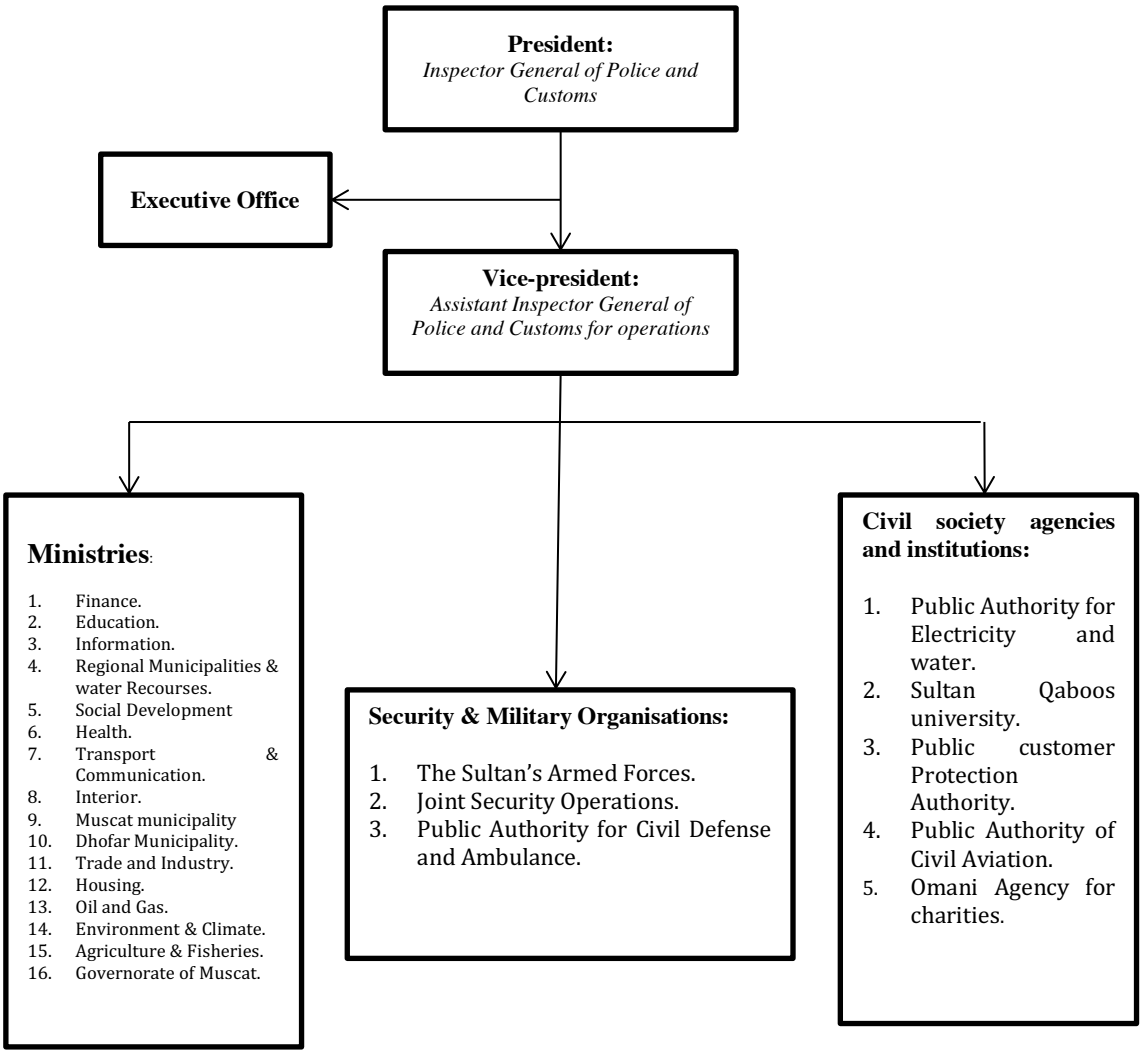


Figure 5-5. Organisational Chart of NCCD

(NCCD 2016)

The latest structure of the NCCD enables it to carry out many tasks and responsibilities in all 11 Governorates around the country. The NCCD it is responsible for illustration of the key protocols and policies for governmental departments in a national emergency, designing of national disaster management plans, development, maintenance, supervision of the work of sub-committees in all Governorates, and gauging the role and participation of subcommittees in the Civil Defence response. However, Al Hajri (2011) and Al Shaqsi (2011) mention some challenges in the National Disaster management System in Oman. These are it is a reactive rather than proactive, there are some issues related to communication and coordination among the involved agencies, there is no national database that can be shared between different organisations, there is an overlap of some roles who is in charge of certain things, there is a limited involvement of the private sector and NGOs and the local community is not involved. Al Shaqsi (2011, p.12) states, "The response to emergencies in Oman follows a tiered system. The local level response is under-developed and field observations from recent natural disasters indicate that local authorities are unprepared to handle emergencies and therefore regional and national support is almost always needed." The work of the system has been designed and explained by the Royal Decrees of his Majesty, the Civil Defence Law number 76/1991 (MLA 1991), and the State of Emergency Law number 75/2008 (MLA 2008) as they divided the incidents into minor and major, while the response is divided into four levels; Local "Bronze", Regional "Silver", National "gold", and International "black**" (Figure 5-6)** (Al Shaqsi 2011; NCCD 2016). The first two response levels of international and national are dealing with major incidents, while regional and local levels are responsible for dealing with minor incidents. In the highest-level, black lead by His Majesty, cases at international level are dealt with. While the gold level includes representatives like NCCD to deal with natural disasters and the Committee for Joint Security Operations (CJSO) to deal with security crisis. Both committees follow the National Security Council (NSC), which is responsible for supervising all authorities in all the phases of emergencies; risk reduction, readiness, response, and recovery. The local and regional response levels deal with minor emergencies by providing the local requirements and measuring hazards in coordination with local governors and other representatives from different authorities within the governorate like police and health, etc., and the NCCD.

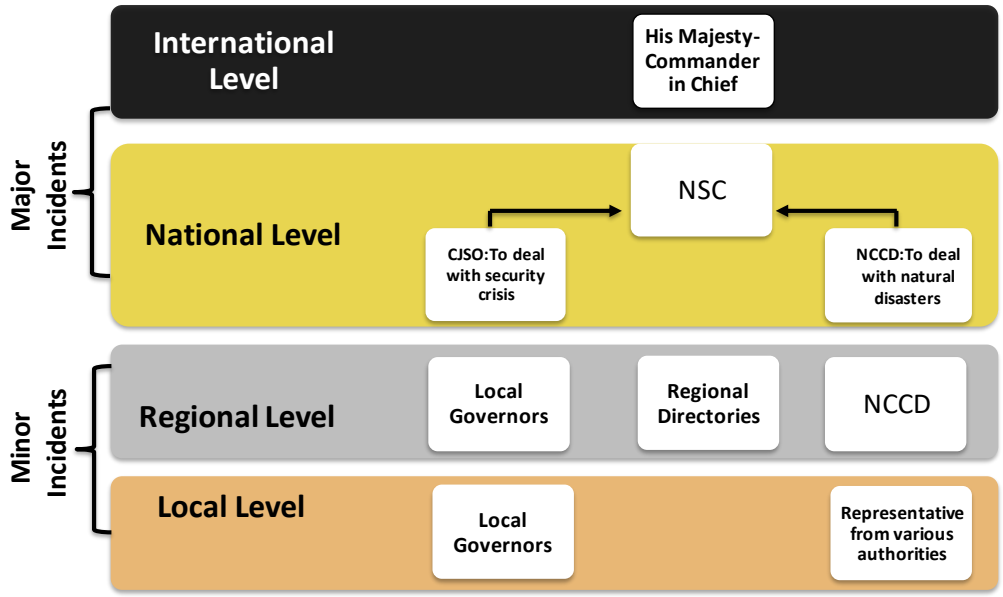


Figure 5-6. The Omani Emergency Response System

Source: Amended from NCCD (2016)

The response process according to the NCCD (2016) is managed by seven sectors **(Table 5-1)** that were identified to manage different types of emergencies and to cope with any event at any stage.

Table 5-1. Sectors of NCCD

Sector Name	Tasks
The Media and Public awareness Sector	• Management of notifying conditions • Issue the warnings and guidance to reduce the effect of the condition • Increase the public awareness regarding the severity of the condition
Search and Rescue Sector	• Regulating and coordinating the search and rescue operations (in land, marine and air help) • Supporting the capabilities and potentials in this field
Relief and Shelter Sector	• Providing and managing shelter centre • Providing store and transport • Distributing required resources like water, food, clothes, medicine and others
Medical Response and Public Health Sector	• Providing the healthcare and treating the victims • Dealing with the affections, diseases and epidemics • Retaining the medical and treatment facilities

Basic Services Sector	● Making sure the return of basic services and send them to the affected areas
Hazardous Material Sector	● Responding to an accident of dangerous substances (radiation, chemical and biological)
Victims and Missing Persons Affairs Sector	● Receiving the enquiries and notifications about the victims and missing persons ● Providing the related information to deal with their relatives ● Identifying the victims

Source: NCCD (2016)

As it is clear from the previous paragraphs about the emergency management system in Oman and the Executive office of NCCD roles and responsibilities that this system can be criticised for several reasons. First, the focus and the efforts of the executive office are directed towards the response phase, although managing an emergency passes through different phases of mitigation, preparedness, response and recovery. It is more reactive than proactive, as it should be. The old structure is also criticised because it is not easy for the executive office with its response sectors in **Table 5-1** to assign every single and potential hazard for each sector or organisation in the country and prepare a preparedness measure. So, participants should be involved from the earlier stages in each system. So, they should identify the potential hazards, they should prepare for it, respond in time of emergency and recover from it. The executive office can help them with consultation for the mitigation measures, revise their plans and help them to provide the identified resources for response. For example, the executive office cannot identify all the possible hazards that might affect the tourism industry, how to prepare for them and respond to them. The tourism sector is more familiar in identifying its potential hazards. Third, in the response sectors responders should not only be familiar with their roles, but should also know and understand the roles of others, which facilitate interaction (Alexander 2016). Fourth, these response sectors were constituted after Guno cyclone, so they have been selected based on what was needed to be done not based on previous identification of hazards or preparedness. Although this research has highlighted the need for the tourism industry to be fully engaged in the emergency system management, it can be seen from the structure of the NCCD that there is no seat for the Ministry of Tourism. This is in direct contrast to the country's economic plan, which recognises how an important and promising sector like tourism should exist at every stage of emergency management or planning. Furthermore, the private sector that works under the tourism sector umbrella, like

hotels, tour operators, travel agencies, transport companies and cruise ships should also be part of the emergency systems. So, if they are not involved, they will remain unprepared and unaware of what might happen as well as depending on the executive office of the NCCD to handle any incident. Moreover, even the Ministry of Foreign Affairs has no seat, which raises the question of how the country will react in the case of an incident that affects international tourists visiting the country and who will contact their embassies. Thus, the participation of these Ministries is important, especially in the planning stage. Overall the NCCD is the organisation responsible in Oman for handling the natural and human-induced hazards in cooperation with many agencies and authorities, whether affecting the country generally, or the tourism sector specifically.

5.4 Summary

This chapter highlighted the location of Oman, its population and the current situation of the emergency management systems and the tourism industry. Although the country is working towards developing tourism as a source of income and increasing the number of projects in order to attract more tourists, the Ministry of Tourism has no seat in the National Committee for Civil Defence with other Ministries. As tourism can be affected by different types of hazards, it can be a source of economic threat in the face of negative events. Thus, the system of managing emergencies was explained, specifically with respect to the tourism industry. Finally, the main authorities responsible for providing a well-protected maritime environment for cruise ships were outlined.

Chapter 6: Research Approach

6.1 Introduction

This chapter explains the methods that have been used. It starts with addressing the research aim and the related objectives, by identifying how each research question is addressed to achieve the research objectives. The research philosophy (interpretivism and subjectivism) is discussed together with the rationale for the selection of the appropriate methodology (qualitative and inductive). The chapter sets out the procedure used in designing the survey instrument and collecting the data using semi-structured interviews. The chapter also provides the sample selection and the data analysis strategies (thematic and content analysis). Finally, it emphasises the ethical considerations, highlights reliability and validity whilst identifying the limitations of the study.

6.2 The Research Aim and Objectives

The purpose of this study is to develop the concept of an integrated emergency response system for the tourism industry, using a building block scenario in the context of complexity. The objectives of this study are:

- To critically review complexity in relation to emergency response planning;
- To draw on the complex adaptive system similarities within the tourism industry;
- To examine the specific challenges presented by the cruise-ship industry when undertaking emergency responses;
- To evaluate the capability of the emergency response system of Oman when responding to emergency scenarios on or off shore;
- To identify European cruise lines' capabilities, requirements and challenges when responding to emergency scenarios near to, or alongside, a destination;
- To develop the concept of an integrated emergency response system for the tourism industry.

The first objective was addressed in chapter two by reviewing complexity, complexity theory and complex system to gain a broad insight into the nature of emergencies. In addition, it discussed planning and planning theory in order to establish the context for planning for emergencies with focus on strategic and scenario planning. Then, the chapter highlighted the four stages of emergency management with focus on the response phase. The third chapter fulfilled the second objective by explaining how the

tourism system works as a complex adaptive system. It also highlighted required components to ensure the effectiveness of the emergency response system and its resilience. The third objective was addressed in chapter four by discussing the cases of Costa Concordia, MV Sewol Korean Ferry and Norman Atlantic, to highlight the challenges faced by cruise ships when responding to emergencies. The identification of the local capabilities of the emergency response system in the fourth objective were fulfilled through the semi-structured interviews in Oman. The fifth objective, with respect to identifying capabilities, requirements and challenges for European cruise lines, was fulfilled through the online semi-structured interviews. The last objective was achieved through the research outcome by developing the concept of an integrated emergency response system for the tourism industry.

6.3 Research Questions

The main research question is **How to develop the concept of an integrated emergency response system for the tourism industry?**

1. What are the emergency response system capabilities within Oman when responding to an emergency on or off shore?
2. How can emergency management services assist the tourism industry in Oman?
3. How can the Omani tourism sector assist and enhance emergency response capabilities?
4. How can the Omani tourism sector be better integrated with emergency response planning?
5. What capabilities and capacities do cruise ships have when responding to emergency scenarios near to, or alongside, a destination?
6. What additional capabilities and capacities do cruise ships require from a destination's emergency services and local authorities in the event of an emergency scenario?
7. What are the potential deficits that might challenge cruise ships as a result of an analysis of their requirements within the given scenarios?

6.4 Research Philosophy

Research philosophy according to Wilson (2010) relates to the development of knowledge and contains assumptions as to how the researcher views the world. Saunder et al (2016, p.124) define research philosophy as "a system of beliefs and assumptions about the development of knowledge". These assumptions might relate

to the human knowledge called epistemological assumptions or might relate to the realities the researcher encounters in their research, called the ontological assumptions, or relate to the values that influence the research process, called axiological assumptions (Saunder et al. 2016). The importance of getting familiar with all these assumptions, according to Crotty (1998) and Eriksson and Kovalainen (2008), is that they can enhance the understanding of research questions, methods used for data collection and how to report the findings. Since research methods are closely connected to research philosophy, they help researchers come up with new knowledge through research (Eriksson and Kovalainen 2008). In addition, understanding research philosophy helps researchers to identify the research design and strategy by identifying the required type of evidence and how it is to be collected and understood (Easterby-Smith et al. 2002; Eriksson and Kovalainen 2008). This, in turn establishes a clear direction for the research in terms of how to progress from the research questions to the conclusions (Eriksson and Kovalainen 2008; Wilson 2010). Moreover, it enables the researcher to find and apply a research design even with the existing limitations in diverse fields or "knowledge structure". Thus, any research must be outlined by philosophical perspectives (ontology and epistemology) and theoretical perspectives (methodology and methods) (Crotty 1998; Creswell 2008).

Blaikie (1993) defines the root of ontology as "the science or study of being" and for the social sciences it includes "claims about what exists, what it looks like, what units make it up and how these units interact with each other". According to Matthews and Ross (2010, p.24), ontology refers to "the way the social world and the social phenomena or entities that makes it up are viewed." These questions of "how is that reality measured" and "what constitutes knowledge of that reality" lead to the explanation of epistemology (Flowers 2009). It is crucial for researchers to consider the epistemology because it provides a philosophical background for determining the type of knowledge that will be examined and how we can ensure they are acceptable and valid (Maynard 1994). Epistemology deals with the nature of the knowledge, its possibility, its extent and validity (Hamlyn 1995; O'Grman 2008), which means, how we consider our surroundings (Wilson 2010, p.9). Epistemology according to Matthews and Ross, (2010) when studying a social phenomenon is what can be considered as knowledge and what is the acceptable type of knowledge that helps the researcher to examine certain phenomena. Its main questions are what acceptable knowledge is, what is knowledge and what are the sources and limits of the knowledge

and how and what is possible to know (Chia 2002; Eriksson and Kovalainen 2008; Wilson 2010). Epistemology questions consider the research method (Chia 2002; Flowers 2009) and reflect on standards that generate the reliable and verifiable knowledge (Chia 2002). In this study for example complexity or the complex nature of emergency is ontology, it is something real inherent in their nature. While the used frameworks or strategies to respond to them are an epistemology. Therefore, the epistemology in this study is the complexity and planning theories, emergency management cycle and emergency response system. In addition to tourism emergency management and gaining knowledge on how those incidents affected the cruise-ship industry. When highlighting ontology and epistemology it is important to consider their different positions.

There are two positions of the ontology and epistemology - objectivism and subjectivism. Objectivism means that the knowledge and reality already exist, thus, the relationship between the researcher and studied object is independent (Crotty 1998; Matthews and Ross 2010). It means there is no effect of the researcher (interpretation or experience) on the social world or social phenomena (Crotty 1998; Matthews and Ross 2010; Saunder et al. 2016). Another position of ontology and epistemology is subjective, where reality and knowledge are constructed because of the interaction between the researcher and the social world and social phenomena (Crotty 1998; Lewis-Beck et al. 2004; Matthews and Ross 2010). In this case, according to Saunder et al (2016) the researcher has to investigate the case in detail to get familiar with what is happening and how people experience realities. This study is guided by the subjectivism philosophical assumption where the researcher had an interaction with the participants through semi-structured interviews and focus-groups interviews. The analysed data helped to fill the gap in knowledge or to construct knowledge on how to develop the concept of an integrated emergency response system for the tourism industry. **Table. 6-1** presents a clear explanation of those philosophical assumptions. For example, Illing and Piaget (1955) mentioned that children construct their own knowledge by experience rather than absorbing what educators teach them or tell them. Flowers (2009) suggests that ontology describes our view (claim or assumption) on the nature of the objective reality that exists or the subjective reality that we create in our mind. Hatch and Cunliffe (2006) mentioned two examples of that, relating the first example to daily life and the second example to the social science. The first example is linked to the work report by asking is it telling what is going on in reality or what

the writer thinks is going on or does it reflect the thinking of the writer. The second example asks whether different phenomena like culture, power or control really exist or are an illusion. How do people establish different realities, by experience (subjectivism) or do they exist independently of those who live it (objectivism) (Hatch and Cunliffe 2006).

Table 6-1. Philosophical Assumptions

Assumption type	Questions	Continua with two sets of extremes	
		Objectivism	***Subjectivism***
Ontology	What is the nature of reality?	Real	Nominal/decided by convention
	What does the world look like?	External	Socially constructed
	For example: What are organisations like?	One true reality (universalism)	Multiple realities (relativism)
	What is like being in organization?	Granular (things)	Flowing (Processes)
	What is it like being a manager or being managed?	Order	Chaos
Epistemology	How can we know what we know?	Adopt assumptions of natural scientist	Adopt assumptions of the arts and humanities
	What is considered acceptable knowledge?	Facts	Opinions
	What constitutes good-quality data?	Numbers	Narratives
	What kind of contribution to knowledge can be made?	Observable phenomena Law-like generalisations	Attributed meanings Individuals and contexts specifics

Source: Saunder et al. (2016, p.129)

The origin of knowledge and its development are called paradigm, this "refers to the progress of scientific practice based on people's philosophies and assumptions about the world and the nature of knowledge; in this context, how research should be conducted" (Hussey and Hussey 1997, p. 47). The researcher is advised to remain within their research paradigm once it is identified (Kuhn 1971). Hussey and Hussey (1997) also claim that researchers need to know and understand the philosophical

orientations within the implemented paradigm for their research. This is because according to Harre' (1987, p.3) a paradigm is considered to be "a combination of a metaphysical theory about the nature of the objects in a certain field of interest and a consequential method which is tailor-made to acquire knowledge of those objects." There are two main philosophical paradigms in the social sciences: positivist and interpretivist. Matthews and Ross (2010) argue that positivism is an epistemological position that emphasises that knowledge of a social phenomenon is based on what can be perceived and noted rather than individual considerations. The positivist approach means collecting quantitative data, measuring the aspects of the social world and social phenomenon, tackling the relationship between different variables in the social world and analysing data statistically (Matthews and Ross 2010). Interpretivism is "an epistemological position that priorities people's subjective interpretations and understandings of social phenomena and their own actions" (Matthews and Ross 2010, p.28). Interpretivism is the "systematic analysis of socially meaningful action through the direct detailed observation of people in natural settings in order to arrive at understandings and interpretations of how people create and maintain their social world" (Neuman 2006, p. 71). The interpretivist approach means collecting qualitative data, working with subjective meaning and interpreting it within a specific context and research should have "empathetic" understanding. **Table. 6-2** shows the difference between the positivists and interpretivist paradigm.

Table 6-2. The Differences between the Positivists and Interpretivist Paradigm.

Positivist Paradigm	Interpretivist Paradigm
Focus on facts	Focus on meaning (s)
Look for causality and fundamental meaning	Try to understand what is happening
Reduce Phenomena to simplest elements	Look at the totality of each situation
Formulate hypothesis and test them	Develop ideas through induction from the data
Operationalize concepts so that they can be measured	Use multiple methods to establish different views of phenomena
Take large samples	Small samples investigated in depth over time

Source: O'Gorman et al. (2014, p.61)

The interpretivist paradigm is preferred by the qualitative researchers because they find that the participant's words add more value to their subjective meanings rather

than statistical data (Lazar 2001). In the interpretive paradigm, the knowledge is generated through the interaction between the researcher and the social world (Burrel and Morgan 1979).**Table. 6-3** summarises the differences between the positivist and interpretive paradigms in terms of nature of reality, type of knowledge, the role of the researcher and implications of findings.

Table 6-3. The Difference between the Positivist and Interpretive Paradigms

The Nature of Reality	
Positivist	There is a single, uniform reality that researchers attempt to measure in a precise, objective, and neutral manner.
Interpretive Constructionist (Naturalistic)	Meanings and understandings are plural; individuals and groups see and interpret reality through their own lenses. Understanding is subjective.
Types of Knowledge Sought	
Positivist	The goal is to obtain theories that are (nearly) universal in their implications. Usually uses quantitative measures to show relationship between a small number of variables abstracted from context. Looking for general tendencies often ignores the particular.
Interpretive Constructionist (Naturalistic)	The goal is to describe particular events, processes, or culture from the perspective of the participants, usually using qualitative techniques. Specifies the conditions under which themes seem to hold. Interested in contending and overlapping versions of reality; many truths possible
The Role of the Researcher	
Positivist	Neutral-objective person with an authoritative voice in write-up.
Interpretive Constructionist (Naturalistic)	A respectful listener or observer of other peoples' worlds who recognizes that his or her own slant affects what is learned; less authoritative in write-up than positivists, leaves more room for participants' contending or overlapping views.
Implications of Findings	
Positivist	Data gathering is meant to move toward universal theories and prediction of behavior; information can be used in practice, but that is not the core purpose of research.
Interpretive Constructionist (Naturalistic)	Descriptions and analysis foster understanding of political, social, and cultural processes and practices; may be relevant to theory or may be the basis of proposed action.

Source: Rubin and Rubin (2012, p.22-23)

This study is guided by an interpretivism approach because it aims to fulfil the research objectives and construct new knowledge from the participants' perspectives by using

qualitative tools like semi-structured interviews. The specific findings will not be generalised, but the intention of the researcher is to add new insights into the field of study. Therefore, interpretivism is essential in this study in order to get more information from interviewees regarding their views and perceptions for better understanding and interpretation of the studied phenomena.

6.5 Research Methodology

Crotty (1998, p.3) defines methodology as "the strategy, plan of action, processor design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes". LeCompte et al. (1993) on the other hand, state that the methodology clearly focuses on the research aims, questions, and information that is most appropriate for answering the questions and strategies that are most effective for obtaining the necessary information. Thus, the research question, the nature of data to be collected and analysed to answer the research questions determine the appropriate research approach or methodology (quantitative or qualitative) (Matthews and Ross 2010). The main distinction between them is that quantitative research is usually connected with numerical data (Wilson 2010; Saunder et al. 2016) whereas qualitative research is not, qualitative data might be words, images, video clips and other similar materials (Wilson 2010; Saunder et al. 2016). In addition, quantitative research design uses quantitative tools for data collection (questionnaires) and data analysis procedures (statistics or graphs) (Saunder et al. 2016). While, qualitative research uses non-quantitative data collection methods (e.g. interviews or focus groups) and analysis methods (categorising data) to explore social relations and describe reality as practiced by participants **(**Saunder et al. 2016**;** John et al. 2014**).** Referring to what has been discussed earlier on research philosophy, the quantitative approach is grounded in the positivism paradigm while qualitative research is embedded in the interpretivism paradigm (Creswell 1994). This study is qualitative due to the nature of the research question: how to develop the concept of an integrated emergency response system for the tourism industry?

According to Philips (1997) there are several and general shared disciplinary interests between disaster and qualitative research. First, qualitative research can be found in different areas that contribute to disaster and hazards research like education, political sciences, nursing, sociology, psychology, anthropology, social work, communication, family studies and health studies (Philips 1997). For example, this study covers the

emergency response to complex emergencies generally, and specifically highlights the cruise-ship sector of tourism. Second, there is an increase in the use of the qualitative research that results in contribution to knowledge, which results in the increased use of qualitative research in are of disaster (Philips 1997). For example, according to Philips (2014, p.17) the six most recent journals available between 2010 and 2012 revealed that 71% (12 of 17) of all articles in the International Journal of Mass Emergencies and Disasters used qualitative methods to cover different topics like relocations, popular culture, coping strategies, policies, preparedness, social media, recovery, gender and domestic violence. Moreover, 70% (7 of 10) of all articles on Environmental Hazards showed qualitative studies on community engagement, undocumented workers, participatory risk assessment, recovery, risk intervention, and relocation. Additionally, 45.5% (15 of 33) of all articles on Disasters highlighted research on psychological health, evacuation, risk reduction, behavioural reactions, inequalities, children, social vulnerability, agriculture, ethnicity and social networks, immunisations, preparedness, social vulnerability, relocations and risk communication. Third, Philips (1997) added that both pieces of research (qualitative research and disaster qualitative research) share common history, for example the increased interest and writings corresponded to the establishment of many disasters centres that have established the use of qualitative research. For example, the first Disaster Research Centre founded in 1962 at The Ohio State University valued an area based qualitative research methodology (Philips 2014). Fourth, the complex nature of an emergency and its unexpected consequences are considered as challenges for communities, thus "qualitative disaster research can capture human behaviour at its most open, realistic moments" (Philips 1997, p.185). So, researchers who use observation methods came up with relevant data to disasters that is helpful in building theories of human behaviour during emergency events (Philips 1997). Fifth, the qualitative research has the possibility to identify new and relevant questions because it is grounded in people's real experiences (Philips 1997). Similarly, to qualitative disaster research it has the possibility of identifying new questions because disaster researchers know that there are lessons learnt after each disaster (Philips 1997). For example, in this study through the interaction between the researcher and the participants, new lessons and questions have been identified as the participants did experience previous incidents (see analysis and conclusion chapters). Sixth, the thought of the qualitative research has more flexibility in the research design, which allows studies to raise and develop (Philips 2014). Doing so let researchers find out

and examine uncovered or unsolved issues that entail evidence-based solutions and explanations (Philips 2014). For example, qualitative studies highlighted different issues that came up with the establishment of citizen groups and volunteer organisations that try to tackle unfulfilled requirements (Stallings and Quarantelli 1985; Neal 1990; Enarson and Morrow 1998). In this study the aim is to develop a theoretical model of integration leading to practical implication.

Good qualitative research depends on abundant and deep information of research background (Geertz 1973) that helps provide context. For example, understanding when and where a disaster event will happen and its circumstances (Philips 1997). Accordingly, all this information helps the researcher when interpreting the data by linking and supporting what he has got to the available theory, as well as comparing them to their data that results in developing a detailed background for qualitative disaster research (Philips 1997). Similarly, in this study the researcher used rich data from the literature like the complexity theory in order to understand the nature of emergency as complex events and understand how tourism functions as a complex adaptive system. In addition to the literature of the planning and management of emergencies, the research also analysed the literature of emergency response systems and scenario planning and design; the latter helping to design the scenarios for this study (**See Appendix 6**). Qualitative research also allows people, who were involved directly in disasters, the chance to clarify their different standards, procedures, and roles (Olivers-Smith 1996). "As described by Sofaer (1999, p. 1105) they allow people to speak using their own expressions, rather than compliant to classifications and this imposed on them by others." For example, in this study the participants who witnessed the cyclones of Guno (2007) and Phet (2010) spoke clearly about their role and experiences and what was wrong and what they learnt for the future (See chapter 7).

There are two methodological approaches or styles of reasoning that are connected with research methods: inductive and deductive approaches (Wilson 2010; John et al. 2014**)**. The inductive approach is a theory-building process that operates from the specific to the general, starting with an observation of a specific variable to form a generalisation for other variables to fall under the same features, patterns or trends of the observed variable (Hyde 2000; John et al. 2014). On the other hand, a deductive approach applies a well-known theory, so it operates from the general to the specific, in this way a general set of suggestions linked to a specific case are narrowed down to a specific or single testable hypothesis *(*John et al. 2014; Hyde 2000). "Testing

hypotheses requires the application of relevant data, which may or may not confirm the original arguments in the theory" (John et al. 2014, p.10). The most prominent distinction between inductive and deductive approaches is that the former contributes to the theory and is associated with qualitative research (Wilson 2010, p.7) while the role of the deductive approach is developing a hypothesis and applying existing theory in order to test the hypothesis and is associated with quantitative research (Ghauri and Grohaug 2005, p.15; Wilson 2010, p.7). This study follows the inductive approach and begins with the general theory of complexity in order to understand the nature of emergencies as complex events. Then linking this theory to the planning theory comparing the degree of complexity and the different levels of planning, which is then opened to planning for emergency management in general, followed by an examination of the theory of planning for tourism emergency management in order to identify the gaps in integrating the tourism industry with emergency response planning. The relevant literature is critically reviewed to explore the fundamental aspects of such planning. The inductive approach was helpful to the study by building the general picture of emergency management in Oman, the emergency response system in general and in tourism specifically because there is very little literature written specifically about Oman.

6.5.1 Case Study Approach

A case study is an established research approach commonly used in the social sciences (Crowe et al. 2011). According to Baxter and Jack (2008) the aim of a case study approach is to enable researchers to deeply explore and understand the context of a certain phenomenon from different angles by using different data sources. The use of different methods in the case study approach depends on the context and research needs (Denscombe 2003). However, there is a debate whether a case study should be considered as a research method or research approach (Starman 2013). This misunderstanding of case studies, whether it is a type or a method of qualitative research (Gerrin 2004), results in them being ignored or confused with other types of social research (Thomas 2011). According to Mills et al. (2010) little research deals directly with case studies as a main approach, therefore there is a need for clear guidelines directing students and researchers as to how to design a case study and their use. Some authors view case studies as a qualitative research type (Sturman 1997; Verschuren 2003; Sagadin 2004; Stake 2005; Flyvbjerg 2006, 2011; Baxter and Jack 2008; Simons 2009). While some view case studies as a qualitative research method

(Gerring 2004; George and Bennett 2005), others, such as Starman (2013) argue that case studies may be qualitative or quantitative approaches or a combination of both. Simons (2009) and Stake (2005) support this view by saying that a case study may include several methods and the focus is on the case to be studied. A similar view is held by Flyvbjerg (2011) who explains that the selection of a case study in a research project does not mean a selection of a method, but it is a selection what is to be studied or explored. Although some authors use the term case study to refer to a research method (e.g. Crotty 1998; Finn et al. 2000), Denscombe (1998) states that case studies are a research strategy. In this respect Hammersely (1992) states that the researcher has the option to choose how many cases to cover and provide the justifications for the selection.

Gerring (2004) notes although there are several definitions of case studies, they cause confusion. To minimise this confusion Flyvbjerg (2011) emphasises the need for a general definition of case studies that contain less detailed descriptions. One of these general definitions is provided by Sturman (1997, p. 61) "a case study is a general term for the exploration of an individual, group or phenomenon". The case study of this definition according to Mesec (1998) is a research process and he defines it in the context of social work as "a description and analysis of an individual matter or case … with the purpose to identify variables, structures, forms and orders of interaction between participants in the situation (theoretical purpose), or, in order to assess the performance of work or progress in development (practical purpose) (383)". He adds that a case can fulfil both theoretical and practical purposes. Case studies are defined by Miles and Huberman (1994, p.25) as "a Phenomenon of some sort of occurring in a bounded context". Robson (2002, p. 178) defines a case study as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence". Mathew (2010) mentions that the focus of a case study might be a person, an organisation, a situation or a country. The cases of this study concentrate on different incidents that occurred on cruise ships and ferries, such as collisions, sinking and fires. Overall, different aims are used to deliver or present specific cases to explain, describe or explore an incident or phenomena (Yin 2009), therefore specifying the type of the case study.

Yin (2014) listed three types of case studies which refer to research types, namely: explanatory, exploratory and descriptive, stating that selecting the type of case study

depends on the research question to be answered, the extent the researcher will have over the studied events and whether the phenomena to be studied is contemporary or historical. He also identifies when to use each type. The aim of the exploratory case study is to collect information on a certain phenomenon to get a deep understanding, while the explanatory case aims to explain how events happened by tackling cause and effect relationships, while the descriptive case study describes a case within its context (Yin 1993; 2003; 2009). This study highlighted three exploratory case studies (Costa Concordia, Mv Sewol Korean Ferry and Norman Atlantic) to answer the research question: what the specific challenges are presented by the Cruise Ship industry when undertaking emergency responses. Thus, exploring such challenges was helpful for suggesting future integration between the destination Oman and the European Cruise lines by overcoming such challenges. Another case study provided in this study was a descriptive case study of the country Oman. The aim of this descriptive case study is to contextualise the Sultanate of Oman in order to get more knowledge and information on the tourism industry and its emergency management system. This information was helpful in fulfilling the fifth research objective.

Regarding these different types of cases, this study provides multiple exploratory case studies to identify the specific challenges presented by the Cruise Ship industry when undertaking emergency responses. The aim of adopting multi-cases is to tackle different challenges that hindered cruise lines from responding effectively. Therefore, improving study findings and providing solutions and suggestions for future incidents. Highlighting or exploring such case studies in the context of complexity theory allows the researcher to understand the dynamics of the tourism system and the interdependence between the different stakeholders. For example, the function of cruise ships and their relationship with stakeholders in the destination and the interactions. Whilst also understanding the sensitivity of the tourism industry and how incidents affecting cruise ships have cascading effects on the entire market. Moreover, it demonstrates the features of the complex system like nonlinearity and how a minor incident or action may result in a major consequence like the case of Costa Concordia, due to a change of the route, which led to the collision. These case studies presented unexpected incidents happening, for example a cruise featuring very advanced technology like Costa Concordia, Case of Norman Atlantic fire and the sinking of Mv Sewol Ferry. These cases also showed the interaction during the response phase within the cruise ships and between the cruise ship and the destination, destination and the

emergency services. This was a point to investigate the interaction between different elements in a system and the flow of behaviour within and among the system. In addition, the adaptiveness of the complex system was identified through adapting new polices after such incidents in all cases. The overview of the cruise market at the beginning of chapter four showed how the cruise industry evolved over time and how the increase of passenger capacity in cruise ships and previous incidents encouraged the adoption of more emergency procedures, plans and training. So, the history of the system (cruise industry) helps to provide a more comprehensive understanding of the current behaviour. Presenting three different cases showed the self-organisation of each system and how each system configures itself to its surroundings, depending on the incident, country and culture.

6.6 Research Design

Research design is described as the logical and consistent steps carried out to link the research questions to the data collection and analysis phases rationally (O'Gorman et al. 2014). Brewerton and Millward (2001) explained that the research design process has three levels of decision-making. The first level identifies the type of evidence required by deciding whether the investigation will be qualitative or quantitative or both. The second level identifies the type of strategy adopted by considering the actual design of the study. The third level identifies the type of research method that will be used to collect data and analyse it; this will be discussed later. Therefore, identifying the type of strategy, this study is exploratory research, which aims to find out "what is happening; to seek new insights; to ask questions and to assess phenomena in a new light" (Robson 2002, p.59). Three principal methods are used when conducting exploratory research (Saunders et al. 2009, p.140): first, a search of the literature, which in this study was a review of the literature on complexity and complexity theory to understand the nature of emergencies as complex events. The study also reviewed the complex and complex adaptive systems to analyse their relevance to the emergency response system and drew on the similarities found in the tourism industry. The literature on planning and planning theory was critically reviewed to establish the context of tourism emergency planning and to tackle the relationship between planning and complexity. The study discusses the complexity of emergency response in having a better integration between tourism and emergency organisations as well as highlighting the reliance of the emergency response system. Second, undertaking interviews with experts in the field. This study used semi-structured interviews with

tourism stakeholders and emergency services representatives in Oman in order to identify the capability of the emergency response system. In addition, semi-structured interviews aimed to identify the roles and responsibilities of the involved stakeholders during certain incidents. Furthermore, online semi-structured interviews were also conducted in Europe to identify the requirements of cruise ships when responding to emergency scenarios near to, or alongside, a destination. Finally, focus group interviews were conducted to validate the findings of the research. **Figure 6-1** shows the research approach of the study. It starts by identifying the research aim and ends with the data analysis tool that will be explained in the following.

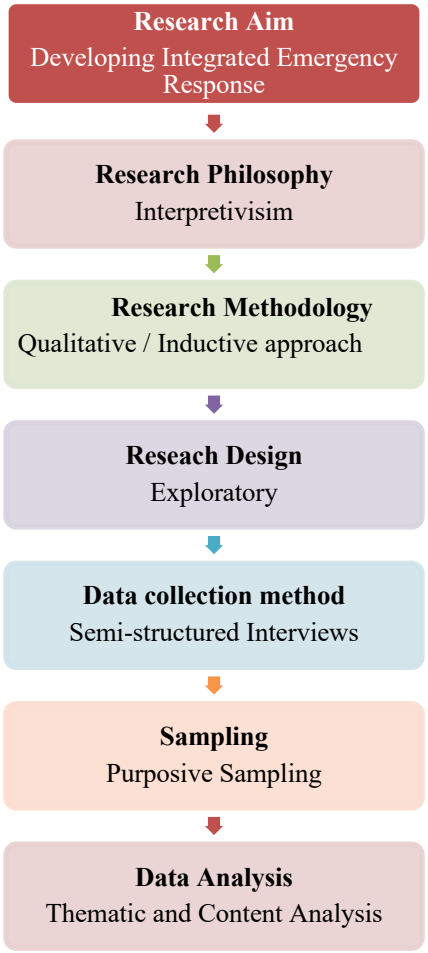


Figure 6-1. Research Approach of the Study

(Author 2018)

Williams (1954, p.8-9) states that the Committee on Disaster Studies at the U.S National Research Council (NRC) gave high priority to exploratory research: "In a field so complex and so little understood, it is felt that exploratory studies should made in many different disasters, to define the major variables and discover the repetitive phenomena". This study is exploratory in its approach. To direct the study semi-structured interviews are used (see Method of Primary Data Collection) to fulfil the fourth objective. These were conducted in Oman with the tourism and emergency representatives and stakeholders. In order to fulfil the fifth objective, online semi-structured interviews were used (see Method of Primary Data Collection).

6.7 Data Collection and Analysis

Type of Data

There are two sources of information used for research purposes: primary and secondary (Adams et al. 2014**).** Primary data is the data collected by the researcher in order to answer the research questions and fulfil the research objectives by using different methods like interviews, surveys or focus groups etc. (Matthews and Ross 2010). So, this data are not published. Secondary data includes information produced earlier by other researchers that is available in the form of databases, textbooks, journals, official documents, or archives (Matthews and Ross 2010; Saunder et al. 2016). Secondary data is easy and quick to get, and they are more all-inclusive, reliable, and more valid than primary data (Bryman 2008; Adams et al. 2014**).** Furthermore, researchers have the opportunity to generate new or different theories, knowledge, interpretation or conclusion from secondary data based on criticism and highlighting conflict points (Bryman 2008; Bulmer et al. 2009). The sources of secondary data for this study were the Bournemouth University Library books, journals, inter-library loans, as well as web sites, and magazines.

Method of Primary Data Collection

According to Jennings (2001, p.34) "a method is constituted of the tools for data collection and analysis". Mileti (1987, p.69) wrote in his review of research methods in the sociology of disasters "… from a methodological viewpoint, disaster research is hardly distinguishable from the general sociological enterprise." According to Stallings there has been little research dedicated to the topic of research methods on the topic of disasters. Although practical studies of disasters have highlighted data collection and analysis, few of them have discussed the methods used (2002). Cisin

and Clark (1962, p.23) state that "strictly, we cannot speak of the methods of disaster research; there are no special methods unique to this field. Its methods are the methods of social research …". The qualitative methods in disaster research are preferred because the researcher can get "thick description" (Geertz 1973) of specific issues or cases. Thick description refers to getting more detailed and rich data that describe, for example, the mitigation, preparedness, response or recovery measures or emergency management awareness as in the case of this study. An example is given by Norris et al. (2014) referring to a study in the early 1970s by Tony Oliver-Smith and Barbra Bode who individually, after the occurrence of an earthquake which hit Yungay, Peru and killed 70,000 and injured 140,000, provided detailed information of the affected community before**,** during and after the earthquake. This information was used as a basis for understanding certain elements of the psychosocial impact of the disaster on the survivors. Therefore, qualitative research methods, like interviews or focus groups, are used to gather data about social events or actions, phenomena or activities or behaviour or attitudes or experiences in order to gain a deep and clear understanding (Goodson and Phillimore 2004) as well as to get an in-depth opinion from participants (Dawson 2007). The widely used method in disaster research is interviews by its all-different types, and by combining them with other methods this enables researchers to improve validity and the reliability of the data and findings and facilitate the development of new questions for further research (Philips 1997). For example, where there is theoretically little to know about the topic in question, then an exploratory design can be used for such aspects as preparedness for, or response to, specific incidents (Hystad and Keller 2006; Walters and Clulow 2014). While for modelling, analysis or assessment of risk or vulnerability follow quantitative approaches (Helbin et al. 2005; Hu et al. 2007). **Table 6-4** presents an overview of the most common research methods applied in the area covered by this study that are tourism crisis and disaster planning and management, emergency response, scenario planning and crisis affecting the cruise ship industry.

Table 6-4. An Overview of the Most Common Research Methods Applied

Topics area	Methods used	Authors in the field
Tourism crisis and Disaster Planning and management/ Emergency Response	Critical Review of previous studies, systematic review, interviews and survey, in-depth interviews, focus groups, observation, Delphi scenario technique, Systematic observation	Mair et al. 2016; Morakabati et al. 2016;Walters and Clulow 2014; kim 2014; Becken and Hughey 2013; Beirman 2011; Becker 2007; Paraskevas 2006;Evans and Elphick 2005; Ritchie 2004;Johnston and Tierney 2003.
Scenario planning/ method	Scenario-design workshop, review literature in the context of scenario planning, scenario-based training,	Lundberg et al.2012; Page et al. 2010 ; Moats et el. 2008; Pollard and Hotho 2006; Alexander 2000.
Crisis affecting Cruise Ship industry	Questionnaire, interviews, content analysis, in depth case study, analysing quantitively time series and cross-sectional dimensions of past cruise incidents.	Radic 2016; Mileski et al. 2014.Brown et al. 2013.

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In the context of this study, semi-structured interviews were used for collecting data. Semi-structured interviews are conversation style interviews and are associated with a qualitative methodology (Jennings 2005, p.100-101). Qualitative interviewing is considered more difficult than quantitative interviewing (that is more used in survey approaches) since it is requires communication and interaction with people (Jennings 2005; Edwards and Holland 2013) as it requires specific skills different than the ordinary conversation and needs extensive practice (Rubin 1995, p.2). Interviews are a flexible research method (Breakwell 1995) because they can be used at any stage of the research process, starting from the initial phases to the validation of results collected by different methods (Brewerton and Millward 2001). In addition, interviews can be used collectively with other research methods (Brewerton and Millward 2001). However, interviews have high level of biases and weaknesses because it is not easy to achieve high levels of reliability and validity (Brewerton and Millward 2001). In order to answer the research questions and get the required data, there are different types of interviews: structured interviews, unstructured interviews and semi-structured interviews (Brewerton and Millward 2001). The first type-structured interviews have

a set of fixed questions in a specific order (Brewerton and Millward 2001; Saunders et al. 2016). Structures interviews do not allow the researcher to ask further questions or to probe the interviewee into further areas of interest and the interviewer may present the interviewee with a set of answers from which to choose (Brewerton and Millward 2001; Matthews and Ross: 2010). Unstructured interviews are more open and give the researcher the ability to ask any or all of a given number of topics to answer the research questions, so questions are not in a predetermined order (Brewerton and Millward 2001; Saunders et al. 2016). In addition, participants are free to talk about the topic in their own way (Matthews and Ross 2010; Saunders et al. 2016). Semi-structured interviews combine both a fixed list of questions under specific themes as well as the ability to probe in more depth areas of interest (Brewerton and Millward 2001; Jennings 2005; Saunders et al. 2016). In addition, interviewees are able to explain their responses and to provide further information (Brewerton and Millward 2001). What also differentiates structured from semi-structured and unstructured interviews is the extent to which the researcher can have control over the nature of the responses and the length of the answers allowed by the respondent (Denscombe 2003, p.167). Semi-structured interviews combine the flexibility of the unstructured interviews with the comparability of the structured interviews (Finn et al. 2000). Thus, certain topics can be examined, by asking similar questions, for gathering comparative data. At the same time, the researcher can change the order of topics to gather detailed and extra information (Gilbert 1993). In addition, the interviewees are allowed to develop their own ideas and to follow the thoughts, they believe to be associated with the researched issue (Denscombe 1998) and it usually tends to discover new thoughts, rather than check previous ideas (Denscombe 1998). The advantages of conducting semi-structured interviews are they are easily available for analysis, interviewees have more opportunities to explain their responses and they provide more accurate information when needed (Brewerton and Millward 2001).

In this study, face-to face semi-structured interviews were conducted in Oman to achieve the fourth objective: to identify the local capabilities of the emergency response system in Oman when responding to emergency scenarios near to, or alongside, a destination. Additionally, to achieve the fifth objective by identifying the roles and responsibilities of stakeholders when undertaking emergency response planning and execution with respect to European cruise ship delivery in Oman. They were conducted in Oman because the researcher is from Oman, so it facilitates getting

access to information and to meeting people from the same country. Furthermore, the focus of the study is Oman, thus interviews should take place in Oman. The tourism industry in Oman has been given high importance in order to diversify the economy. Thus, the researcher sees there is a need for emergency management in the tourism industry and also due to the political situation in the Middle East.

On the other hand, the online semi-structured interviews were conducted in Europe were to fulfil the fifth objective of the research: to identify the needs, requirements and challenges of the European cruise lines when responding to emergency scenarios near to, or alongside, a destination. Semi-structured interviews conducted in Europe were online using the Go To Meeting program that was provided by Bournemouth University. This type of interview according to Morgan and Symon (2004) is called electronic interviews that describe the interviews conducted in real-time (Synchronous) using Internet or an organisations intranet as well those conducted off-line (asynchronous). According to Saunder et al. (2016), electronic interviews can be conducted via email, Internet messaging and Voice over Internet Protocol (VoIP) or web conferencing. In this study the researcher used Go To Meeting program to conduct the interviews in Europe, which is similar to Skype. The interviews were conducted using voice rather than the video calls. Pre-interview, interviewees were sent a participant information sheet, the consent form and the designed scenarios. All interviews were automatically recorded in the 'Go To Meeting' program. The interviews lasted for one hour. It was easier to conduct them online given that the participants were in different geographical areas.

Scenarios and Semi-Structured Interview Questions Design

The study used the scenario approach (See Chapter two) in addition to the designed interview questions. There is list of steps according to Schoemaker (1993) when writing scenarios **Table 6-5**. The scenarios were designed by adopting the factorial designs method that was introduced by Karl Pearson in the early twentieth-century and developed later by other researchers interested in psychometric tests (Josephat and Ismail 2012). It is a method of investigating if a number of variables of significance are linearly related to a smaller number of unobservable or uncontrolled factors, and it involves at least two or more independent variables (Tryfos 1997). The aim of adopting this method in designing scenarios rather than writing them without specific factors was for several reasons. Identifying the capability of both sectors emergency and tourism under different cases. Identify the gap in the response phase that might be

in the coordination, communication, collaboration or resources. It helps also to evaluate the effectiveness of the emergency response system, when an organisation can work alone and when it needs support and from other organisations.

Table 6-5. Steps for Building Scenario

Steps for building scenario
1. Describe the case, in terms of time frame, scope and decision variables.
1. Identify the interested and affected stakeholders by these issues.
2. Write a list of trends or predetermined factors that will influence the variables of interest and explain their affect.
3. Identify key uncertainties that influence the variables of interest and explain why they matter and how they relate.
4. Build two forced scenarios, one inclosing all known and related positive consequences, and one with the parallel negative consequences. Add selected trends to them.
5. Evaluate internal consistency and plausibility of these scenarios.
6. Exclude combinations that are not credible or impossible and build at least two new scenarios that highlight a wide range of results. Enhance them until they are internally consistent.
7. Evaluate the enhanced scenarios in terms of how stakeholders would act in them. Refine the research process to support your scenario strongly.
8. Re-examine the learning scenarios to ensure they are internally consistent and assess whether any aspects of them can be formalized by using quantitative model.
9. Finally, re-evaluate the range of uncertainty of the variables of interest and review the previous steps to create decision scenarios to help the decision-makers operate under uncertainty.

Source: Schoemaker (1993, p.197)

Trochim (2006) explains the two main terms used in factorial designs; “a factor is a major independent variable” in this study we have two factors: location and type of hazard and another term is the level, “which is a subdivision of a factor” and in this study the location is divided into on-shore and off-shore, while the type of hazard is divided into single and multi-hazard as explained in the Matrix shown in **Table 6-6**.

Table 6-6. Factorial Designs Scenario Matrix of Single –Multi Hazard Scenarios

Location / Type of Hazard	On-Shore	Off-Shore
Single Hazard	Scenario A	Scenario B
Multi-Hazard	Scenario C	Scenario D

(Author 2018)

According to Kothari (2004) factorial designs can be simple, when considering the effects of varying two factors on the dependent variable, and complex, if it investigates more than two factors. The advantage of using factorial designs is eliminating duplication from a set of interrelated variables (Josephat and Ismail 2012). Additionally, they provide very accurate equivalence and authorise many other evaluations of interest (Kothari 2004). Thus, "they are important in several economic and social phenomena where usually a large number of factors affect a particular problem" (Kothari 2004, p.47). It is not a matter of quantifying the equipment that has been bought, considering whether they are enough, or whether responders are well trained to respond, but it is whether the system as a whole will actually work effectively when called upon. The concepts of complexity have been used when designing scenarios to see how people are thinking of solving wicked problems and if they are prepared to do so. The focus of the scenarios is more on the problems rather than the solutions. The overall aim will be achieved by developing the concept of an integrated emergency response system for the tourism industry.

The semi-structured interview questions' design was based on previous studies, the UNWTO Report prepared by Bournemouth University (2014) and the RAND company study on evaluating the reliability of emergency response systems for large-scale incident operations (Jackson et al. 2010). The design of the interview questions for the tourism stakeholders was different to the emergency stakeholders because the emergency sector's work is related to emergency management directly. The questions for the tourism stakeholders were divided based on themes. The first theme was general, to constitute a clear picture of emergency planning, management importance

and awareness among the tourism industry. The following three were the themes: mitigation, preparedness and response in order to investigate the procedures taken and applied strategies in the mentioned phases of emergency management. The questions for the emergency services were also divided into themes in order to evaluate the emergency response system in Oman. These themes were **capabilities** (resources, required equipment and their location), **structure and system** (making the incident system operational at all levels and integrating it with the national response plan), **people** (training and exercise of responders and senior managers) and **coordination** (at different level of the country).

Sampling

The criteria used to define who and how many people were going to be involved in the research as participants, differentiates the qualitative research from the quantitative (Palikas 2014). Sampling in qualitative research is non-probability sampling because the aim of the research is to explore rather than test a hypothesis (Denscomb 2003; Ritchie et al. 2003). For the qualitative approach of semi-structured interviews, the most common used sampling method is purposive sampling (Denscomb 2010; Saunders et al. 2016). Purposive sampling according to Clark et al. (2002) is a non-probability (or non-random) sampling technique where participants are chosen for a specific purpose. It enables researchers to gain more and deeper understanding of the selected case (Neuman 2006). The sample selected was purposive (Saunders et al. 2016) because participants share specific features that enable them to give most valuable data (Brewerton and Millward 2001; Denscombe 2003; John et al. 2014). In this case interviewees were asked to answer on behalf of their organisation and not give their personal views. Purposive sampling was used to reach the participants and get their experiences, perspectives, views and their current situation in the area of managing emergency in tourism as well as their future capabilities. In order to generate sufficiently rich data, the researcher interviewed 18 participants from Oman and 5 from Europe. The source of the sample frame of participants related to the emergency management services was the National Committee of Civil Defence and participants related to the tourism sector stakeholders was the Ministry of Tourism in Oman. The participants from Oman were selected from the tourism industry (four participants from the Ministry of Tourism, one participant Ministry of Transportations-the Directorate of Seaports, five participants from Travel and Shipping agent, one participant from the Port Services Corporation) and emergency services sector total of

five participant (Royal Oman Police: Public Authority for Civil Defence and Ambulance, Coast Guard, National Committee for Civil Defence and Royal Navy: Maritime Security Centre).

According to the data of the Cruise Line International Association CLIA (2015) members there are around 62 Cruise line companies, 275 executive partners as suppliers and partners to the cruise lines, including ports and destinations, ship development, suppliers and business services. Thus, the researcher sent an email to CLIA asking for cruise-line contacts, but they apologised and declined to provide this information on the grounds of confidentiality. The researcher also participated in the Sea Trade conference and exhibition in Florida 2016 to make contact with the cruise-line companies, but unfortunately most of those attendees were suppliers for cruise companies. In addition, the cruise companies' representatives were fully booked for cruise business and with cruise destinations, so it was difficult to access them. Through personal contacts the researcher tried to contact people who are working on cruise lines in France, there were five of them known to the researcher, but none of them responded. The Executive Guide of Cruise Industry News, with more than 1000 contacts was bought, but unfortunately most of the emails sent using this guide contacts were not delivered. It might be because people have changed their contact details, job positions or left the company. Out of a total of 48 managers of security, crisis and operations in Europe who were sent an email, 4 responses confirmed willingness to participate in the study and even one of those withdrew on the same day as the interview. So, three interviews were conducted with cruise line companies and two interviews with experts, who were ex-navy, whom their contacts were given by the researcher's supervisors.

Pilot Study

A pilot study as described by Ghauri and Gronhaung (2005), is a small study taking place prior the actual research and according to Sampson (2004) is used informally. A pilot study according to Yin (2011) is crucial in order to ensure the study questions are understandable and respondents can participate in the study. Additionally, pilot studies are vital in facilitating the research direction and enhancing the quality of the study by specifying its weaknesses (Sampson 2004; Yin 2009). Moreover, Ball (1993) mentions that a pilot study can also be used to structure the research questions and collect general information and adapt a research approach (Fowler 1993; Hammersley 1993). Generally, as Sampson (2004) states, a pilot study can improve the study overall.

In this study conducting a pilot study was considered important in order to evaluate the validity of the research methods and design. The pilot study was based on 8 semi-structured interviews (enough to give confidence in the results, but not so many as to deplete the available population of participants) in Oman with different stakeholders representing the tourism sector: emergency services, port authorities and shipping agents. They were conducted to evaluate the method and data used and if the scenario will be more valuable in getting data than using normal questionnaires. With regards the interviews, the pilot study helps to make sure that participants understand the questions, make sure the structure of the questions are valid enough to collect the information, to explore the way that the information can be transferred for analysis and to see if there is a possibility of adding or omitting questions. The cruise lines interview was conducted with a manager from the Carnival Cruise line. Then the interview data coded and analysed to make sure the gap can be filled by the obtained data and to facilitate designing the intended model.

Interview Process

Before conducting the interviews, the researcher was provided with an official letter from Sultan Qaboos University (The Sponsor of the Study) to whomsoever it may concern to facilitate the process of data collection. In addition, interviewees were sent participant information sheets providing them details of the study (see Ethics). As the emergency organisations were included in the study (military personnel) it was not easy to conduct the interview without permission. The researcher was asked to provide another letter, in addition to the letter provided from her University. It was addressed to the Public Relation Department of the Royal Oman Police explaining the purpose of the research and to ensure the confidentiality and security of the given information. Then, the Public Relations Department sent a cover letter to the General of the Royal Oman Police in order to give the permission for the Public Authority for Civil Defence and Ambulance, Coast Guard and the National Committee for Civil Defence to participate in the study. So, understanding the military culture is important in order to understand the way of presenting the information and the type of questions asked as their work is closely connected to emergency management. So, their questions were different to those for the tourism participants.

All interviews were conducted in English. They lasted between 45 minutes to one and a half hour depending on the answers of the participants and their time. The participants were informed about the aim of the study as well as the objective of

conducting the interviews. At the beginning of each interview, the interviewees were explained the four phases of emergency management and informed that the focus of the research is on the response phase. Then the four given scenarios were explained in order for participants to bear them in mind when answering the interview questions. The interviews covered different topic like the perception and the awareness of emergency management among tourism industry stakeholders and the three phases: mitigation, preparedness and response. Although the focus of the research is the response phase the previous two phases of mitigation and preparedness have been evaluated because they are activated in the response. The process of conducting the interviews was consistent as the questions were asked in the same order, in order to compare the answers of all interviewees. The interviewees were encouraged to express freely their perception regarding emergency management, the current situation in their organisations and what they are aiming for it to become in the future. All interviewees were assured about the confidentiality of their responses in order to encourage them to talk freely about the topic. As well as having been told that their participation in the study is voluntary and they have the right to withdraw any time without stating any reason.

The interviews were recorded on a recorder; each of them took from 45 to one and a half hour. However, interviews with emergency services organisations were written because the researcher was not allowed to use the recorder due to their sensitive working environment, the culture and for security reasons. The interviews were conducted in English because most of the travel and shipping agents' participants were expatriates and they did not speak Arabic and English was not their first language; this was considered to avoid any misinterpretation of the questions.

Transcribing

In order to become familiar with the general perceptions and opinions of the participants, the researcher listened to the recorded interviews several times. Interviews were conducted in English, so the transcription and analysis were in English. The transcription took a lengthy time for the 18 interviews as they each lasted from 45 minutes to hour and half. Although transcription was time consuming with an hour taking 8 hours to transcribe, it was a very valuable part in the research.

Coding

Alphabetical codes were applied to the data rather than numerical codes because according to Miles and Huberman (1994) they help to keep the researcher close. The transcribed interviews were coded as following. Participants representing Ministry of Tourism were coded by (T), those representing shipping agents and travel agents were coded by (A), participants from port authorities were coded by (P), all of them followed by a serial number referring to the sequence of the participants. For example, T1 or T2, A1 or A2 and P1 or P2. Whereas, Emergency services participants were coded by (E) followed by a serial number referring to the sequence of the participants, for example, E1 and E2 respectively. While the European cruise participants were coded by C1 to C5. Finally, the focus group participants for the validation of the findings were coded by FG1, FG2 and FG3.

Data Analysis Methods

Data analysis involves "working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others" (Bogdan and Biien 1982). In this study thematic and content analysis are used in order to analyse the semi-structured interviews that have been conducted with tourism stakeholders and emergency services. Thematic analysis is "a process of segmentation, categorisation and relinking of aspects of the data prior to final interpretation" (Grbich 2007, p.16). Thematic analysis provides a flexible and accessible approach to analysing qualitative data (Braun and Clarke 2006) by searching for themes that occur across the data (Saunders et al. 2016). So, working with qualitative data requires interpretation and helps gain a better understanding of the given responses (Matthews and Ross 2010). It involves coding of the data to identify themes for the analysis to answer the research question (Saunders et al. 2016) and works by comparing the responses of all participants in order to describe the data; explore the meaning from the response; tackle the relationship between different types of data and; identify and explain the similarities and differences (Matthews and Ross 2010). The second analysis tool is content analysis that is used extensively in social research (Neuendorf 2002, p.) and dates back to the 18th century in Scandinavia (Rosengren 1981). Qualitative content analysis is used to analyse transcription data, for example interviews, that can be condensed to textual form and also can be used to analyse non-textual data like works of art (Brewerton and Millward 2001; Hsieh and Shannon 2005). It works by

categorising the qualitative data of text into different types of themes, which have similar features or meanings (Weber 1990) so it focuses on meaning rather than quantification (Brewerton and Millward 2001). Content analysis aims to "provide knowledge and understanding of the phenomenon under study" (Dowen-Wamboldt 1992, p.314). It is defined as "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh and Shannon 2005). The current use of content analysis shows that there are three different approaches: conventional, directed or summative (Hsieh and Shannon 2005). Hsieh and Shannon (2005) list the criteria of differentiating between the three approaches that are: coding, its origin, and threats to reliability. In the conventional approach coding classifications are derived from the data, while in the directed approach a theory or previous findings are used to generate initial codes (Hsieh and Shannon 2005). The summative approach contains counting and comparisons of certain words, or content followed by the explanation text (Hsieh and Shannon 2005). According to Krippendorf (1980) two different techniques are used in content analyses: mechanical and interpretative. The former technique involves organising and dividing the data into themes; while the later involves determining what themes are meaningful and important regarding the asked questions (Krippendorf 1980). The advantage of using content analysis is the ability to examine what is said (e.g. context) and not said (e.g. form) during interviews (Merton and Kedall 1949). The analysis of the interviews follows different steps. The first step was several readings of the transcribed interviews in order to get familiarised with the data. The second step was identifying the main themes that were generated from the data. The third step is making the data more condense from the large volume of information and selecting the main themes. All data collected from semi-structured interviews are organised in computer files. The qualitative data categorised into themes for analysis to identify concepts and issues (Grbick 2007) and to form common ideas (Creswell 2003).

The main principles of complexity theory are emergence, self-organisation, non-linearity, adaptiveness and connectivity and the features of complex systems (listed in chapter two according to Cilliers 1998) were tackled when analysing the data. As each phase of emergency management has its own degree of complexity, the themes covered phases of mitigation, preparedness and response. The features of complex emergency were used to identify the current mitigation, preparedness and response

measures, roles, responsibilities and resources. This was helpful for suggesting future development to overcome the inherent complexity. Complexity theory was used as an explanatory framework on how organisations or stakeholders behave and why, when responding to the given scenarios. Thus, the importance of adapting the complexity theory is to correct the way the tourism and emergency organisation stakeholders view emergencies and to help them understand their complex nature. Also, to understand the dynamic interaction between different elements in a system like the tourism industry and the case of this study (cruise, tourism stakeholders, and emergency services). For example, lack of understanding the uncertainty and complexity of emergencies by the participants showed the lack of preventive and preparedness measures taken by the organisations. Additionally, it was helpful to evaluate the current situation of organisations in dealing with incidents and to develop and enhance their current plans and future thinking for future incidents. In addition, complexity theory was used to understand the behaviour of the complex systems elements in responding to tourism incidents, in particular cruise ship as in the given scenarios. Therefore, the gap in the response phase was easily identified. For example, it was found that the interaction between the stakeholders was not dynamic. Complexity theory helped to develop the concept of an integrated emergency response system and the most important elements/ strategies that should be applied in the system (communication, coordination, cooperation and collaboration). By integrating these concepts, the developed integrated emergency response system will be more collaborative. Therefore, resulting in an effective response. Furthermore, complexity theory described how the involved stakeholders participated in change over time as a result of previous incidents. For example, what kind of changes the stakeholders have made after Guno cyclone in 2007 to face the 2010 cyclone. Finally, it helped to justify and understand why tourism is not prepared and not integrated with emergency services for the mentioned reasons in chapter 7.

6.8 Ethics, Reliability, Validity and Limitations

Ethics

To proceed with the work of any research honestly and with integrity there is an ethical responsibility (Wilson 2010; John et al. 2014). Research ethics is defined as "the moral principles guiding the planning and conduct of research, the publication of outcomes and post-project care and/or disposal of records or materials" (Bournemouth University-code of ethics 2014). Rowley (2004, p.210) suggested, "Conducting

research ethically is concerned with respecting privacy and confidentiality and being transparent about the use research data." Participants in the study were provided with a Participant Information Sheet containing a written description of the study, their participation in it, how it works, how the data is used and what will be expected of them. With respect to the semi-structured interview participants, they were fully informed about the purpose, methods and the intended possible use of the research. They signed a consent form that gave them sufficient information about the research, and they had sufficient time to understand the implications and to ask questions if they had any inquiries. Participants were informed that they have the right to participate, refuse or withdraw at any time. They also received a clear explanation as to why they have been asked to contribute and were informed in relation to the areas of questioning. The data is stored securely and backed up electronically in addition to the main storage. When the data is not required, all personal data will be securely destroyed. All results are considered anonymous. They will be published in a way to ensure the accessibility of the participants. A research ethics training course has been done successfully online and the ethics checklist has been submitted and successfully approved by the Ethics Committee.

Reliability

According to Yin (2003) reliability in qualitative research refers to whether the task of a study, like data collection techniques, can be repeated to obtain the same results. In another way, according to Denscombe (2003), if someone else carried out the research would he/she come up with the same results and draw the same conclusion? Likewise, Kvale (1989, p.79) stated, "reliability is a question of whether repeated investigations of the same phenomenon will give the same result. In another words, the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under similar methodology, then the research instrument is considered to be reliable " (Joppe 2000 cited in Golafshani 2003, p.598). In this study, reliability has been considered by asking similar questions to the participants in different ways, listening to the recorded interviews several times, going through the various transcriptions of recorded interviews, and through precise analysis of the interview in order to understand the accurate meaning of the participants' responses in order to come up with logical results.

Validity

Validity is related to the findings and if they appear as they are meant to (Saunders et al. 2016) and is relevant to quantitative or qualitative data (Silverman 2001). Although validity is used to make sure the results or findings are accurate from the perspective of the researcher, the participants or the reader, some authors see its role as being minor in qualitative research while others see it as a strength (Creswell 2003). Validation interviews according to Adams et al. (2014) are conducted in order to validate the reliability of the interpretation of collected data. In this research the researcher has interviewed people who have not been interviewed so they are out-of sample interviews **(**Adams et al. 2014). Therefore, according to Adams et al. (2014, p.145) "feeding back findings to those who were not previously part of the study is a powerful way to ascertain the degree of generalizability to the results". In this study different methods were used to confirm the validity, such as comparing the findings to the literature review to see how they fit with the existing body of knowledge. Another method is where focus groups have been conducted in order to validate the results of the conducted interviews. Focus group interviews are discussion-based and conducted to collect qualitative data (Millward 1995) on specific topics among participants in an open and tolerant environment and led by moderator (Hakim 2000; Saunders et al. 2016). In focus groups, data is generated by multiple respondents (Brewerton and Millward 2001). "The aim of the focus group is to get closer to participants' understanding and perspectives of certain issues" (Brewerton and Millward 2001:81). Another aim of the focus group interview relates to the ability to analyse how participants' discussions constitute a shared meaning (Belzile and Oberg 2012). Contrasting focus groups to one-to one interview, participants have the ability "to explore and challenge the experiences and opinions of others and to reflect on their own" (Matthews and Ross 2010, p.236). The size of the focus group may vary depending on the nature of the topic (Saunders et al. 2016). The size of focus groups is clearly not a hard and fast rule as demonstrated by the literature, where Adams et al. (2014) states that the optimal size of focus group is between 8 to 12, which contrasts with Hakim (2000) who suggests that the optimal size is between 4-10 participants.

A total of 24 people were interviewed in 3 focus groups in order to validate the results of the interviews conducted in Oman. This was done by grouping people according to their sector. The first group involved 8 participants from the tourism sector; the second group involved 8 participants from the emergency sector; the third group was mixed,

with 4 participants from each sector. Focus group interviews can be used as a main method to collect primary data or be supplementary to other methods (Brewerton and Millward 2001). John et al (2014) found that focus group interviews are a useful method for validating findings as they save time in addition helping the researcher evaluate if he/she has made the correct interpretation of the data. The focus group interviews were conducted in Oman during the time of the National Committee for Civil Defence (NCCD) organisation for Emergency and Crisis management in Tourism symposium. It was held in October 2017 at the venue of the Public Authority for Civil Defence for 5 days. Participants in the symposium were from different tourism and emergency sectors: The Royal Oman Police: Operations and Airport Security, The Public Authority for Civil Defence and Ambulance, The National Committee for Civil Defence, the Coast Guard, The Royal Armed Forces and the Royal Navy. Tourism sector participants were from Ministry of Tourism, hotels, event organisers, airlines, national ferries company and port authorities.

The role of the researcher was facilitator, to guide the group to discuss issues in a systematic order and keep the group focused on discussing the same issues (Adams et al. 2014). The moderator's role was to make sure that all members participate in the discussion and certain members do not dominate it. In addition to facilitating, the moderator ensured transition from one topic to another to ensure all areas are covered. The focus group interviews were well planned, all three groups were introduced to the purpose of the study and the aim of the focus group interviews was identified specifically. In addition to the participant's information sheet, the consent forms were handed to all participants. The findings of the semi-structured interviews were explained in addition to the designed scenarios. The interviews lasted for 30 minutes to one hour. Each interview could not last for more than one hour because all participants are committed to the symposium schedule, which was full of exercises and discussion, so their time was exceedingly tight.

Limitations of the Study

The limitations of the study are that the interviews in Oman were conducted with participants representing the emergency management authorities like the Royal Omani Police and the Royal Navy, so there was limited accessibility to some information, which may be considered confidential; this affected the results' general applicability. The Participants from Europe only numbered five, it was hard to find more participants, and this limits the general applicability of the findings. Due to the

sensitivity of the research topic, many people refused to participate in the study. Another limitation can be found in the fact that the research is qualitative, and therefore results cannot easily be generalised rather than transferred as whether the findings would be applicable in other countries, for example other Gulf countries, or in other contexts such as the in-land tourists.

Chapter 7: Findings and Discussion

Part 1: Oman's Interviews Analysis

7.1 Introduction

This chapter consists of two parts. The first part presents data analysis that focuses on evaluating the capability of the emergency response system in Oman. Interviews were held with eighteen individuals **(See Table 7-1)** from the tourism industry, port authorities and emergency services. While the second part presents data analysis that focusing on identifying needs, expectations and challenges of cruise lines. At the beginning of each interview it was explained to each interviewee that there are four phases for handling an emergency: mitigation, preparedness, response and recovery. It was further clarified that this study was focusing on the response phase. This explanation was designed to ensure that the interviewees could bear these phases in mind when providing their answers. Scenarios were presented to the interviewees in a mixed order to minimise unsystematic variation **(See Appendix 6).**

Table 7-1. Interviews Sample 1

Number of Interviewees	Sector	Job Title	Code used
11	Tourism Industry	• Director of Tourism Events (Cruise Shipping) • Director of Tourism Product Development • Tourism Product Development Advisor • General Director of Tourism Development • Chief Executive Officers of Tour Agents • Chief Executive Officers of Shipping Agents • Shipping Managers • Business Manager for Shipping Services	T
2	Port Authorities	• Port Operations Manager • Engineer in Port Directorate-Ministry of Transportation and Communication	P
5	Emergency Services	• Representative from the National Committee for Civil Defence/ Royal Oman Police (ROP) • Representative from the Coast Guard/ (ROP) • Representative from the Public Authority for Civil Defence and Ambulance/ (ROP) • Representative from the Maritime Security Centre/Royal Navy of Oman -Ministry of Defence • Member of the Public Health and Safety sector in the National Committee for Civil Defence	E

Following the interviews, three focus group interviews were conducted in order to validate the findings of the interview data. Each focus group consisted of 8 members **Table. 7-2**. These participants did not participate in the previous interviews.

Table 7-2. Focus Groups

Focus Group No	Focus Group Members	Code
Focus Group One	Representatives from the Tourism industry	FG1
Focus Group Two	Representatives from the Emergency Services	FG2
Focus Group Three	Representatives from both tourism industry and Emergency Services	FG3

The analysis is divided into two sections: data collected on tourism and port authorities, and data on the emergency services. A number of themes **(Figure 7-1)** have been identified using a combination of conventional and derived content analysis (Hsieh and Shannon 2005).

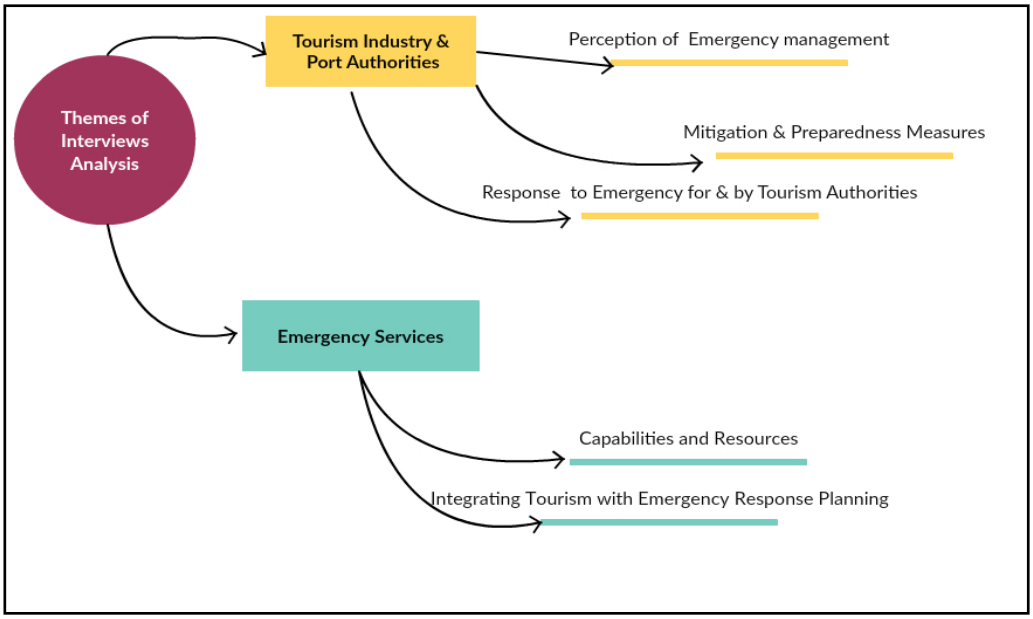


Figure 7-1. Themes and sub-themes of Data Analysis

(Author 2018)

These themes formed a conceptual framework in order to help evaluate the capability of Oman's emergency response system when receiving international cruise ships (the fourth objective of this research). Moreover, they assist in determining the roles and

responsibilities of stakeholders when undertaking emergency response planning and execution when receiving international cruise ships.

7.2 Tourism Industry and Port Authorities

7.2.1 The Perception of Emergency Management

A number of questions were posed to the tourism and port authorities in order to evaluate their level of awareness, the importance of emergency management planning and the current control of negative incidents. Although there was a demonstrable lack of awareness, there was consensus on the importance of adopting emergency management planning within their organisations. The interviewees were unanimous that an absence of emergency management planning was chiefly attributable to the lack of awareness among all stakeholders. They mentioned that Cyclone Guno (2007) and Cyclone Phet (2010) were considered a wake-up call for the country:

> *"We haven't come across the concept of emergency or disaster management except when it had occurred but before we didn't get any idea and we didn't prepare well for it." T3*

> *"If you came a couple of years ago there was nobody talking about emergency and disaster but for the last couple of years there were many changes because of the Guno and Phet Cyclones." T2*

These statements show the impact of previous incidents in creating awareness of emergency and disasters. However, being aware or having basic knowledge does not mean they are familiar with the mitigation, preparedness, response or recovery procedures (Carlino et al. 2008). It also indicates that there is no adequate planning for emergencies in place. In addition, this indicates that they lack the understanding of the complexity and uncertainty of emergencies. They were not prepared until Guno happened, in 2007, and still another cyclone happened in 2010 and the situation was similar. One of the shipping agents (T9) seeks to provide emergency management in his organisation by employing someone who is an expert in this field, saying:

> *"Emergency management in my organization I have ex-navy commander working as an operational manager and I have one more ex-navy working with me…" T9*

This statement can be considered as a challenge; the lack of awareness and knowledge about what emergency management includes (Carlino et al. 2008) as well as the narrow vision of the organisation towards adopting emergency management. These challenges may hinder organisations from planning for emergency management (Hystad and Keller 2007) by setting clear objectives for how to deal with an emergency. It also shows that there is no consistency and control over the management of an emergency, because there is no plan and it is only the operational manager's action and decision. However, employing experts is helpful in getting the benefit of their experience (Glaesser 2006; Sanjeewa et al. 2012), but having the required capacities and developing plans would be more effective. This statement also indicates that this participant wanted to show that they have personnel capable of handling emergency incidents by having "ex-military employees", whereas in fact they might not be familiar with such incidents and lack experience in handling a number of different cases that might happen. They may have not even worked in areas related to emergency management at all.

Interviewees highlighted several reasons to support the importance of emergency management planning, in particular planning for response. For instance, interviewees pointed to Oman's growing tourism industry (Mintel 2013). As the number of tourists increases (The Tourism Index Report 2016; Ministry of Tourism 2017; NCIS 2017), the country (Oman) is attempting to use tourism to diversify the economy (Winkler 2007; TimesofOman.com 2015; The Reality of Omani Tourism: NCSI 2016; Umar 2016). However, tourism is susceptible to the negative consequences of an emergency (Henderson 2007; Ritchie 2009).

On the other hand, several explanations were put forward for the current absence of emergency management planning and its adoption. For example, as tourism consists of small to medium enterprises (SMEs) (Becken and Hughy 2013), there is a lack of capital and therefore they cannot invest in educating and training people for emergency response planning (Waugh and Streib 2006; Hystad and Keller 2007; Cioccio and Michael 2007; Wang and Ritchie 2012). For these above-mentioned reasons, there is a need to establish a partnership between the public and private sector to minimise the negative impact of emergencies and to enhance emergency and disaster resilience (Bajracharya and Hastings 2012; Auzzir et al. 2014; Hochrainer-Stigler and Lorant1 2017). The private sector, they can provide different resources instead of money like (e.g. accommodation or transportation for tourists, information, skills, training,

destination marketing, etc.). Therefore, it is vital to integrate the emergency operation in most government operations like tourism (Wang and Ritchie 2012). They do not consider that tourism works as a complex adaptive system with several stakeholders that influence and are influenced however, they have limited resources and need support from others. Some of them pointed out that planning for an emergency could be expensive (Wang and Ritchie 2012), especially due to low oil prices. Conversely, T1 argued that planning for an emergency is not as costly as the potential tangible impact of a disaster, such as loss of life or damage to ships, or the intangible impacts that would affect Oman's image as a tourist destination (Huan et al. 2004; Armstrong and Ritchie 2007). So, since they do not have the budget to invest in planning and the effect of a disaster are more costly, they need to think about what the worst-case scenario is that might happen and to evaluate if they have allocated the required resources to handle it. Therefore, adopting strong mitigation and preparedness measures can minimise the negative effects and future incidents (Blaikie et al. 1994; Ronan and Johnston 2001; Waugh and Streib 2006; Carlino et al. 2008; Ireni Saban 2014) as well as enhance response (Ritchie 2009). Adopting effective mitigation and preparedness measures will be active if stakeholders are fully aware of the complexity of an emergency. The more they are aware of its complexity, the more they provide better solutions and integrate effective procedures.

In spite of their view on the importance of response planning, interviewees from the tourism sector (T1, T2, T3, T5, T6, T7, T8, and T9) reported the absence of any emergency planning department, proper procedures, programs or capacities, as two of them stated:

> *"Until today I am talking with you, we don't have a department for emergency management with regards to cruise ships" T1*
>
> *"We don't have strong emergency management and now we feel that we need an emergency management program. ..." T2*

The word "now" in the response from Ministry of Tourism respondent (T2) may refer to the current situation of the tourism sector in Oman because many projects have recently been launched or announced e.g. hotels (MoT 2016; NCSI 2017). It might also refer to the situation in the Middle East where there have been many terrorist attacks and incidents that may fuel the desire to be more prepared. However, preparation does not necessitate a separate department, if the required resources and

capabilities are available. Alternatively, another possible interpretation for this might be that the Ministry does not have plans, procedures or resources for handling emergencies, even though they are unpredictable and complex (Faulkner 2001; Helbing et al. 2005; Coskun and Ozecylan 2011; O'Sullivan et al. 2013).

The interviewees further commented on the current situation in dealing with negative incidents. The port operator (P2) explained the integrated system of emergency response that is divided into levels and it depends on the nature of the situation. These three levels are:

- Level 1 emergency — local alert
  Confined to a specific location
- Level 2 emergency — Site alert
  May spread to affect a larger area
- Level 3 emergency — External alert
  Level 3 emergencies may affect people, Property and the environment outside the port, e.g. uncontrolled fire, and/or toxic gas release.

P2 explained in case the emergency in level 1 occurs, the incident is handled by the Port Services Company (PSC) using its own resources and capabilities like IT network failure, electricity power failure, breakage of water pipe line, local minor fire incidents. While in case of an emergency in level 2 and 3 the PSC hands over the Emergency Response to external agencies (Civil Defence, Royal Navy of Oman and other ministerial representatives and monitoring agencies) through the Royal Omani Police to address the emergency as it may exceeds their capacity and ability.

However, this system can be criticised for the lack of collaboration (Impcoor doc 2000; Kamensky et al. 2004). This is needed in case resources are scattered and roles are not identified clearly as incidents cannot be managed by one organisation (Waugh and Streib 2006) as collaboration can enhance the response (McKercher and Cohen 2004; Xia et al. 2011; Pramanik et al. 2015). Additionally, this system can be criticised for the lack of stakeholders involved (Eide et al. 2012) e.g. Ministry of Tourism in case a cruise is affected because collaboration is also highly required in case the emergency results in mass casualties (Kapucu and Garayev 2011). It can also be criticised for a

lack of coordination (Malone and Crowston 1990; Impcoor doc 2000; Drabek and McEntire 2002; Corbacioglu and Kapucu 2006; Comfort 2007) that is required to meet different needs in time of response (Bergströn et al. 2016) and to use the available capabilities (Ekman and Uhr 2015). It can also be criticised for a lack of information that is important for mitigation planning (Nateghi 2000; Wang and Ritchie 2012) and supports the work of the emergency response system (Chen et al. 2007) and facilitating coordination (Raju and Becker (2013). Effective communication, which is important for designing emergency plans, is also lacking (Pollard and Hotho 2006) and therefore poses a challenge to the National Disaster Management System in Oman (Al Shaqsi 2011); this may result in a slow response (Ritchie 2009). Hence, slow response will result in increasing the number of victims like the case of Sewol ferry (Ramage 2015). So ineffective communication hinders coordination (Nowell and Steelman 2014).

Participant from the Ministry of Tourism agreed there is a lack of coordination and that it should be established between all organisations (Ireni Saban 2014) which if not, in time of response may results in delays, costs, inefficiencies and ineffective solutions (Kettl 2003; Comfort 2007). However, the Ministry of Tourism is only coordinating different agencies in an attempt to avoid major incidents. If a significant negative event occurred, they would tell their stakeholders whom to contact. Thus, coordination is required between tourism and emergency services (UNWTO 2014).

Concerning the responses of the tour and shipping agents generally, most of the cases they are dealing with involve sickness, which is not necessarily part of an emergency at a high level. Shipping and tour agents (T6, T7, T8, T9 and T10) handling negative incidents based on their experiences follow a reactive approach (Pauchant and Mitroff 1992) and general procedures if anything happens, but do not follow specific procedures for specific incidents. If something does happen, most of them follow a communication chain: the tour guide must report to the line manager, who reports to the management of the company, who then evaluates the situation. Overall, it is a poor procedure due to the length of the chain and the long-time taken in order to solve a problem. In addition, it is a linear incidents management plan (Paraskevas 2006) used to solve complex and unpredictable incident (Faulkner 2001; Helbing et al. 2005; Coskun and Ozecylan 2011; O'Sullivan et al. 2013) that occurs in tourism as complex adaptive system (see Farrell and Twining-Ward 2005; Miller and Twining-Ward 2005; Baggio 2007; de Sausmarez 2007; Baggio 2008; Schianetz and Kavanagh 2008; Stevenson et al. 2009; Baggio and Sainaghi 2011). This unpredictable and complex

incident also has a knock-on effect on different stakeholders. One participant (T9) declared that they rely on the operational staff to handle any situation because they are used to handling such incidents. Again, this is also a reactive procedure with nothing done in advance. Other employees should be familiar with responding to incidents, as the operation staff may not be available all the time. Experienced employees might also leave and be replaced by new employees unfamiliar with such operations, presenting a threat for the company. The arguments presented highlight the current situation of handling different incidents in the tourism industry. This situation needs development and an upgrade from safety and security to emergency and disasters. In addition, further education and training are needed. The next theme proceeds to evaluate emergency mitigation and preparedness procedures.

7.2.2 Mitigation and Preparedness Measures

Mitigation Measures

In order to assess their preventive procedures, the interviewees were asked if they conduct a risk management process (Barton and Hardingree 1995). Then they were asked whether they are continuing to monitor and evaluate new sources of risk and, if so, how? Prior to Cyclones Guno (2007) and Phet (2010) there was no annual risk assessment (Wang 2001) conducted at the port by P1 and P2. As a result of the significant impact of the cyclones, the risk was recognised as being considerable. It was clear that the risk of cyclones had not been considered since the port was constructed in 1974, but due to climate change, it became seen as a significant problem (O'Brien et al. 2010) as the country has become more vulnerable to tropical cyclones. However, the port's operator (P2) was able to explain clearly the annual risk assessment process for different natural and human induced hazards put into place by their international code of safety and security. He illustrated one example of a new source of risk: the size of the channel in certain ports is very narrow, and yet larger ships are more common (Bowen et al. 2014; TimesofOman.com 2017). This causes difficulty for the ships when they turn; thus, they made a proposal to the governmental authority (P1) to widen the channels. However, there was no consideration of the Port's capacity in dealing with a ship sinking, capsizing or a major fire.

The Ministry of Tourism participants declared that they are not evaluating specific risks. Additionally, another interviewee from the Ministry concurred that nothing has

been done to evaluate risks that might happen or to look for new sources of risk. The reason given for this omission by a tourism industry interviewee was:

> *"We are not that professional so far in this, I don't know, and I haven't seen anything of this in hand …" T2*

A possible explanation for this might be that it is not considered important to be professionally trained in planning for emergencies. Similar to planning for new projects, they might not be professional in planning for them, but they may consult experts or attend workshops or training courses. Therefore, evaluating such risks can be conducted with emergency organisations and thus it requires collaboration and communication with the specialist agencies (Waugh 2003) in order to respond effectively as part of complex adaptive systems (Ansell et al. 2010; Okros et al. 2011; Wyche et al. 2011). This statement can also be attributed to a lack of knowledge of what risk assessments should be undertaken and how they can be conducted (Lin and Song 2015). However, lack of knowledge is an important factor in planning for emergency mitigation (Nateghi 2000). Moreover, Lin and Song (2015) listed different approaches in understanding complex situations (emergency) such as looking at the views of stakeholders, experts and the public. This is because understanding their complex nature and their knock-on effect will result in an effective response (Coskun and Ozecylan 2011).

The responses from the tour and shipping agents suggest that although they have different procedures, not all of them are under the umbrella of the risk assessment process. Different examples were provided by interviewees T5, T10, T11, such as checking for food safety due to a past experience of food poisoning, and regular checks to ensure vehicles and buses are equipped with fire extinguishers and hammers. T5 and T11 mentioned that they receive requests from international cruise ship companies to conduct a safety and security audit and they send them a specialist to undertake a security check prior to arrival. This check includes the itinerary and the possible risks that might occur, a safety check form for coaches and vehicles, and risk assessment forms for hotels. These procedures are carried out to fulfil the requirements of the international cruise lines they are handling. Hence, to maintain their market share, they are following what they are required to do, even though it is not embedded in the local organisation's work. This is because if a disaster affects a large-scale cruise ship it will affect the tourists' perception (Huan et al. 2004) and result in a negative economic

impact (Paraskevas and Arendell 2007). Thus, the interconnectedness of the complex system elements is not considered and understood by the participants. The interconnectedness indicates that the system changes overtime where the 10-year stakeholders might not stay the same, they might no longer exist in the market or reposition themselves (Mckercher 1999). For example, when the international cruise ship asked a local company to do the risk assessment, the cruise line may not have worked with them before. Furthermore, the factor behind this might be the culture (Stead and Smallman 1999), which means that the safety and security in the culture of the partner and the international cruise lines may be more strongly considered than the situation in the destination (Chang 2002). Accordingly, the dynamic interaction is also not considered. This is because the dynamic interaction shows how each element influences and is influenced by others (Cilliers 1998). What influenced this local company to do so is external elements the culture and policies of the international cruise. However, they are not asked to be prepared for natural or human-induced emergencies.

Interestingly, these regular checks have been implemented by organisations because they have experienced an incident, not because they were a natural part of their preventive measures or embedded in their work. This action of doing so demonstrates how history or past experiences of complex systems have the ability to change the strategies or to enable the adoption of new procedures (Cilliers 1998). Surprisingly, two interviewees (T6 and T8) explained that they are conducting risk assessments, not in relation to the ship's passengers, but for an emergency response in offices or buildings. For instance, if a fire breaks out in the building, they know the correct procedures, such as where to locate fire extinguishers, and where the fire exits are. In summary, tourism organisations are not dealing with this issue seriously and they are leaving the responsibility to emergency organisations. Although these organisations are not experienced in conducting the risk assessment process, liaising with disaster management agencies and easy access to information can assist them in implementing effective risk reduction measures.

What was declared by the interviews was also agreed upon by the focus group participants and they mentioned that there is no integration within the tourism industry regarding risk assessment and early warnings. Participants in the FG1 and FG3 agreed that the tourism stakeholders are not working together to assess risk or to provide early warnings against particular threats like terrorism or earthquakes. They referred that to

the previously mentioned reasons by the interviewees (lack of coordination and cooperation, lack of Knowledge, lack of awareness, lack of cohesiveness). In short, they are not working as a complex adaptive system that leads to connectivity and to emergence, as their interaction will be with their surroundings. However, early warnings are important to notify the tourism stakeholders of any potential hazards, so it needs to be incorporated to the government (emergency services) responsibilities and reports. This demonstrates how the complex system works far from the equilibrium point where the regular updates (e.g. early warnings) help the system to survive (Cilliers 1998). They also mentioned although they are aiming for full integration in the future; coordination and cooperation can be improved and achieved in the short-term (Najam 2000; Cigler 2001; Brown and Keast 2003; Odlund 2010). The reasons given for full integration are to understand risk, to overcome future risk and to introduce protective measures.

Additional tasks that organisations have to do in order to design mitigation plans and procedures for an emergency include identifying the channel of information on emergencies, mitigation and support networking. Interviewees were asked to identify their source of information for emergencies (What might happen and how is it to be handled?). There is no source of information for interviewees except attending meetings with different stakeholders. The port authorities (P1 and P2) attend meetings with the Royal Oman Police (the coastguard) to keep them updated with the latest safety and security measures at the port. The port operator (P2) explained that because they are following an integrated emergency system, they have to meet in order to avoid any duplication and conflict in performing tasks and responsibilities. It is noted that the Maritime Security Centre is not involved in such meeting that include the Coastguard, Immigration, Ministry of Tourism, Ministry of Transportation, Muscat Municipality, shipping agents and tour agents, even though it is a vital source of information. Furthermore, the Ministry of Tourism representatives declared there was no source of information other than that available through these meetings.

As one of the interviewees mentioned, before the tourist season they conduct two meetings: one with the government stakeholders (Port authority, Port Operator, Coast Guard of ROP) and the other with industry stakeholders (Travel and shipping agents). The purpose of conducting such meetings is to make sure that everything is going smoothly, so they are operational rather than strategic. In these meetings they highlight the challenges faced and discuss how to solve them. The participant said: “Ensuring

things are going smoothly", meaning the process of receiving the tourists and providing good services. These meetings are not conducted in order to get more information on emergencies, on handling them, or checking whether there is any alternative plan in case of emergencies. They are not conducted to get information that facilitates the coordination among all involved stakeholders (Raju and Becker 2013). In addition, the Ministry only involves the police (Coastguard) in the meeting while the Centre of Maritime Security (Royal Navy) is not involved. However, the more participants in the emergency, the more improved capability there is regarding communication and coordination (Morakabati et al. 2016). It is also noted that conducting two separate meetings with all stakeholders is not helpful in addressing the challenges. Briefly gathering them all together will be more helpful in addressing the challenges and identifying the best solutions, as each member can contribute with their experience and area of expertise. This indicates that organisations do not have the willingness and ability to collaborate with others (Kapucu 2006b).

One of the shipping agents (T7) mentioned that before the tourist season they attend a meeting with the Police, Civil Defence and Ministry of Tourism to discuss what the challenges were the last season. One of the tour agents (T5) said their source of information involved communicating with the responsible agency to determine if a storm is coming (reactive approach) and to receive advice on where they can take tourists. They should, however, be prepared in advance with solutions, they should have plan A and plan B in case of any potential incidents. These responses indicate limited sources of information on potential incidents and their handling procedures. As one interviewee commented:

> *"We need to be updated by the emergency and local authorities of what might happen, what should be done and whom to contact." T6*

This indicates the lack of communication between the tourism and emergency sectors, which could increase awareness with regards to risk assessment and identify the safest areas for tourists. Communication is highly required due the complex nature of incidents and their destructive impact (Nowell and Steelman 2014). This is because failure in communication affects the emergency response system negatively (Comfort et al. 2004) and hinders coordination (Nowell and Steelman 2014).

On the other hand, focus group participants revealed that sharing information through common meetings on type of hazards does not exist within the tourism industry.

However, they are aiming for full integration among all tourism stakeholders in order to gain more knowledge and share different experiences and avoid the bad cases and events the previously occurred. Again, here it is found that tourism stakeholders are not working as a complex adaptive system because there is no positive or negative feedback within the system (Tourism stakeholders) and from the external environment (emergency services) (Taborga 2012).

In order to learn from the experience of others and prepare for future incidents, relations should be established with regional or national emergency management agencies, as well as industry and governmental organisations (Waugh and Streib 2006). With this objective in mind, interviewees were asked about their current relationships with other agencies. The port authority (P1) has established relations with the ROP and Ministry of Tourism. By comparison, the port operator (P2) follows an integrated emergency response system and therefore has connections with many of the aforementioned agencies. On the other hand, the Ministry of Tourism has no regional relations with any agency except the ROP. However, investing to establish and develop relations with local and international organisations is required to handle the magnitude of the effects arising from disasters (Waugh and Streib 2006; O'Sullivan et al. 2013).

Conversely, the tour and shipping agents don't have relations with regional agencies, but rather see it as the government's responsibility to establish these relations. Within the country, these agents are in contact with the Ministry of Tourism for other activities, but not for emergency management. They are in contact with the ROP in case of an emergency. Nonetheless, as agencies they should establish their own relations network to solve any potential problems or receive advice or assistance. Moreover, the relations within the sector itself to reach common standards for emergency management in Oman, does not exist as agreed by the focus group participants. The purpose of establishing such relations, especially prior to emergencies, is required in order to consult with those who are experts in this area (emergency management) to promote coordination and communication in the time of an incident. Overall, these results indicate that the preventive measures taken by the tourism industry and its relevant stakeholders are currently weak. After taking the necessary precautions in order to prevent or mitigate adverse incidents, these organisations should improve their capacity by ensuring the effectiveness of their plans, personnel and resources.

Preparedness Measures

The interviewees were asked if they plan for the future by listing what kind of threats might occur and affect tourism or the destination and particularly the cruise industry in the next 12 months. All the interviewees admitted that they do not do so, although they agreed that it is an important task to be done. This indicates that the tourism industry is not well-prepared to deal with unexpected incidents (Ritchie 2004; Gundel 2005; Pizam 2005) that have a knock-on effect on different stakeholders as the tourism industry according to Racherla and Hu (2009) is a complex mix of many stakeholders. It also shows that their activities are not affected by strategic planning (Ackoff 1970) that can strength the organisation's ability to deal with unforeseen future incidents (Pollard and Hotho 2006). This strategic approach to emergency planning is vital to ensure the future tourists flow and reduce the emergency impact on destination (Ali and Ali 2010). They are not following a proactive approach in handling future incidents (Pforr and Hosie 2007). Some interviewees emphasised the absence of planning, as one stated:

> *"Planning for emergency management in the next 12 month I am not sure how we are going to develop it for the whole sector. I think we have to work from now." T2*

The interviewee is uncertain how to plan for incidents for the whole industry, indicating a lack of knowledge (Hystad and Keller 2007) and experience. This statement shows that the tourism industry doesn't have well-trained staff to deal with emergencies, resources required in time of emergency are ill-defined as well as not having the ability to make decision in case of an emergency (Alexander 2009). However, interviewees agreed on the reasons for the absence of planning:

> *"We don't think too much (about) what is into the future and expect disasters to happen, the unexpected to happen…, ships have quite comprehensive emergency response plans ...and they have their own procedures they follow in event of incidents." T8*

> *"We don't prepare for an emergency, but we prepare for the season." T1*

These statements indicate the low level of preparedness among the tourism industry and its relevant stakeholders in Oman. With respect to cruise incidents, interviewees do not expect incidents because of the highly advanced technology used in building the ships, and because cruises have international codes to follow (Vidmar et al. 2013).

However, a number of newly built cruise ships have experienced technical problems, and even those who follow international codes have been affected, such as the Costa Concordia (Schroder-Hinrichs et al. 2012).

Others see it as too comprehensive a task to be done with their limited experience. This mentality may be explained by the size of the organisation, poor integration with emergency organisations, or a lack of knowledge concerning what such planning entails, as mentioned earlier. Another point could be made relating to culture (Ritchie 2009). International cruise ships require safety and security checks, yet these agents declared that they do not plan. This shows the distinction between the eastern and western style in planning for and managing an emergency. There is also a contradiction as preparing for the season is seen as preparation for the provision of goods and services rather than securing tourists.

An emergency management plan is an essential document to guide the organisation in taking effective measures and making the right decisions in a time of emergency. The interviewees were questioned if they have a written emergency management strategy or plan detailing the appropriate actions to be taken before, during and after an emergency, (Chen and Tsai 2010) and how often they revise it. The port operator P2 has a written strategy that is revised annually, or after an incident or if there is an update in the international code they are following.

All interviewees representing the Ministry of Tourism responded that the Ministry does not have clear plans to manage an emergency. This illustrates that the Ministry lacks resources, knowledge, and the experience required to develop such a plan (Cioccio and Michael 2007; Wang and Ritchie 2012). Conversely, the travel and shipping agents had diverse responses. One agent claimed to have an improper document:

> *"I would say yes but I would not say it is a proper document … because it is done by us." T5*

This indicates that they were acting only under an obligation to fulfil requirements, such as a contract with international cruise companies. Furthermore, since they prepared the document themselves, it means that it relied upon self-initiative since such a document was not required by the system, the tourism industry, or emergency organisations. This is because National Committee for Civil Defence (NCCD) roles

neither states its authority to enforce governmental or private agencies to apply emergency plans nor indicates who is in charge of ensuing and reviewing the application (Al Shaqsi 2011). Two participants (T6 and T8) agreed that they only have guidelines for a sick crewmember or passenger, and procedures in case something occurs in the building. It is notable that these organisations are addressing what they have previously experienced, such as health issues, and they do not prepare for the unexpected. It seems that they are only prepared for minor cases not major ones. They should rather be made aware of what might happen, and there should be appropriate drills and coordination with emergency organisations.

Surprisingly, T7 and T9 declared that they only follow what they know without any written strategy or plan:

> *"We don't have a written strategy but … all our staff are aware what to do in case of an emergency." T7*
>
> *"We have guidelines through experience by heart if someone tells me this happens so I will tell him what to do from my experience. There is no written document." T9*

It is clear there is an absence of written documents or plans as the organisation should have these plans in a written format and connected to procedures (Alexander 2013b), and they should not depend on the experience of its employees due to staff turnover. This is attributed as human complexity in the emergency response when responders responding not following certain procedures and may in turn result in a poor response and ineffective decisions (Coskun and Ozecylan 2011).

It is clear that responses vary to the question of having plans: some have plans, but not properly, and some of them they do not have one at all. In addition, focus group participants declared that currently there is no integration within the tourism sector for cooperation on writing an emergency plan. Two of the interviewees suggested that authorised organisations in the country should develop an emergency management strategy and hand it to all stakeholders in the tourism industry. They commented:

> *"...it is good for the government to give a printed emergency management plan and procedures to all agencies something that is a standard to all" T9*

"I would like it if there is professional document done for us it will be much better for us" T5

Interviewees hand the task of designing plans over to the emergency organisations as it is their responsibility and they are the specialists. However, it should be a mutual responsibility of both the emergency and tourism sectors, so that each sector will have specific input in the plan. They can both work in designing such plans because the emergency sector might lack valuable tourism information. For more consistency and control on the written plan, the government need to be involved so full integration can be achieved. Moreover, focus group participants emphasised the need for integration in writing emergency plans within the sector in order to have a standard plan for managing tourism emergency as well as with the emergency services. These plans should connect to procedures to be followed and to resources to be used (Alexander 2016) if an event occurs and to control risk to mitigate emergency from occurrence. Two of the focus group participants said:

"There is no evidence that tourism stakeholders are knowledgeable to write a plan and willingness to participate" FG1

"If I have been asked as a tourism stakeholder to write an emergency plan. It will be difficult unless I set with a person from the National Committee for Civil Defence; who is an expert in that" FG3

These statements clarify the absence of the emergency plans, lack of knowledge as well as the absence of the initiative to gather all stakeholders to prepare one. The absence of planning and plans show how the stakeholders disregard the complexity and uncertainty of emergencies. It also indicates again they are not working as a complex adaptive system because they did not learn from previous incidents (e.g Guno and Phet Cyclones). Focus group participants highlighted the importance of having an emergency plan to prevent panic during an emergency and to avoid making wrong or irrational decisions. They suggested that the NCCD should provide the Ministry of Tourism the direction and help to set emergency plans. Then the Ministry will be the authority responsible for making sure that all tourism stakeholders have emergency plans after teaching and directing them. To overcome this deficiency, there should be an internal committee within each organisation and at the local level consisting of members from different organisations.

An emergency management planning committee needs to be activated in all organisations in order to carry out the responsibility of emergency response planning. The interviewees were asked about whether they have a team or planning committee for an emergency. Surprisingly, all 13 tourism industry interviewees in the study do not have such a team or committee except for the port operator (P2), which has an official internal team included in the organisational structure. The focus group participants also agreed upon the absence of the committee. One interviewee commented that maybe in the future when something happens, they might formulate such a team or committee. It is argued that committees should be formed in advance to prepare the organisation in anticipation of any incidents instead of managing specific ones reactively. This is due to the fact that disasters are complex, uncertain and unpredictable and when they occur, they have cascading consequences. Thus, a committee is needed to act on the results of a training scenario and there should be an appropriate follow up to update the current plans or the capabilities. Furthermore, the committee can work on evaluating the potential hazards and prepare plans to handle them. Furthermore, committee relations can be established with different stakeholders. Therefore, the committee should involve members from different major stakeholders or different organisations so that they can share their knowledge and experiences. Although tourism organisations have no committee, their personnel can be engaged in workshops or training programs in order to build up their skills and enrich their knowledge.

Interviewees were asked if they have conducted or attended workshops in order to plan for an emergency, and if they have designed scenarios for simulations. The port governmental authority (P1) has no specific training or exercise, but sometimes they participate in courses and conferences related to this area. On the other hand, the port operator (P2) is guided by International Labour Organisation (ILO) guidelines, which provides safety guidance for ports, so they are following their instructions for health and safety. As a result, they give their employees simplified guidance as well as conducting lessons, presentations, workshops, discussion and group work for simulation. At the same time, they invite the managers of the cruise lines for a presentation of safety instructions and in case something goes wrong, they send an alert to the shipping agents.

With respect to training and exercises, the Ministry of Tourism conducts no specific exercises or simulation for scenarios. However, they do conduct evacuation drills in

their office building in case of a fire because the Civil Defence Authority conducts this. One of the Ministry of Tourism interviewees emphasised this lack of training:

> *"... except the International workshop on risk management conducted by the UNWTO in 2008" T4*

All of these indicate the lack of awareness and knowledge among the tourism industry and its relevant stakeholders. Surprisingly, the UNWTO conducted a workshop in the following year after Cyclone Guno (2007), yet there is still no obvious change in this area. This might be because these cyclones occurred in the off-season and no tourists were affected directly. Or it can be explained by the fact that there are no well-qualified people in the tourism industry. In addition, the tourism industry at that time was not developed; the Ministry was established in 2003 and the workshop was conducted in 2007. Therefore, the focus of the industry was on increasing the contribution of tourism to the national economy and attracting more tourists and investments. Since the country is focusing on these investments, it should plan for an emergency. Since Oman has been affected by many cyclones and tropical storms in the past, and with the threat of terrorist attacks in the Middle East, there is no guarantee it will be always be immune to disaster. However, conducting specialised training helps in developing the current capacity of the industry (Waugh and Streib 2006; Nivolianitou and Synodinou 2011) and therefore reducing human error and improving response (Ritchie 2009).

The tour and shipping agents had similar responses: they do not conduct, nor attend, any workshops in this regard, and they consider it the responsibilities of the Ministry of Tourism and the emergency organisations. As two participants stated:

> *"Not really we don't... it should be done by the Ministry of Tourism or the Royal Oman Police" T8*
>
> *"In Oman there are no workshops for all organizations" T7*

Moreover, one of the interviewees explained this issue by the lack of cohesiveness among the organisations in the tourism industry (Hystad and Keller 2007); this is considered another challenge for emergency planning:

"…as I mentioned everyone is working individually. There is no association for tour operators and travel agencies in the country …There should be associations and have to meet … to know what the plans are and where the country is moving in a directive manner." T11

We may conclude from these responses that the Ministry of Tourism should collaborate with emergency organisations in training its employees as well as the industry's different stakeholders in case an incident might affect the industry. This is because specialised training (e.g. Cruise, adventure etc.) will develop the capacity of the industry (Waugh and Streib 2006;Nivolianitou and Synodinou 2011), update the plan and enhance the decision making (Inzana et al. 1996; Lin and Su 1998; Crichton et al. 2000; Authoritative Guide for Tourism Risk Management 2006; Ritchie 2009; Edzen 2014) and to minimise future incidents (Ireni Saban 2014). Thus, awareness should be increased regarding emergency management, roles and responsibilities should be allocated, and resources should be evaluated because increasing awareness will help the tourism industry identify the most important information they need (Eide et al. 2013). However, the focus group participants mentioned that this seminar (Managing tourism crisis and emergency - October 2017) is the first seminar they have attended gathering tourism and emergency sectors. At the same time, they described their participation in the workshop is limited due to the lack of knowledge about emergency management. What was surprising is that some participants mentioned they got the invitation for the participation at the last minute, while the biggest travel and tour operators in the country (Oman) were not there. This it could be that they were not invited, or they had received the invitation late, so they did not have time to nominate anyone who could participate. It is suggested that an association should be established to gather all tourism stakeholders in order to keep them updated about plans and trends, not only for an emergency, but also at the industry level in general.

Although the Public Authority for Civil Defence and Ambulance (PACDA) is conducting evacuation drills within the buildings of tourism organisations, as well as providing first aid training for guides and preventive driving for drivers, one of the interviewees expressed some criticism:

"…ok there are certain courses come for first aid training…. training but if it is a bigger thing and if there are some initiatives to tell us how to handle these things like planning and response. " A7

The first aid training was considered to be basic, and interviewees prefer training at a higher level from health and safety to emergency and disaster level. On the other hand, this training is given in classroom sessions. It might be explained that drivers and tour guides are given such training due to incidents, which happened locally. Generally, the role of training and workshops should be to increase the level of awareness of emergency and disasters among stakeholders. Furthermore, training is needed to build organisational capacity and resilience (O'Brien 2006; 2008; Nivolianitou and Synodinou 2011) as well as to overcome any cultural challenges (Adahl 2009). This can be achieved through collaboration because collaborative strategies according to Robert (2000) simplify wicked problems, like complex and unexpected emergencies because those have a high level of uncertainty and need to be managed in collaboration with different stakeholders' part of the complex adaptive system (Ansell et al. 2010; Okros et al. 2011; Wych et al. 2011). Additionally, since collaboration is a long-term relation (Cigler 2001; Keast and Mandell 2012), the chance to conduct regular training and workshops is higher.

Liaising with the media must ensure the continuity of communication among stakeholders and tourists, as well as raising the awareness of emergencies among all organisations with regards to emergency and disaster preparedness. The interviewees were asked if they have established such relationships with the media in order to raise the awareness of preparedness measures for emergencies. Significantly, the study found that most organisations avoid communicating with the media, especially if something happens. Some organisations consider their public relations department as responsible for communications with the media if something does occur. Different interviewees believe that the media should not be involved at all because it is a very strong tool to minimise or maximise the effect of any emergency, which will affect their reputation or public image (Armstrong and Ritchie 2007). One participant mentioned that they have relations with the media in terms of promoting domestic tourism in the country, but not for an emergency or any other issues. It can be seen here that most organisations avoid communicating with the media because they are concerned about their reputation and image (Armstrong and Ritchie 2007). No one considered the significance of establishing these relations pre-emergency in order to

inform all stakeholders of the importance of being prepared for emergencies. Moreover, focus group participants commented on sharing information and communicating with the media and that there is no such communication regarding emergency management. One of them commented:

> *"We got most information and early warning of any cyclone or incidents through the media like others" FG3*

Focus group participants are suggesting activating operations room in the Ministry of Tourism to communicate with the NCCD in times of an emergency, for example cyclones. Thus, it can communicate directly with tourism stakeholders to direct and update them. This will help them in tracking their tourists, changing their plans and making effective decisions. These all help the system to function as a complex adaptive system by embracing dynamic interaction through exchanging information (Cilliers 1998) therefore tracking their tourists. Moreover, in this case the system is influenced by external factors (Cilliers 1998), for example weather, which leads tour operators to change their plans from A to B. Finally, receiving positive and negative feedback (Cilliers 1998) helps tour operators make decisions.

The given reason for the integration with the media is stated by focus group participants:

> *"Liaise with the media does not exist; everybody talks to the media but messages not mutual across government" FG1*
>
> *Thus,*
>
> *"The integration with the media is essential to make sure that common message is shared between private and public sectors" FG3*

Tourism staff should be updated with any warning alerts and should likewise keep tourists updated. Interviewees were also asked if they have a nominated spokesperson representing their organisation in case something happens. Not all the interviewed organisations have a nominated spokesperson, and those who do normally appoint someone in the organisation's management. This indicates again the lack of awareness and experience.

Finally, interviewees were asked if they have a specific website to share information relating to emergencies, disasters and correlated issues. None of the interviewees had

a specific website to share information regarding emergency or disaster management or topics or instructions to raise awareness in this area. Even their current websites do not share such information. And if something happens, they do not publicise it on the organisation's website; they keep it confidential, and if they share something it is general or related to health and safety. The reason for this might be that they do not have the information related to emergency and disaster management to share with stakeholders or tourists. It might also be because they do not want to lose their customers by sharing incidents and showing their level of response. However, sharing general information that shows how prepared the organisation is for any incidents will indicate the high calibre of the company as well as enhance their customers' trust. However, the behaviour of the complex adaptive system elements represents the interaction of all the elements, rather than individual elements (Cilliers 1998). In addition, the flow of the information helps ensure the dynamics and survival of the system, which is a result of the availability of feedback. Therefore, specifying a link on the tourism organisation's current website is recommended because it will be easily accessible to tourists. In short, all these techniques (nominating a tourism emergency spokesperson, annual stakeholder workshops, liaising with the media and devoted webpages) help in building a more proactive emergency management approach and enhancing organisation resilience (Hystad and Keller 2008).

Overall, the mitigation and preparedness measures taken by the tourism industry are poor, as **Figure 7-2** and **Figure 7-3** Show.

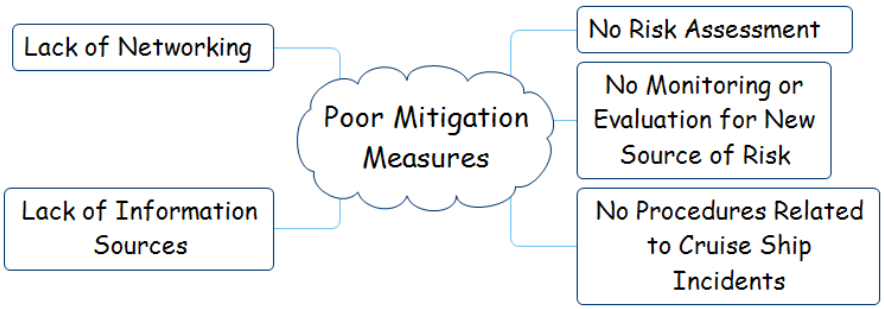


Figure 7-2. Poor Mitigation Measures

(Author 2018)

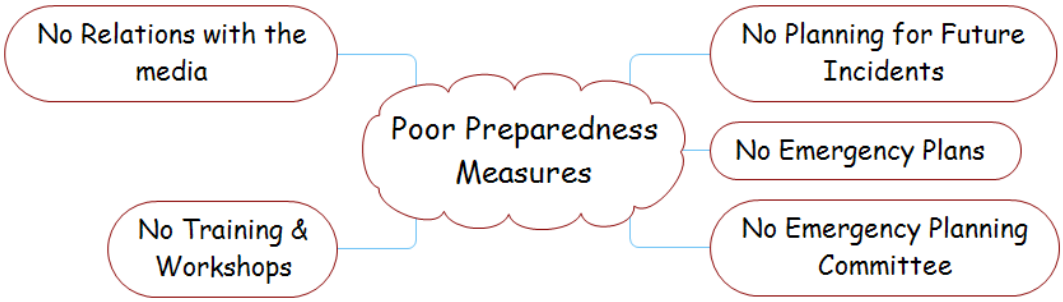


Figure 7-3. Poor Preparedness Measures

(Author 2018)

However, the effectiveness of these two phases (mitigation and preparedness) appears in the response phase, by activating their measures. The next theme addresses the response measures.

7.2.3 Response to Emergency and Disasters for and by Tourism and Port Authorities

Interviewees were asked about the type of emergency or disasters they have experienced previously in order to evaluate how they responded and what they learnt from that experience. The study found that the most prominent disasters that affected the country generally, and therefore the tourism industry, were cyclones Guno and Phete in 2007 and 2010 respectively. They were considered by all interviewees as lessons they learned from in terms of becoming more aware, despite the fact they occurred in the off-season.

Added to these cyclones were other cases experienced by the tourism industry, tour and shipping agents are minor as considered by all interviewees because they had a quick response to them. For example, sickness, heart attacks, technical problems, death, Swine Flu, H1N1, environmental issues affecting the mangroves, many projects established in sensitive areas causing congestion, noise, traffic and pollution which according to Ritchie (2009) slows the response in case of an emergency. In addition to car accidents, small incidents include tourists falling and breaking a leg, perhaps while taking a selfie-photo, food poisoning, and tourists being bitten by a snake, scorpion or other insects. There is a disconnection between the different cases that the tourism industry experienced and the lack of preventative and preparedness measures they

have as found in the previous theme. This shows that stakeholders did not learn from the past experiences and did not adapt to new situations to be prepared for the future.

In terms of what they learned from all these incidents experienced, the port authority (P1) started to make plans for the ports to be stronger to avoid any damage and survive if something happens again. Although the port operator (P2) mentioned that they are working in a well-integrated system and are following the international code, these cyclones revealed their inadequacy in dealing with natural disasters. This also suggests that the code they are following is purely for safety and security measures, as they were focusing on the safety of their employees. Moreover, it indicates that their system is not integrated with strategic management, which is important in enhancing organisation's ability to deal with incidents, enhancing organisational learning and minimising the probability of incidents occurring (Pollard and Hotho 2006). As both emergency management and strategic management have adopted an open system perception (Thompson 1967; Bowonder and Linstone 1987) for the earlier to identify any potential incident (Aguilar 1967) and develop adaptive techniques to handle them (Hofer and Schende 1978; Bourgeois 1980), and for the latter to get a better understanding the dynamic nature of emergencies in order to be able to develop emergency management procedures (Bowonder and Linstone 1987). Integrating emergency management with strategic management is also important due to the increasing number of incidents affecting tourism industry which require an integrated approach at different levels local, regional, national, and international levels (Ritchie 2009) and due to their knock-on effect. So, managing incidents strategically indicates the strength of the organisation in handling unexpected incidents (Taneja et al. 2014; Fors et al. 2006). In addition, being familiar with strategic management help managers and leaders have a better understanding of emergencies (Taneja et al. 2014). In addition to what they have learned, they have considered their coordination role in case they do not have the required capacity.

On the other hand, the tourism industry participants stated that they learnt lessons:

> *"We learned a lot because there were a number of hotels affected, where tourists were in them, many flights cancelled, the airport operation was shut down for couple of hours" T1*
>
> *"We learned a lot because it was the first experience for us and now the country is more prepared for other emergency..." T2*

However, despite tourism being directly affected, the Ministry of Tourism surprisingly did not take the initiative to gather all stakeholders in order to raise the awareness of potential incidents that might affect the industry. The first responder (T1) said that they learnt from the experience, but nothing actually indicates what or how they learnt.

With that being said, the affected hotels, airports and flights are managed by private companies; not operated by the Ministry. There is much the industry can learn to obligate hotels to have emergency management plans and to build future hotels in safer areas. Moreover, there was no prominent role for the Ministry of Tourism to conduct meetings or workshops or conferences addressing the challenges faced and how to avoid them in the future. The second participant (T2) said, "we learned a lot", and by that he meant the country, not the industry itself, by becoming more aware of taking the necessary precautions. One of the interviewees emphasised the awareness:

> *"I will say we are more aware …" T5*

Again, notably, all interviewees focused on awareness as something they learnt, but no physical things or mitigation or preparedness measures came about. However, becoming 'aware' does not mean that they are familiar or fully understand the response measures. Another interviewee (T10) agreed that they became aware of emergency and disasters management after these cyclones, but still not with regards to the tourism industry, rather with regards to the weather conditions. This demonstrates that the awareness was only related to natural incidents, especially cyclones, but no other incidents were considered, and this awareness was at the personal level. Moreover, another participant (T11) declared that they become more cautious if there is a prediction that something might happen, and they check the location of their clients. This agent is performing a good mitigation procedure in order to ensure their business continuity.

Interviewees were asked for their response, or even their role in the event that one of the given scenarios happens, or any other potential incidents. The port operator (P2) declared they have a limited capacity and responsibility to deal with incidents in certain areas according to the emergency system as explained in the first theme.

Interviewees from the Ministry of Tourism (T1, T2, T3 and T4) declared they do not have a specific role for these scenarios except coordination. All the tour and shipping

agents have coordination roles and liaise between the cruise company and the local authorities.

Another agent explained his organisation's role as follows:

> *"We are not trained fire fighter ... not doctors depending on that situation we must know whom to contact. We look at the yellow pages ... for contacts of all parties, private and government, who will be involved in different emergency so we will coordinate between different parties." T8*

It is clear that the role of most agents is coordinating between the cruise and the local agencies. Looking at the yellow pages for contacts in a time of emergency indicates the lack of preparedness for potential incidents, as the list of contacts should be readily available. Even if they declared they could coordinate, it depends if they have a strategy, framework or guidelines to follow or if it will be a spontaneous coordination. Thus, identifying the main point of contact for the tourism industry for emergencies is vital as well as following structured guidelines or procedures.

When the interviewees were asked to identify their main point of contact if something happens, the majority said that the Royal Oman Police (ROP) is the first contact because they are perceived as responsible for acting in any situation due to their capabilities and available resources. As in most countries around the world, the police is the first and main point for contact in case of an emergency. It can also be said that the Police manages NCCD in the country. However, one of the tourism interviewees (T2) declared that, although they have allocated a large amount of money in order to activate what is called 'tourism police' since 2006, it is still not yet activated. One reason might be due to a misunderstanding between the tourism industry and the police on the aim of activating the tourism police, their role and responsibilities. Alternatively, it might be due to a lack of information about where to activate the tourism police, or that the police consider their personnel to be serving the tourism industry without needing to name them as 'tourism police'. Furthermore, since the devastating Cyclone Guno affected the country in 2007, the attention of emergency organisations might have been redirected to the management of natural disasters that might affect the country and ensure their preparation.

However, the participant representing Ministry of Tourism (T1) mentioned that it depends on the case; they contact the appropriate specialised organisation: if it is related to security, they contact the police, and if it is related to health, they contact the Ministry of Health. So, they should be aware of what might happen and whom to contact in order to be able to take the right decision during an emergency, and to assess available resources.

On the other hand, T5, T8, T9 and T10 stated that they have staff for the cruise that have to be on board when the cruise arrives, but in case of an emergency they have to contact the company management. This indicates that these employees are neither specialists nor trained to deal with different incidents since they are only receiving them. This may result in a delay in response because they are inexperienced and due to the lack of situational awareness (Chen et al. 2007; Maio et al. 2013). In addition, the lack of situational awareness results in poor communication (Waugh and Streib 2006) that slows the response (Ritchie 2009) and hinders coordination (Nowell and Steelman 2014). It also indicates that these companies have general procedures to follow, but they do not have specific or clear ones. Another participant (T6) claimed they contact the police, but if the emergency is off-shore, they contact the Royal Armed Forces of Oman for the operation. So, not all organisations have a single point of contact; each company has identified its point of contact according to their relations network or the contact they already had.

Looking at these different points of contact, one of the interviewees suggested the importance of having a central point:

> *"... so there is a need if we have one main point or central coordination point for contact." T6*

Establishing a central point of contact will be effective for all of the cruise ships as well as the tour and shipping agents. The absence of a central point of contact indicates that there is no meeting between all stakeholders organised by the emergency organisations in order to inform them of whom to contact for different cases. On the other hand, the tourism industry lacks information about what might happen and how to act. Therefore, there is a lack of sharing information between the tourism industry and emergency services. The tourism industry lacks information because of the differences in the personnel background (only tourism) and skill (they have not engaged in such experience or training before) (Xia et al. 2011). Consequently,

limitation in sharing information results in bad decision making and applying inefficient procedures to handle incidents (Helsloot 2005; Kelman 2006). Moreover, negative feedback and unclear information in the complex adaptive system leads to ineffective decisions. In this case where the tourism industry is not familiar in dealing with different incidents, the emergency organisations are obligated to share information with all stakeholders. They should build their work as complex adaptive system in collaboration. This is to ensure the identification of the possible measures to be followed and the required resources Kożuch and Sienkiewicz-Małyjurek (2015). Therefore, creating situational awareness and identifying a central point of contact can support the tourism industry in evaluating its capabilities and to support the emergency organisations by identifying their roles.

Although there was a consensus on the great need for involving the tourism industry in planning for emergencies and disasters, most interviewees declared that the actual cooperation among tourism and the emergency organisations is poor in Oman. This is due to the lack of communication and integration. What can enhance this cooperation is that each sector (tourism and emergency) should get an understanding and attempt to know each other (Uhr and Johansson 2007; Uhr et al. 2008). Interviewees were asked if they have seat at the National Committee for Civil Defence. Only one organisation among those interviewed has a seat at the NCCD, which is the governmental port authority (P1) under the Ministry of Transportation and Communication. It is a member because they are responsible for one of the main critical infrastructures in the country: roads and communication networks that are vital in times of emergency and that need quick restoration to deliver first aid logistics (Barbarosoglu et al. 2004). It also might be explained that because the committee was formed after Cyclone Guno in 2007, its members were involved in fixing what had been affected.

Then the interviewees were asked to what extent they agree with the involvement of the tourism industry within this committee. All interviewees agreed with the involvement of the tourism industry for several reasons. P2 stated that it was important to connect the cruise lines to the local authorities. Another participant (T1) added that due to the sensitive nature of the tourism industry (Henderson 2007; Ritchie 2009) and the nature of the emergency, a minor incident could lead to a major impact (Helbing et al. 2005). Participant T2 adds that because tourism projects are expensive, they require effective security and an emergency response plan. The participant

representing the tourism industry (T3) mentioned that the UNWTO has a department for risk management as an example for of the integration. Another interviewee (T4) cited the UK (Lake District) tourist sites have their emergency information accessible online. Thus, integration will facilitate the dissemination of emergency information on any incident and enhance the awareness of tourists in taking the necessary precautions, as well as guiding them to the safest area.

The tour and shipping agents gave further reasons in support of integration, as one encouraged integration by saying:

> *"I strongly feel we should be involved even if not to get into the physical aspects but to be more aware of what might happen and what our role is…specific role so when we see such a signal or sign or situation this is what we need to do." T5*

This interviewee identified the inability of the tourism industry, stating that they do not have resources they need in order to be aware be able to take the right decision in time of emergency. This results in creating situational awareness among all tourism stakeholders. One of the interviewees (T10) stated that the reason for the lack of involvement was because most incidents occurred in the off-season and tourists were not affected directly.

The tourism industry and its relevant stakeholders are recommended to identify their role and evaluate their capabilities to support the emergency organisations. Therefore, all interviewees were asked how they could assist emergency organisations in the event of an incident that affects tourists or tourism. The Port Authorities are familiar with their resources and roles and their limited responsibilities. But what was shown by the previous responses and their past experiences was that their roles and capabilities need further development, especially after the cyclones. One of the Ministry of Tourism interviewees (T1) commented that they could help with their relations because they are well connected with the local hoteliers and travel agencies. However, another interviewee from the Ministry of Tourism added:

> *"It depends on the emergency if they need financial support; we try to help if we can help, if they need logistics, if they need communication with the higher authorities we will try to help." T2*

Responses indicate that the tourism industry has no such identification or predictions of what might happen and what should be done and what kind of support is required; this emphasises lack of knowledge. This also shows that the tourism industry has never evaluated its resources and capabilities, although they are ready to provide financial, logistic and communication support.

Another participant (T1) explained that they, as a Ministry of Tourism worker, are promoter, regulator, marketer and coordinator, and it is not their responsibility to respond if tourists are affected. He reasoned that tourists should know the procedures when they are insured and come through a specific agent. Although tourists are insured, it does not prevent tourism organisations from being prepared for any incident because tourists are unfamiliar with the destination (WTO 1998; Buckle et al. 2001; Lamanna et al. 2012) and the language (WTO 1998; Jeuring and Becken 2011). On the other hand, tour and shipping agents T5, T6 and T8 also emphasised the liaison role and what they can provide is information for emergency organisations. Even this role of coordination, and other roles, needs to be standardised for all tourism organisations through the NCCD, and they need to be updated. The NCCD must identify the role of all tourism stakeholders and their limited responsibilities up to the extent that they can react.

The most prominent role of tourism organisations is coordination, as it is apparent that they do not possess physical resources, plans or well-qualified personnel. What they can provide is information, which is important before and during an emergency; in this case, communication with emergency organisations should be in advance. Likewise, the focus group participants agreed and in addition they declared what they could provide the emergency services is information (e.g. number of tourists, their nationalities). In addition, two interviewees (T3 and T11) mentioned their capacity to provide volunteer work. However, one of the tour agent interviewees (T10) said that if they are involved directly, they could only help with recovery, rebranding and updating the tourism product. This participant identified their role based on their capability and objective: business continuity.

These responses demonstrate the reactive approach (Pauchant and Mitroff 1992) followed by the country in managing emergencies and disasters, especially those that might affect the tourism industry. Until a mass disaster affects the tourism industry, it will be highlighted in the emergency plans of the country and it will be a member in

the NCCD. Even this role of coordination and other roles need to be standardised throughout all tourism organisations via the emergency organisations, and they need to be updated. Emergency services should make the tourism industry familiar with what might happen and how it can be handled in order to develop contingency plans for the sector and involve them in the time of an emergency. Scenarios should be designed and tested to evaluate available resources, identify roles and allocate responsibilities to make effective decisions in times of an emergency. Generally, there should be coordination, collaboration, cooperation, information sharing and communication between the tourism industry and emergency services to enhance decision-making and resources allocation. Additionally, there is also a need for long-term collaboration through establishing public private partnerships to engage the private sector with the public sector so that they can handle any potential incidents from mitigation to recovery. The next section provides an analysis of interviews with the emergency services.

7.3 Emergency Services

7.3.1 Capabilities and Resources

The emergency sector is the authority in Oman responsible for handling different incidents, and it constitutes the military organisations that are working based on the emergency response system explained in Chapter Five. Emergency interviewees were asked if they have plans available for handling such incidents and how often they revise them. They responded that they all have plans for handling emergencies and disasters, either natural or human induced, however they are not related to the tourism industry. As mentioned previously in the interviews with the tourism industry, the tourism industry lacks plans of their own and requests the emergency organisations to provide standard plans for preparing and handling different incidents. However, the focus group participants confirmed that the available plans are general not specific, for example there is no specific plan for a Tsunami or earthquake or cyclones. However, emergency plans are adaptable (Alexander 2002) , thus if there is a cooperation between emergency sector and tourism, it will facilitate adopting such plans for the tourism industry. An emergency organisation (E1), which is responsible for designing the national emergency plan, sees a shortage from the tourism industry's side as they should come and ask for advice or consultation:

"If these companies are not able to design a plan why don't they contact the responsible authorities for consultation … they should have the initiative to ask as they are responsible for handling any emergency or disasters." E1

This result revealed that the shortage is from both sides. The emergency organisation due to the nature of their work because it is their responsibility to make sure that all organisations have emergency plans. The Emergency organisation should be involved in designing any plan to ensure the consistency and control and all sectors in the country including tourism are integrated with the emergency sector. It is also the responsibility of the tourism industry because they should ensure the safety and security of the destination and be well prepared for any potential incidents and to facilitate their integration with the emergency services. The emergency organisations especially the NCCD should have the leadership to achieve these goals (Gary Yukl 2006; Peter Northouse 2010). They should start earlier from the mitigation phase before the occurrence of an emergency (Smits and Ezzat 2003) and in time of an emergency it is required at different levels (the organisational, sectorial, industrial, or country levels) depending on the magnitude of the incident (Ritchie 2009). This might be referred to the centralisation of the emergency response system of Oman (Ritchie 2009; Al Shaqsi 2016).

Regarding the revision of the available plans, emergency organisations because they are specialists, or after any incident in order to fill any gaps and to develop them for the future because circumstances are changing over time, this results in strengthen the resilience (Faulkner 2001; Alexander 2015). Another interviewee declared the motivation for revising plans:

"We revise the plan after any accident occurs locally to develop it and internationally to learn from the international experiences" E2

Consequently, the general plans and procedures for emergency management can be applied for different sectors, one of which is tourism. And this is agreed with the focus group statement that general plans can be applied to tourism. However, one of the emergency interviewees declared that there is no such plan for cruise ships:

"The Civil Defence has an evacuation plan that is designed for different organizations and it is revised annually but for cruise ships that is something new." E2

Regular evacuation drills are conducted in different organisations for buildings around the country, yet it addresses only one potential incident among many others that might happen in the future, and these also need drills and plans, as well as increasing awareness.

Although emergency organisations have plans and regular revision is conducted, the tourism sector is still not considered. As an interviewee clarified, a new centre has been activated in order to deal with any maritime incidents called the Maritime Security Centre:

> *"We have plans in different organizations, but the centre is now collecting all plans and merging them in order to have a centric point for dealing with incidents. After each incident the plans are revised." E4*

This centre is to work on establishing its specific tasks and roles to avoid any duplication in responding to any emergency case, especially with the Coastguard and Civil Defence. They should all meet to identify their specific plans and roles to avoid duplication in roles and responsibilities and emergency organisations should cooperate with each other (Kapucu 2006a). Overall, it is important to have a central point for dealing with different incidents, and this centre should focus on handling cruise-ship incidents. Meanwhile, other emergency organisations can handle land-based incidents that might affect tourists. Acquiring emergency response plans is essential, but the most important thing is testing these plans via regular training and exercises.

Emergency organisations around the world are conducting different types of training, which is discussion-based (to develop awareness), table-top (to test procedures and plan by developing scenarios) or live exercises (to test fully all aspects of disasters response) (Kim 2014). One of the emergency organisations (E2) is conducting internal training every month and international training twice a year because it needs coordination with different agencies. They start the training by discussing the possible hazards that might occur, followed by developing the plans and ending with live exercises. In all these types of training, the tourism industry and its stakeholders can be involved to develop their ability and increase their awareness (Waugh and Streib 2006). The Coastguard provides their divers, and the search and rescue team provide regular internal and external training based on availability and need, but there is no specific schedule. However, one of the emergency organisations (E1) has daily training for emergency cases, and there is a training department that provides training

programs according to a certain plan for all organisations in Oman. It follows the execution of evacuation plans, for example, in schools, shopping centres, and governmental associations, and there is an evaluation for the training program. As some tourism organisations revealed, they are involved in these drills, but there are no exercises on incidents that might affect the tourists with regards to cruise ships, as interviewees stated:

> *"In regard to cruise ship we didn't have any training." E2*
>
> *"We have very rare training in regard to the cruise ships as most training is for the commercial ships..." E4*

However, although the Sultan Qaboos Port was transferred in 2014 from commercial purposes to purposes of tourism, cruise ships are still not included in the plans or training. This might be explained by the fact that cruise ships have not been affected by a major disaster, which would grasp the attention of emergency organisations and enter into their considerations. There is also no initiative from the emergency organisations to work with cruise ships in order to conduct evacuation drills when they arrive in Oman for the possibility of an incident happening in the port or in the destination. However, specialised training for cruise ship will help in developing the shared capacity of emergency-service organisations (Nivolianitou and Synodinou 2011). These all indicate the lack of collaboration between emergency services and cruise-ship companies.

Interviewees were asked if they consider cultural factors when they conduct training, since tourists are from different cultures. One of the organisations (E2) only considers the culture of those who are responsible for an evacuation, while others (E1, E3 and E4) responded that they have procedures, but "culture doesn't exist". Generally, the culture is a very important element to be considered when dealing with tourists in times of an emergency due to cultural and language differences; these are considered as barriers of the complex emergency response system (Uhr 2007). Here two types of complexities can be identified. First, the technological complexity (Coskun and Ozecylan 2011) because none of the emergency participants are use special technology (e.g. speech creators or display books) to communicate with those speaking different languages. As using such technologies facilitates response tasks. The second complexity here is the cultural complexity (Coskun and Ozecylan 2011) that is inherent in the communication between locals from the destination Oman with

European Cruise crewmembers and passengers as both have different cultures. Developing a common language and being culturally aware can facilitate collaboration (Waugh and Streib 2006), decision-making (Schramm-Nielsen 2001; Fan and Zigang 2004; Heales et al. 2004), leadership (Pinsdorf 1991; Heales et al. 2004; Zagorsek et al. 2004; Chandler 2005; Laws et al. 2007; Ritchie 2009), communication (Adler 1991) and information sharing (Yang and Maxwell 2011). Overall cultural awareness facilitates emergency responses (Rozakis 2007). For example, what happened in Costa Concordia demonstrates the importance of considering culture and language differences (Nthia 2015) and managing SARS across boundaries (Johnson and Peppas 2003). Thus, the tourism industry should be involved in planning the response to an emergency, as they are more familiar with the tourists' backgrounds and cultures. As the incident severity is not same in all countries and cultures (Johnson and Peppas 2003) and the way of managing an emergency is different due to responder's national culture (e.g. Hofstede 2001; Liu and Mackinnon 2002; Schneider and Littrell 2003), cultural awareness should be integrated at all levels of emergency management strategies (Adahl 2009). The more culturally aware emergency services are, the more this will help them establish clear communication and easier work with different and similar cultures (Adahl 2009, p.8). In summary, having plans and testing them is essential in order to identify procedures and evaluate available resources.

All the emergency organisations are well prepared with the required resources in dealing with different cases (in the given scenarios), for example dealing with fire, whether it is on or off shore. This includes the medical case (in the given scenarios), as one of the interviewees mentioned a case that required them to perform a medical evacuation by sending a helicopter into the middle of the sea. However, these capabilities and resources have not been tested for a mass number of victims or tourists as in the given scenarios, like the case of Costa Concordia where the evacuation system had never been tested (Bjorkman 2014). This will affect the response process as the following responses show:

> *"So in case of the mass number of tourists as a military organization ... but in fact these capabilities have not been tested yet. There is an ability to deal with many tourists but there might be delay in the response." E4*

"Most of the plans for response are available before, it is only a matter of identifying the capabilities and capacities." E3

This finding reveals that all emergency organisations have response plans ready to apply to handle the situation sufficiently, although they are not unified, which may lead to duplication of effort. Emergency organisations recommended sharing what might happen with the tourism stakeholders and how they respond to incidents to obtain situational awareness, to identify needs, roles and facilitate decision-making in times of an emergency. Additionally, the finding shows that tourism incidents are not considered to occur, especially on the cruise ships, although this centre is specialised for maritime incidents. Though E4 considered that the magnitude of an incident might affect the efficiency of the response, he also added that they had mutual response work as a centre for maritime security with the Armed Forces and the Police for certain incidents, such as the sinking of small ships. Moreover, they conducted many rescue operations and medical evacuations, but as he mentioned, it is hard to judge the effectiveness of the response system. These statements might also indicate that the actual capabilities might not match the estimated capability, especially in the case of large-scale cruise incident. Commenting on the scenario, he said:

"As a scenario it didn't happen to real judge and to evaluate the effectiveness of the response system … The resources are not tested to whether can cover or not the high-scale disasters therefore currently we see them as quite enough to cover a cruise ship incident …" E4

So, the type of complexity that can be identified here is the event complexity (Coskun and Ozecylan 2011) because an immediate response is required to the given scenarios and each case requires specific resources, however these resources are not well-defined and tested by the emergency services.

With regards to the handling of these specific cases in the fire scenarios, the interviewees as well as the focus group participants agreed on the capabilities and the availability of the resources, and that they can share resources with another organisation in case of a huge fire. On the other hand, one of the emergency participants commented on their response to a fire by saying:

"We don't have a problem to deal with a fire as from our experience as a Navy and the Coastguard as well it is included in our basic training firefighting either on shore or off shore … We have to consider

the capability and the capacity of our local resources for example hospital in case of dealing with huge cruise ships." E4

This shows that centralisation of the emergency response system in Oman where resources are not localised, forces local emergency services to response before asking for support from other authorities (Al Shaqsi 2011, p.12). Alternatively, the medical and public health emergency response sector, which is working under the NCCD, can also lead the health cases if the committee manages the incident. If it is off-shore, there will be evacuation in coordination with the military air force.

A participant from the medical sector explained the process. At the beginning, the cruise ship sends a call to the Coastguard. The Royal Oman Police then activates the international codes they are following and communicates with the NCCD. Next, the committee directly gives the responsibility to Medical and Public Health to handle the health incident. Then, the sector activates the international health regulations and leads the response and the overall rescue operations. Therefore, in cases of health issues in a scenario, the Medical and Public Health sector will lead the incident response.

Regarding the resources available to respond to the health incident (in the given scenarios) the Medical and Public Health participant said:

"The government of the Sultanate of Oman has a six (6) month stockpile reserve of all its medication and certain vaccines ..." E5

Although the emergency organisations are working consistently, they cannot judge the capability of their response system in handling mass scale incidents, as it has not happened before. Thus, there should be mutual communication between emergency and tourism sectors in order to facilitate emergency response planning for tourism incidents. Therefore, the next theme sheds light on the extent to which tourism can be integrated with the emergency response planning.

7.3.2 Integrating the Tourism Industry with Emergency Response Planning

This theme highlights the point where tourism can be integrated with the emergency response system in Oman. As stated earlier in Chapter Five, the NCCD has representatives from different governmental authorities, except the Ministry of Tourism. In addition, the PACDA and the Maritime Security Centre have similar members in their committees as the NCCD, but the tourism sector is likewise excluded.

However certain complex events that require interaction between different stakeholders could result in failure in the management due to inadequate planning and ill-informed stakeholder actions (Comfort 2005). The reasons could be that the sector has not been affected by a major incident so far, which would attract their attention, as well as a lack of communication between tourism and emergency organisations, and its lack of awareness due to the tourism industry protecting their reputation that might be negatively affected by news of a major incident. It might also be explained by the tourism industry's focus on establishing projects and attracting investments rather than focusing on emergency management. The focus group participants mentioned that there is no clear reason for excluding the Ministry of Tourism from the NCCD and there might be related procedures to tourism included within the general one. As one of the focus group participants declared that there is no real evidence of the integration, although cooperation currently is little. Additionally, other participants also support that by saying:

> *"The current situation does not enforce more requirements on coordination other than basic constitutional requirement for example to obtain permits to establish tourism enterprises like hotels, which need to be enforced to overcome future risk and to improve the level of preparedness" FG3*
>
> *"No proper integration between sectors founded in the mitigation stage for example. In fact, no awareness for any special plan or meeting covering such issues" FG3*
>
> *"For the mitigation stage there is limited efforts but scattered" FG2*

However, the emergency organisations gave supportive responses to the idea of integrating tourism with emergency response planning, with one of the emergency interviewees saying:

> *"Tourism industry should participate and there should be coordination between the executive office of the National Committee for Civil Defence and the Tourism industry stakeholders." E2*

This participant perceives it to be the responsibility of the NCCD to integrate the tourism industry. This offers a contrast to all the aforementioned reasons (time of previous incidents in the off season, tourism not affected directly, the direction of the

tourism industry towards investments) that support the exclusion of the tourism industry. Additionally, other interviewees declared reasons for the integration:

> *"The tourism industry and the private sector should be involved in order to know their needs and the needs of the cruise ships and requirements and they can help in designing the required plans." E3*
>
> *"Tourism industry should be a partner in building up the plans in case the tourism sector affected, they should participate in developing the plans as they have facts and statistics." E4*

Since the tourism industry is in direct communication with the cruise companies, they can identify their needs and requirements as well as the capacities of tourism in the country. All of these will assist in designing effective plans for handling any potential incidents. Again, the statement considers the importance of getting information and facts from the tourism industry in order to fit them suitably into the plans. Overall, the tourism sector and emergency services should work as a complex adaptive system to enable the procedures of self-organisation and emergence by adopting strategies that allow for flexibility and the flow of information (Hunt et al. 2009).

The focus group participants added more reason to support the need for integration as it will reduce the cost in terms of resources allocation and ensure a common message between private and public sectors. Though resource allocation requires better direction and coordination to manage the incident effectively (Moore et al. 2003; Stephenson 2005; Bergströn et al. 2016). Regarding the sharing of a common message, it is highly required in a time of emergency because if different messages are distributed it will affect negatively on the decision-making process and lead to taking insufficient actions to handle the incident (Helsloot 2005; Kelman 2006). However, some of them do not actually encourage the integration in the response because they are not familiar with handling such incidents, but they ask for a report about the event itself and the tourist's situations. This is in line with Eide et al. (2013) where information about the incident is required by responders to communicate with others, in addition to information about resources.

However, the participant representing the NCCD had a contrasting view. He said:

> *"Regarding the tourism sector in Oman as my personal opinion the sector is still developing, and it needs more time for development. The*

gradual development of the sector there must be an emergency plans and how to deal with emergency cases affecting the tourism sector." E1

Although this participant agrees that the industry is developing, the tourism industry should be involved at this time in order to develop with proper preparation for any potential incidents. It is not plausible to wait until it will be affected in this crucial stage of the development and taking such action at that time will be hopeless.

As an example to demonstrate the need for integration, the emergency organisation E2 managed to rescue many adventuring tourists stuck in high mountains that are only reachable by foot in 5 hours. This organisation received many rescue calls without any information about the tourists, such as who they were, how old they were, or their nationalities. When the researcher asked the emergency organisation whether they are in connection with the Ministry of Tourism or conducting meetings regarding adventure activities, locations and safety instructions, they responded no. Thus, they should meet in order to facilitate the response procedures as Page et al (2006) mentioned how adventure tourism is used as a promotional tool for destinations. Therefore, the focus group participants emphasised the need for integration and recommend it to be a national compulsory requirement. They also asked to have a flexible framework guiding the integration of tourism with the emergency sector. As well as this, aim for more cooperation by conducting more workshops, exercises and training.

7.4 Summary

This chapter has presented an analysis of data gathered by means of face-to-face interviews in Oman with eighteen participants from the tourism industry, port authorities and emergency services to fulfil the fourth and sixth objectives of the research. These were done in addition to the three focused groups detailed at the beginning of the chapter. The study found that tourism and emergency stakeholders are not working as a complex adaptive system. The findings can be divided into three levels (**Figure 7-4**): the organisational (within the organisation), industrial (within the tourism industry) and sectorial (between the tourism and emergency sector).

On the organisational level, the study found that there is a lack of awareness and knowledge about planning and managing an emergency, as well as poor mitigation

and preparedness measures. On the industrial level, there is a lack of cohesiveness between tourism organisations and a lack of communication in terms of sharing experiences and feedback. On the sectorial level, there is a lack of communication between tourism and emergency services and a lack of integration, whereby tourism is not involved in any emergency committee.

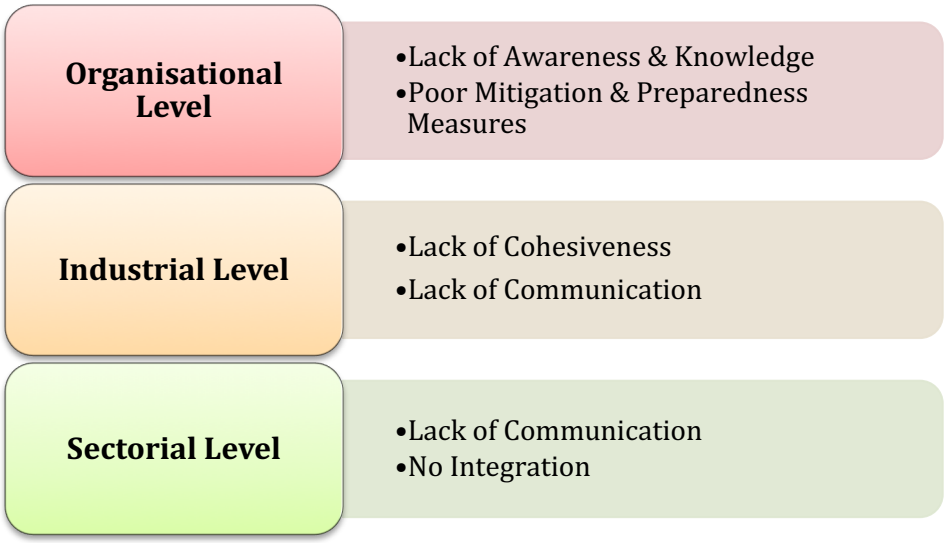


Figure 7-4. Summary of Findings

(Author 2018)

Thus, there should be intra and inter integration in the mitigation and preparedness phases and inter integration in the response stage as per **Figure 7-5.** intra integration within the industry in the mitigation and preparedness stages is justified by the need to share experiences and feedback, while the inter integration with emergency services is required to raise awareness, develop effective plans for response and to conduct regular training.

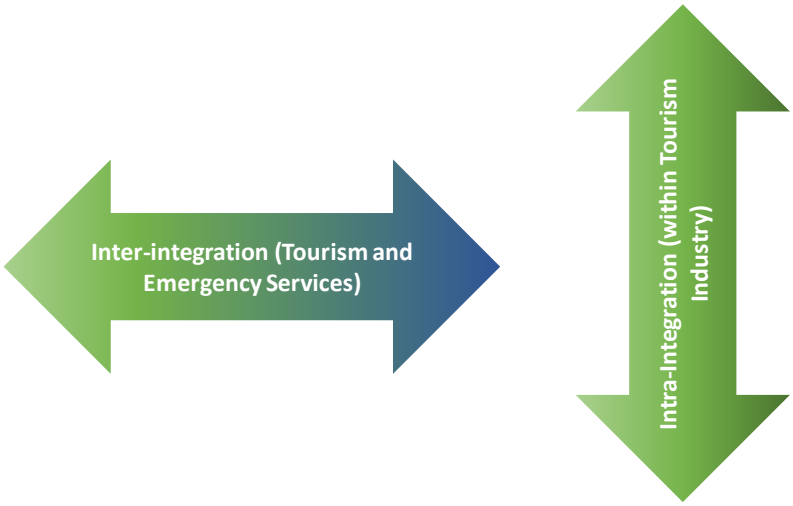


Figure 7-5. Types of Integration in Mitigation and Preparedness Phases
(Author 2018)

However, it is recommended that the tourism industry should also establish inter integration with emergency services in the response phase (**Figure 7-6**). This will ensure that tourism can support emergency services with the required information, and emergency services can respond to incidents by using the resources available.

Figure 7-6. Type of Integration in Response Phase
(Author 2018)

Overall, these results indicate that the tourism industry is currently following a reactive approach towards emergency management. Additionally, the emergency sector does not consider the tourism industry in its plans or training. Therefore, this integration is recommended in order to create situational awareness among all tourism stakeholders and to facilitate emergency response. The next part discusses the findings conducted to achieve the fifth objective of the research.

Part 2: European Interviews Analysis

To identify the expectations and requirements of the European cruise lines (the fifth objective of this research), five interviews were conducted in Europe **(Table 7-3).**

Table 7-3. Participants list

Participant	Area	Code
Head of Quality and Resources, Fred Olsen Cruise Line	Cruise Industry	C1
Quality Management Manager, Carnival Cruise	Cruise Industry	C2
Head of Security and Crisis Management, Carnival Cruises	Cruise Industry	C3
Royal Navy Officer	Maritime	C4
Crisis Management Expert, Ex-Navy Officer	Crisis Management	C5

(Author 2018)

A number of themes **(see Figure 7-7**) have been identified following a combination of conventional and derived content analysis (Hsieh and Shannon 2005).

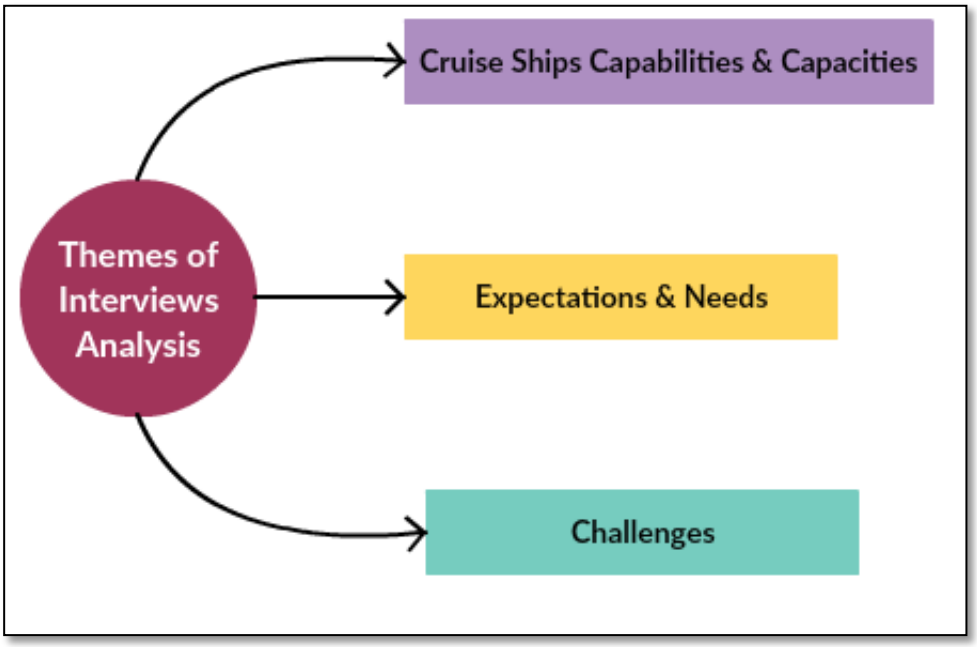


Figure 7-7. Themes of Data Analysis

(Author 2018)

The analysis is divided into three sections in order to answer the following research questions:

1. What capabilities and capacities do cruise ships have when responding to emergency scenarios near to, or alongside, a destination?

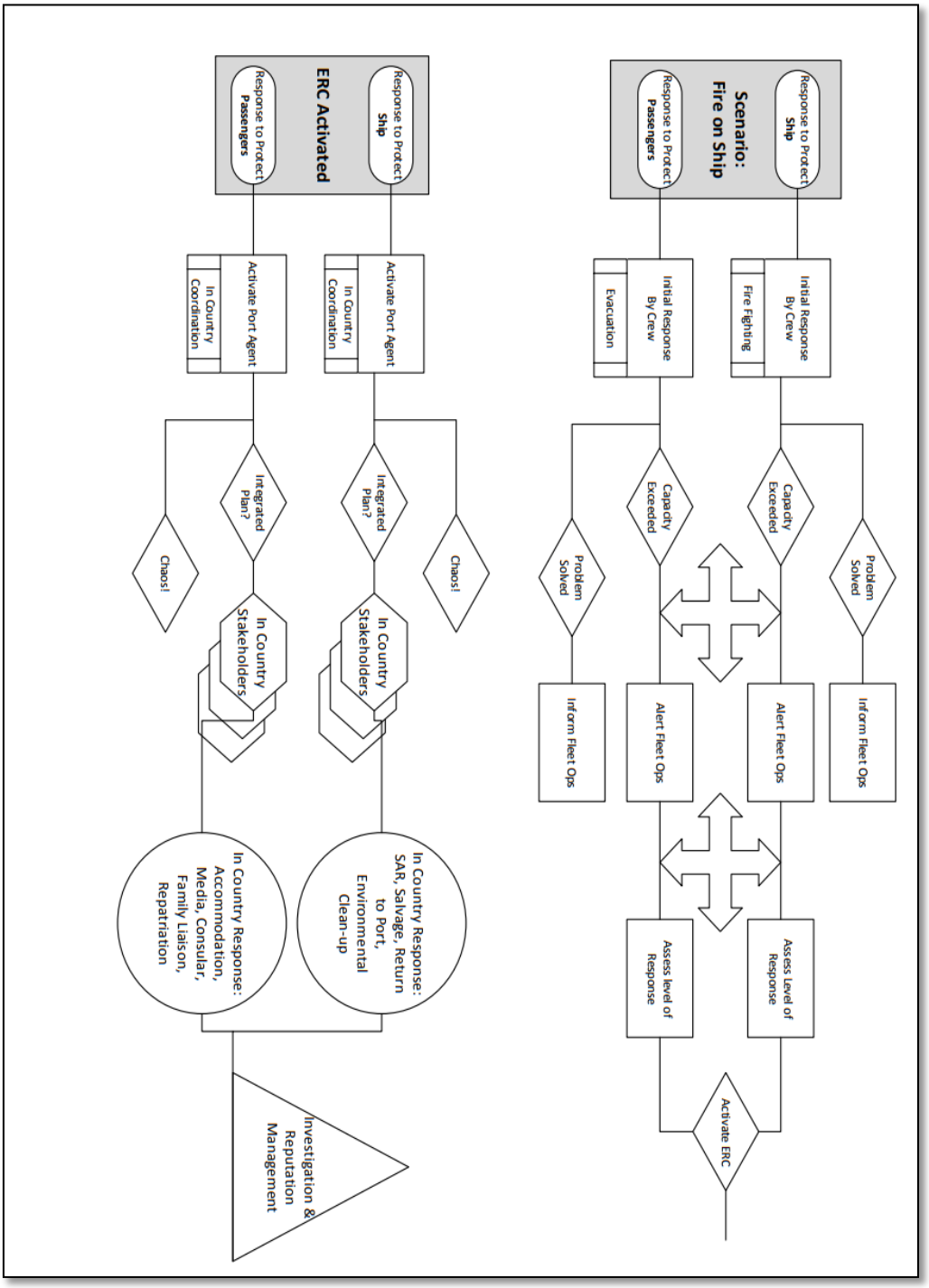
2. What additional capabilities and capacities do cruise ships require from a destination's emergency services and local authorities in the event of an emergency scenario?

3. What are the potential deficits that might challenge cruise ships as a result of an analysis of their requirements within the given scenarios?

Prior to addressing an analysis of the interviews, it is important to set out an overview of the sort of emergency response system commonly adopted by cruise-ship companies. It was within such a model that the interviewees (C1, C2, C3, C4 and C5) were able to more easily discuss the identified capabilities, needs and challenges respective to their cruise companies.

Interviewee C5 confirmed that the primary objective of a Cruise ship's captain would be to keep the ship afloat. The secondary priority would be to preserve the safety and lives of the passengers and crew. Thus, the starting point for any emergency management model for cruise ships is that there are two over-riding priorities: the ship and then the passengers and crew.

Model.1 seeks to set out these two priorities in parallel with each other. All interviewees agreed that any initial emergency response would be initiated by an authorised senior officer on board. They added that if the capabilities and capacities of the cruise ship were overwhelmed, the decision would be taken to report the emergency to the cruise company's "Fleet Operations Centre" whose responsibility would be to categorise the level of the response required and, if appropriate, activate the company's emergency response centre (ERC). As model.1 shows, in the case of a fire breaking out on board ship, there are two parallel response procedures to protect both the ship and the passengers.



Model 7-1. Cruise Ship Emergency Response System

(Author 2018)

To protect the ship the initial response by the crew will be to fight the fire. If they are successful and the emergency has been averted, they contact Fleet Operations simply to advise them of the occurrence. However, if the capacity of the ship's crew and equipment in dealing with the emergency is exceeded, they alert the Fleet Operations

accordingly who then assess the level of the response and activate their Emergency Response Centre (ERC).

Similar procedures apply with respect to protecting the passengers. Initially, the ship's officers will be responsible for the safe evacuation of all passengers and crew. However, should their capacity to safely conduct this operation be exceeded, the Fleet operations would be contacted and, having assessed the level of response required, the ERC would be activated.

In both cases (responding to the needs of the ship and responding to the needs of the passengers and crew), a primary action for the ERC will be to contact the relevant Port/Shipping Agent within the host country to provide 'in-country' coordination with relevant emergency responders. Should the Port/Shipping Agent have failed to set in place adequate coordination and integration mechanisms for protecting the ship or passengers, the result will often be a situation of chaos turning the minor incident into a disaster.

It was a common assumption amongst each of the interviewees that the Port/Shipping Agent would have already achieved a well-developed in-country coordination in the event of an emergency involving a ship. Such an integrated plan would comprise of relevant stakeholders with integrated emergency response plans already agreed and exercised. Typical tasks where the cruise company would be dependent upon the Port/Shipping Agent to coordinate in-country would include: search and rescue, a safe return of the ship to port, an environmental clean-up etc.

Similarly, on behalf of the passengers it would be assumed that the Port/Shipping Agent will have achieved an integration and in-country coordination with relevant stakeholders to coordinate accommodation, health response, consular support, family liaison and subsequent repatriation.

For this reason, the Port/Shipping Agent was considered by each of the interviewees as a potential 'single point of failure'. This is because of the port agent's sole responsibility for in country coordination.

In the event of a failure from a Port/Shipping Agent, a cruise ship company has a huge task to perform in rapidly creating the necessary integration and coordination with the host country. At the same time, the company will be working hard to contribute to an

investigation of the cause of the incident as well as managing the company's reputation.

A key finding from each of the interviewees was that in most cases the Port/Shipping Agent will not have achieved an adequate degree of in-country coordination and integration ready to provide the necessary support in a timely and cost-effective manner.

7.5 Cruise Ship Capabilities and Capacities

Participants C1 and C4 agreed that properly trained and exercised staff are one of the essential capabilities and capacities that cruise ships depend on in time of an emergency. Because regular training can enhance the capacity (Waugh and Streib 2006; Nivolianitou and Synodinou 2011), reduce human error and enhance response to an emergency (Ritchie 2009). Participant C5 made the following comment in the event of a fire (as given in all scenarios) (**See Appendix 6**):

> *"Although the crew, including waiters, cabin stewards and cooks, are obligated to help in the event of an emergency they would not be top-notch fire fighters. Their main job is to ensure that people are mustered."*

This statement demonstrates that in the case of a fire, although crew staff may be available as help fire fight, they are not well qualified to help to fight the fire. This is in line with the Safety and Shipping Review (2015) that crew can be considered as weak points due to inadequate experience, training and lack of emergency preparedness. In any case, should a fire become uncontrollable or the event is 'multi-hazard', the Cruise Ship will inevitably require specialist fire fighters from the destination's local emergency services. They need help because when a fire breaks out in a cruise ship, passengers are highly exposed to many hazards' gases and materials in addition to the sight invisibility (Vairo et al. 2015). They also need help due to the large number of passengers on the ship, as nowadays cruise ships capacity is increasingly carrying more than 3000 passengers (Bowen et al. 2014). Cruise ships are a complex system due to the large number of passengers, crewmembers, and different functions in the cruise hotel and ship functions. Thus, crewmembers should be trained well in case the fire breaks-out offshore because they have to deal with it quickly and they might not get quick support from the destination. Consequently, a common set of

planning and procedures should be developed between the cruise ship and relevant stakeholders (both within the destinations and the cruise company's head office) based on scenarios to train them on emergency procedures (Ritchie 2008). This is because the use of the scenario planning is helpful due to the complexity of the world we are living in (Perterson et al. 2003), since we are dealing with complex and uncertain events (Wilson 2000). All of these result in knock on effects on other stakeholders. For instance, when a cruise arrives to the destination in cooperation with the relevant stakeholders (emergency and tourism sectors) they should hold evacuation drills based on designed scenarios. These scenarios should capture complexities to fit with Omanis and consider foreign interest because the negative impacts of disaster will affect their image and reputation. In addition, because there is a need for collaboration, table-top exercises can be conducted between both Cruise Ships and those who are specialised in responding to emergencies in the destination (Payne 1999; Edzén 2014). This will help to train them, practice coordination arrangements and teach those involved how all elements work together as well as improving the current plan (Edzen 2014). In addition to this overcoming the complexity of the emergency response system is required because in this case it will involve responders from various organisations with different laws and regulations, culture, knowledge, values, tools, information systems, objectives, goals and their dynamical interactions and may be in different languages (Chen et al. 2007; Uhr 2007).

On the other hand, if an evacuation becomes necessary (for any given scenario or incident), Participants C2 and C3 argued that they could book accommodation for shelter, and flights for repatriation, through online booking systems as one of them commented:

> *"... We will book accommodation online... We would contact the scheduled flights from the airports if we had to repatriate people" C2*

Access to local destination accommodation and return flights is considerably easier if requests are channelled through direct contacts with the tourism industry or the Ministry of Tourism within the destination country. Surprisingly, none of the Participants mentioned contacting the destination's tourism industry during the response phase. This also demonstrates the need for collaboration between cruise lines and local tourism authorities, so cruise lines should invest in building and developing relations with local authorities in addition to their main contact, the shipping or port

agent (O'Sullivan et al. 2013), to achieve an effective response (McKercher and Cohen 2004).

In the case of scenarios C and D (**See Appendix 6**) the spread of Norovirus, all participants (C1, C2, C3, C4 and C5) agreed that cruise ships have two doctors and four nurses and confirmed that these are not enough to deal with the large number of affected people mentioned in the scenarios (2500 passengers, 1250 crew members). Although they have in their plan, a capability to isolate affected sick people, in the case of the multi-hazard scenario (fire, norovirus and mass casualties) it was judged as difficult to be managed by the cruise ship only. Thus, collaboration is also required when masses of people are affected to reduce mass casualties (Kapucu and Garayev 2011) and in complex situations when multi-organisations are involved in the response (Mendonça et al. 2007: Salas et al. 2008; Eide et al. 2012). What also emphasises the need for collaboration is what interviewees from the emergency services in Oman replied in the previous part that the capabilities of the system are not tested for mass casualties.

Other new capabilities mentioned by all participants included the availability of a new technology system for the safe return of a cruise ship alongside the port if an incident occurs offshore. In addition, they have back-up power generating systems to provide alternative sources of power in case of electricity or engine shut down. Although technology helps in solving many problems, De Rademaeker et al. (2014) argue that accidents still happen due to human error. For example, the case of Costa Concordia Schroder-Hinrichs et al. (2012). Despite this, Vanem et al. (2006) indicate that they are very rare.

Although cruise ships have some capabilities, they are limited, and they still have needs and expectations from the local destinations, especially when dealing with the unexpected, unmanageable situations and multi-hazards.

7.6 Expectations and Needs

Although the participants mentioned their capabilities in the previous theme to respond to such incidents, they still have needs and expectations from the destination (Oman). In Europe as C1, C2 and C3 mentioned they are familiar with the available resources and they have a good liaison with the local authorities due to the regularly conducted drills to test their plans. Therefore, they lack the capability of the emergency response

system and relations with local authorities in Oman. Thus, collaborative work is required between the ship and relevant stakeholders, in order to develop the applicable strategic plans to respond to an emergency (Shrivastava and Mitroff 1987). A lack of collaboration leads to poorer communication, which is an important challenge in times of emergency responses. Thus, to facilitate collaboration both cruise lines and local authorities (e.g. emergency services and tourism industry) should understand their own and other tasks, plans, resources, needs and strategies (Eide et al. 2012). However, different participants identified different needs, but none of them identified the full range of needs. This might reflect their experience because organisations that have experienced emergencies are able to identify the full range of needs and expectations. This might also reflect their culture as according to Adahl (2009) culture is considered as an important "ingredient" that enables the successful operation of emergency management and helps identify the possible solutions, for example identifying needs and expectations in this case.

Participants C1, C4 and C5 indicated that they need to engage the local fire-fighters if the ship cannot control the fire on-board as C5 commented:

> *"Pumping water to fight the fire will be a challenge it will cause the ship to sink especially if there is no electricity to pull the water out of the ship- this needs local emergency help."*

So common work between cruise ships and local emergency services is recommended due to the nature of emergencies as unexpected and complex incidents (Faulkner 2001; Coskun and Ozecylan 2011), where one event can lead to another (Helbing et al. 2005). So, local help is needed to minimise the effect of the incident. This will help to avoid the problems that occurred during the response to the Kobe earthquake where the emergency organisations did not really work together (Heath 1995). However, the complexity of the emergency response system due to the involvement of many organisations that interact dynamically in a non-linear way requires coordination (Comfort et al. 2001; Comfort 1994 1995).

They also, expect local authority cooperation for any evacuation to include help from the port authorities or emergency services especially in multi-hazard cases or off-shore incidents, especially with the large number of passengers. While in the case of scenarios C and D (Norovirus and fire) C2, C4 and C5 mentioned that they need coordination (for isolation and evacuation) with the local public health authorities

through the shipping agent. C2 also added they need clear coordination from the local authorities and the port authority, so they can ensure easy communication with them through the ship and emergency response centre in Europe. Participants require arrangement and communication to solve the problem and provide passengers their requirements such as public health, engineering, accommodation and logistics. All these requirements demonstrate the need for collaborative coordination and work between the ship and the relevant stakeholders in the destination which will facilitate the response and improve local capabilities (Shrivastava and Mitroff 1987; Ireni Saban 2014). It also required by the cruise ship and the destination to use scenarios in designing common emergency plans in order to identify the required resources, distribute them and test the ability of the local responders (Alexander 2000).

Participants were asked if they had any specific expectations from the tourism industry during a response. They identified no specific requirements from the tourism industry. One of the participants said:

> *"I am not sure that we have any expectation at the moment from the tourism industry… but I think it is a good suggestion, but I have to say it is not currently in our plan, but maybe it should be..." C2*

This statement indicates that there is currently no active integration between cruise-ship companies and destination stakeholders of tourism or emergency services in terms of managing unexpected incidents. Cruise ship plans seem to contain no plans for multi-agency exercises, or joint drills with destination stakeholders (Oman and Middle East). It is recommended that a cruise-ship company should understand the capacities of the different stakeholders and to what extent they can help in case of an emergency.

In case of all scenarios due to the total loss of power; there is a need for the shore side power for the ship as revealed by C3, C4 and C5. Additionally, they need to make sure that there is space for the ship to anchor at the port if it is off-shore in order for it to be fixed and in order to get access to the dock for coaches, to move the passengers ashore.

All participants C1, C2, C3, C4 and C5 confirmed there is a need to liaise with the local authorities before reaching the destination through their Head Office. C5 believed that there is an additional need to liaise with local destination media. As discussed by Armstrong and Ritchie (2007), negative media coverage had an effect in declining tourist numbers as happened in Australia due to the Canberra bushfire in

2003. In addition, media will affect tourists' perceptions when they perceive that the destination is unsafe (Calgaro 2010). Finally, C3 and C5 stressed the need to make sure that their emergency response plans corresponded with the local authorities' plans and their local emergency response capabilities and capacities were tested. C4 suggests conducting face-to-face meetings to discuss response plans and key requirements with the local authorities. It is recommended that joint drills exercising realistic and relevant scenarios will significantly improve the efficiency of any future response (Perterson et al. 2003) and fill in any gap in the available plans (Pollard and Hotho 2006) as well as help in identifying the needed resources (Alexander 2000). So, identifying needs and expectations is helpful in overcoming future challenges.

7.7 Challenges

In answering the third research question, C2 highlighted that:

> *"Our single point of weakness as an organisation is that we put all of our requirements through one point of contact, which is the port agent… they are good in dealing with routine cases but in case of these scenarios … we are not sure about their capability to deal with such incidents"*

So, from this statement even if the cruise ship is dealing with local shipping agents, they are still not sure of their capability in case of major incidents as they are dealing with them with routine cases. So, it is important to adapt the proactive approach and be ready for inexperienced incidents (Pforr and Hosie 2007). Therefore, C4 suggested sharing procedures and exchanging views with the local authorities in the destination. So, the port agent or the shipping agent here is considered as a single point of failure because the cruise is depending totally on the agent, and they lack its capability in time of an emergency. In addition, it is a single point of failure because if the coordination for a response failed, it will lead to chaos and turn the emergency case into a disaster (Coppola 2011). So, when the shipping agent does not work or respond to any potential incidents as expected by the cruise company, this will affect the emergency response system as well as the destination image.

In cases where there is a need for evacuation and shelter, all participants (C1, C2.C3, C4 and C5) identified the most challenging things were providing passengers with food and water which are the main needs in time of emergency according to

Christopher and Tatham, (2011), in addition to communication and transportation. During evacuation C5 added one of the challenges they might face is evacuating people who are confined to wheelchairs as they might hinder evacuation and likewise, blind as well as deaf people are a challenge, especially if the ship is offshore. In addition to this, evacuating children might also be considered as a challenge as they might not understand the evacuation procedures.

Moreover, due to the language differences communication problems may occur during evacuation (Alexander 2012), which is like the case of Costa Concordia (Nthia 2015). This is considered as challenge for the cruise ship because they have language barriers; the consequences of such were demonstrated by what happened in the Costa Concordia, (Nthia 2015) and in Norman Atlantic (Zikakou 2015). This may result in hindering or slowing the response due to language and cultural differences (Allinson 1994; Heath 1995; Alexander 2000; Ritchie 2009) and this in turn may result in increasing the number of affected passengers like the Sewol Ferry case (Ramage 2015). In addition to the complexity of the incident, language itself is, according to Cilliers (1998), considered to be a complex system due to the large number of words that carry several meanings. So, in order to meet the challenges of the culture, Adahl (2009) mentioned it requires a specifically developed training program and well-distributed responders to work on emergency operations. While, Johnson and Peppas (2003) emphasised the importance of developing emergency response plans for specific areas and integrating local management and public office to make some changes as needed.

Additional challenges arise when stakeholders are not familiar with the capacity of the local hospitals, especially in the case of evacuating people affected by a virus. Besides considering whether the capacity of local hospitals is limited, there could also be a conflict of interest and objectives between the cruise ship and the destination. This arises because the cruise ship may have limited capability, so will want to evacuate affected people to hospitals, while the destination may refuse to admit them in local hospitals to avoid spreading any viruses to vulnerable people in hospital. Moreover, the highest priority for the destination (e.g. protecting destination image) is different to the highest priority of the cruise (e.g. business reputation). Therefore, destinations and cruise ships should understand each other's priorities and objectives to help them when handling incidents. Furthermore, in case passengers need to be repatriated, especially if they are from different countries as C3 mentioned, they do not have

chartered flights. Moreover, if the ship needs to be repaired for long time participants are asking is there available berths at the port if they are expecting different ships coming. The last challenge added by the participants is to control the media; this might affect both the cruise lines and the destination for the reasons mentioned in the previous theme (Armstrong and Ritchie 2007; Calgaro 2010). All the mentioned challenges are due to the lack of joint work, communication and coordination with the local authorities that needs to be established before arriving to any destination.

7.8 The Conceptual Framework

Turning the discussion to the focus of this study: developing and integrated an emergency response system. A conceptual framework **(Figure 7-8)** based on the earlier work by Leiper has been developed in order to portray a clear path for the remainder of this study and to identify the existing gaps. Earlier literature **(Figure 3-1)** highlighted the vulnerability of the tourism industry and pointing out four phases of emergency management . It was decided, given the scope and significance of this area, the current study will focus on the response phase. The vulnerability of the tourism industry by natural and human-induced hazards (Laws et al. 1998; Henderson 2002; Prideaux et al. 2003; Ritche 2008; Tsai and Chen 2010; Becken and Hughey 2013) and in particular the transit route (cruise ship) is the focus of this study. The cruise ship can be affected by natural or human-induced hazards in any phase of the operation (embarkation, departure, cruise, docking, arrival and disembarkation) (Vidmar et al. 2013). The complex events that include the interaction between many components could result in failure of the management, if there is insufficient planning and ill-informed individual or organisation actions (Comfort 2005). On the other hand, no study has examined the integration of the Omani tourism industry with response planning for emergencies. In addition, the dis-involvement of the Ministry of tourism with the NCCD indicates that there is a lack of collaboration between the different governmental departments. Additionally, the NCCD's main concentrations are on the governmental and public sector response with little reference to private sector response (Al Shaqsi 2011), which is, in this case, the tourism industry including: tour operators, travel agencies, hotels etc. Additionally, Al Shaqsi (2011) mentions that roles do not clarify that the NCCD has the authority to impose on the governmental agencies to apply the emergency plans and there is no indication as to who is in charge of following up and reviewing the application of such plans. Furthermore, Al Shaqsi (2011) describes the NCCD disasters and emergencies management approach as reactive

rather than proactive. Therefore, the recent natural disasters demonstrate that the local authorities in Oman are not well prepared, thus there is a need for regional and national support. “This is because the current emergency management system in Oman is still largely centralized and resources are not localized” which limit the ability of the local authorities to handle emergencies before demanding a regional or national support (Al Shaqsi 2011, p.12). This means that if tourists are affected in any location by any incident, it will only be the responsibility of the NCCD and the Ministry of Tourism, its related stakeholders have no or limited involvement; they are basically not working as a complex adaptive system. And there is no assurance that if more than one incident happens at the same time in different areas, the necessary resources would be available. So, identifying the capabilities of the emergency response system in the destination (Oman) and identifying the capabilities, requirements and challenges of the cruise lines in case of an emergency occurring or multi-incidents happening at the same time (capabilities, needs and challenges) will help to design the intended model for integration gathering all emergency services, tourism industry and the related stakeholders. The study found that there is no inter or intra integration existing in the country Oman. In addition, cruise ships lack the capabilities required and so need for local authorities support. Thus, a recommended integrated emergency response system builds on the components of coordination, collaboration, cooperation and communication. This system will help enhance the efficiency and the effectiveness of the emergency response system by having strong leadership, making decisive decisions, having clear communication and facilitating information sharing among all involved stakeholders. Nowadays, due to the sudden outbreak of many emergencies around the world, even in the well-prepared countries with advanced and high capacity of the necessary resources, it is the matter of the response system and how resilient it is.

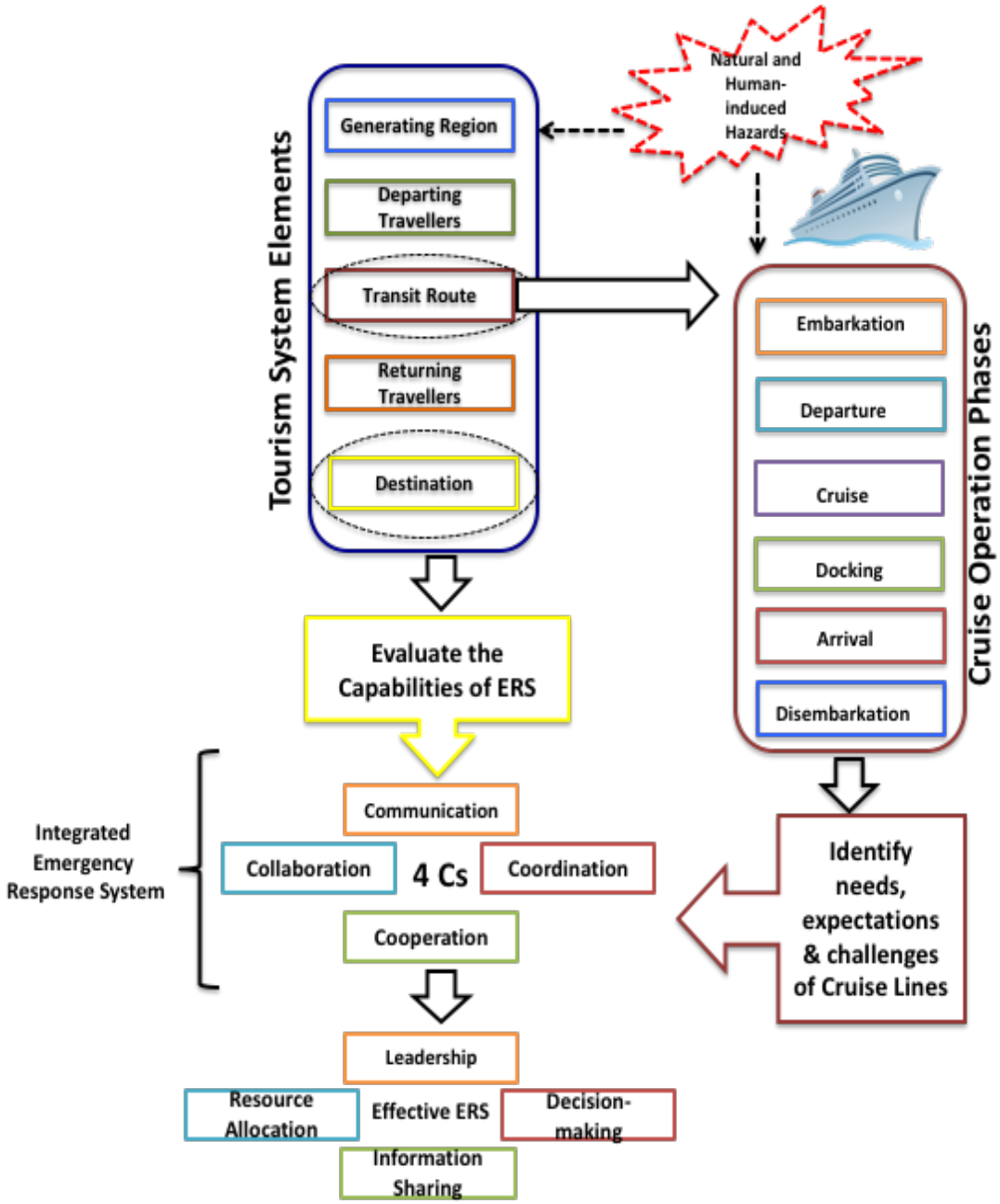


Figure 7-8. The Conceptual Framework

(Author 2018)

7.9 Summary

The findings from the five conducted interviews in Europe revealed that cruise ships have some capabilities in managing certain incidents, but they lack coordination with Omani Emergency and Tourism sectors. The port or the shipping agent is the only point of contact with the cruise before arriving at the destination to facilitate their

arrival. However, in the case of an emergency they need assistance from the emergency services **(Figure. 7-9).** Surprisingly, cruise companies have no relations with any emergency services in the destination.

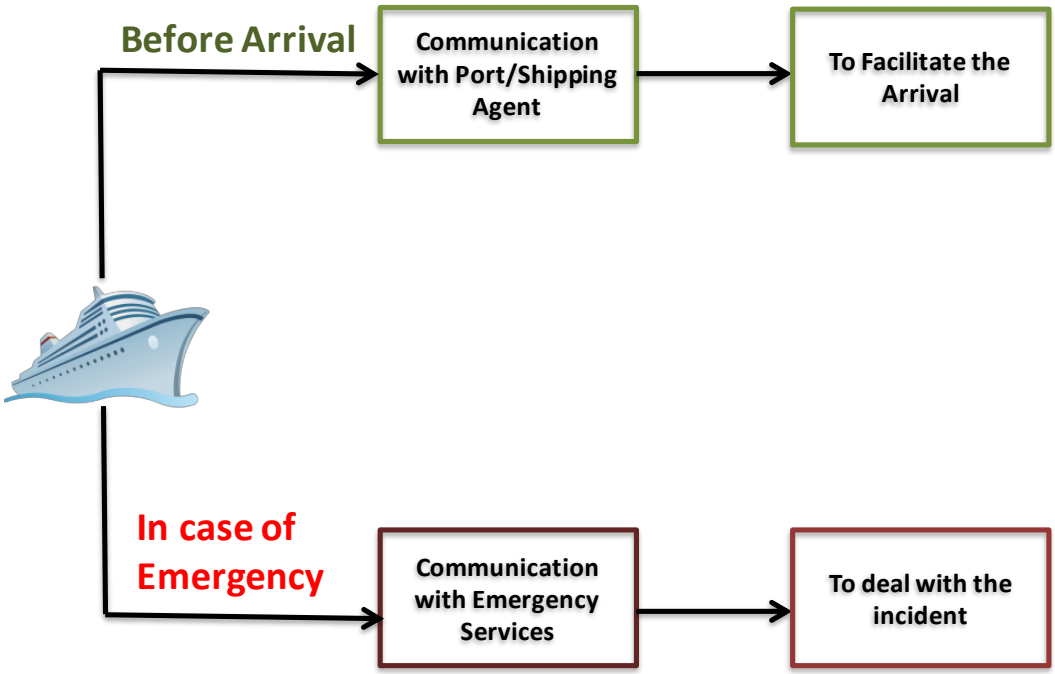


Figure 7-9. The Current Situation of Communication between Cruise Lines and the Destination

(Author 2018)

However, cruise lines should establish relations with tourism stakeholders, as well as emergency services in the country, so that the coordination, collaboration, cooperation and communication will be easy in case of an emergency. **Figure 7-10** shows the proposed communication and connection that cruise lines should establish before the arrival.

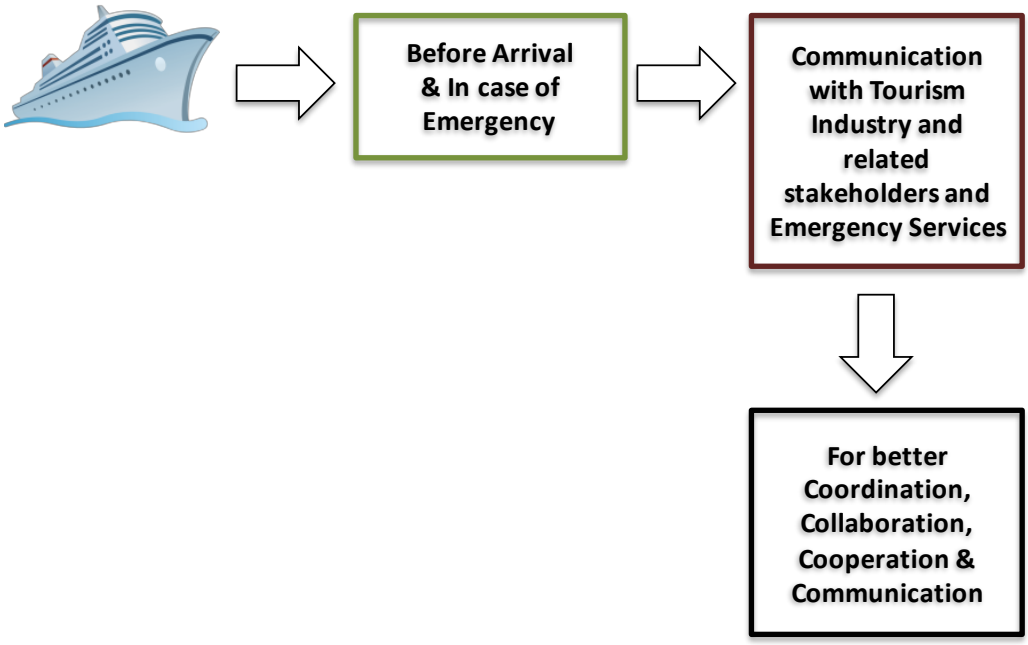


Figure 7-10. The Proposed Connection for Cruise Lines with the Destination
(Author 2018)

So, the study suggests future integration between Cruise Ship Companies, the tourism sector (shipping agent and relevant stakeholders) and the emergency services as **Figure. 7-11** shows.

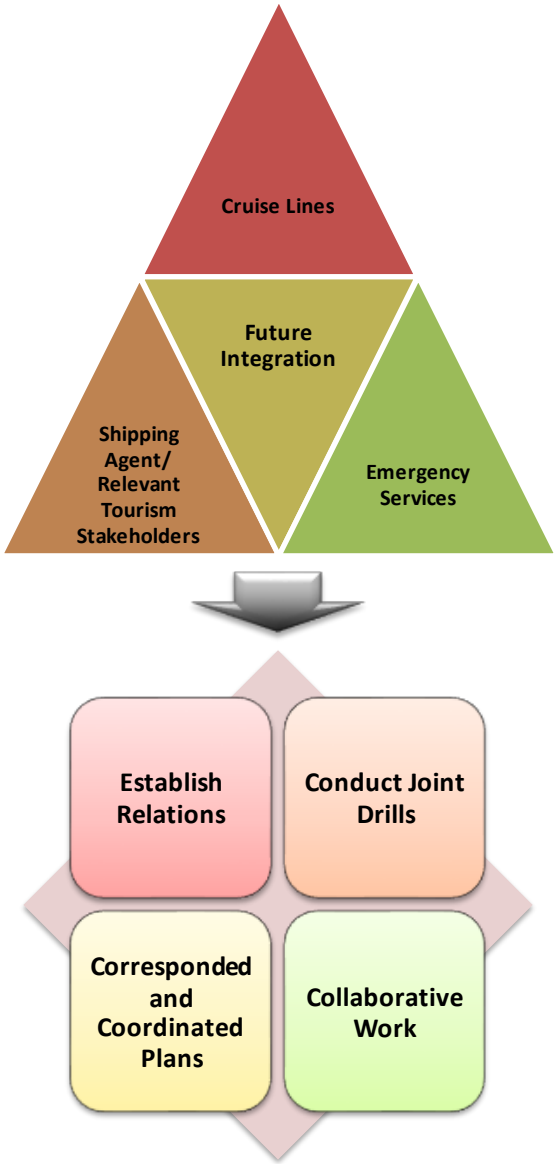


Figure 7-11. Suggested Future Integration

(Author 2018)

The reasons for this integration are first, to establish relations with the local tourism and emergency authorities, so in case of an emergency the coordination and communication will be facilitated. Second, to conduct joint drills in order to identify the required resources in case of an incident. Third, cruise should make sure that their plans correspond with the destination's emergency plans, as there may be cultural differences. Finally, there should be collaborative work between them in order to deal with any incident effectively.

Chapter 8: Conclusion

8.1 Introduction

This chapter starts with a review of the research objectives and then summarises the main findings of the study. It highlights the theoretical, practical and methodological contributions of the study. Finally, it discusses the study limitations and explores the opportunities for further research.

8.2 Review of Study Objectives

8.2.1 Objective One

To critically review complexity in relation to emergency response planning.

Towards achieving this objective, it was important to critically review complexity and complexity theory (Webster 1956; Coskun and Ozecylan 2011; Roo et al. 2012) to understand the complex nature of emergencies. It was found that complex events (Comfort 2005; Helbing et al. 2005), complex systems (Kuhn and Beam 1982; Morowits 1995; Cilliers 1998; Chettiparamb 2013) and the complex adaptive systems (Gleick 1987; Waldrop 1992; McMillan 2008; Chettiparamb 2013) have features that are applicable to emergencies. For example, complex events, as listed in chapter two, are unexpected with uncertain consequences and their management requires the participation of multi-stakeholders interacting dynamically (Comfort 2005; Helbing et al. 2005). Complex systems and complex adaptive systems consist of many interacting elements that are adaptive to changes and able to learn (Cilliers 1998; Hilhorst 2003; McMillan 2008; Chettiparamb 2013). This explanation and its understanding were important when designing the scenarios of the study in the context of complexity and in order formulate the findings of the study. Chapter two highlighted how understanding complexity of uncertain emergencies can help organisations be ready to respond effectively (Ling 2012) by adopting a proactive strategic approach (e.g. by applying mitigation and preparedness measures). It was found that complexity is not inherent only in large-scale incidents, but also in routine incidents, which occur frequently, like floods (Coskun and Ozecylan 2011; O'Sullivan et al. 2012) due to their uncertainty and indirect effects. The knock-on effect in emergencies implies that those that hit locally might require international strategies and those that occur internationally may bring with them effects on the local community. Thus, this indirect effect results in complexity that requires advanced communication, coordination,

cooperation and collaboration among several stakeholders. Six types of complexities that might occur during an emergency response were identified as: human complexity, technologic complexity, event complexity, interaction complexity, cultural complexity and decision-making complexity (Coskun and Ozecylan 2011).

These six identified complexities (Coskun and Ozecylan 2011) were also found by this study in the destination Oman through examining various scenarios. Firstly, for human complexity, the study found that some organisations when responding do not follow any standard instructions, or specific procedures; this leads to a poor response and inadequate decision-making. Secondly, for technologic complexity, the study discovered that the emergency services (first responders) do not use tools like speech creators or display books to communicate with affected people, who speak different languages than Arabic or English. In addition, the Emergency Services do not have access to check the vacancies of hotels rooms in case there is a need for shelter. The use of such technologies helps to do such tasks more efficiently. Thirdly, for event complexity, the study found that the capabilities of the country are not tested for response to large scale incidents like the case of cruise ships. So, the complexity of incident is not considered, thus the study recommended adding complexity in the context of designing scenarios. Fourthly, the interaction complexity was approved by the study in the lack of integration and interaction in terms of communication and coordination between emergency services and the tourism industry. Furthermore, this type of complexity was demonstrated in the lack of collaboration between the cruise lines, the local emergency services and tourism industry in Oman. Therefore, different types of integration (Intra and Inter integration) were suggested by the study to enhance future incident management in light of interaction complexity. Fifthly, cultural complexity was discovered in the scenarios where a European Cruise ship is affected in a Gulf country, which has a totally a different language and culture. Lastly, decision-making complexity was revealed by this study by the lack of the availability of a platform to access and share information between emergency services and the tourism industry in the time of incident. Thus, the study suggested having a communication hub for the tourism industry to enhance emergency responses.

Previous research shows that the emergency management processes can be divided into four phases including mitigation, preparedness, response and recovery (Waugh and Hy 1990; McEntire 2007; Edzén 2014). Each phase has a different set of activities and procedures (Emergency Management Australia 2004; UNISDR 2009; Ritchie

2009; Cappola 2011**;** Haddow et al. 2011; Sanjeewa et al. 2012; Lindsay 2012; Jackman and Beruvides 2013; UNWTO 2014**;** Ireni Saban 2014). Highlighting the phases was helpful in identifying the research gap regarding the lack of capability of the emergency response systems in Oman, specifically with respect to the preparation of the tourism industry. It was also helpful in designing the interview questions to tackle the current and future levels of the tourism industry participants in terms of risk reduction and response. However, Ritchie (2008) explained that managing emergencies is not sequential because the occurrence of an emergency might not start from the mitigation or preparedness phase (following the cycle of emergency management) rather it might start immediately from the response phase. The focus of this study is on the response phase, which was deemed to be the most important and critical phase because it is a period of high stress that might result in irrational decisions and behaviour, with limited time and often conflicting information (Coppola 2011).

In chapter two planning was linked to complexity in order to identify ways of improving the planning and emergency management processes (Alexander and Cohen 2000). Moreover, Webber (1978) emphasised that planners need to be familiar with complexity and complex dynamic systems to help them achieve effective planning outcomes. Although Christensen (2012) revealed that planners can use complexity as a building block and derive ways to solve problems and add new arrangements. This study found the degree of complexity increases from operational to strategic planning as illustrated in **Figure 3-2.** due to the increased interaction and the involvement of different stakeholders (Sybouts 1992) in the emergency management process. It was emphasised that planning should be for actions that can be taken in times of emergency, rather than planning for situations (Drabek 1995; Piotrowski 2006). Thus, Dowell (1995) linked planning for emergencies with strategic planning due to the complex nature of emergencies. This enables organisations to identify its strengths, weaknesses, opportunities and threats (Vargo and Seville 2011) and enhance future learning (Pollard and Hotho 2006). This was helpful in evaluating the level of organisation preparedness for future incidents by developing a more effective and proactive strategic approach to emergency management. In order to enhance the industry preparation and to protect the tourism destination's reputation and ensure the resilience of future tourist flows, Ritchie (2009), Ali and Ali (2010) and Taneja et al. (2014) emphasised the integration of tourism emergency management with strategic

management. This study found that the tourism industry and related stakeholders' activities in Oman are not linked to strategic management because although the country was affected by previous incidents, they still do not have the ability to deal with future incidents. Thus, integrating emergency management with strategic management will help organisations shift from responding and management to mitigation and preparedness to minimise the likelihood of an incident's occurrence.

Furthermore, it was found that such integration is inherent in the use of scenarios (Schoemaker 1993; Verity 2003; Van der Merwe et al. 2007; Page et al. 2010; Herve 2011). The literature emphasised the importance of scenarios in building a proactive approach to handling emergencies (Perterson et al. 2003). Scenarios also help develop responders' ability to make rapid and efficient responses to future incidents and to update the current response strategies (Schwartz 1996; De Geus 1999; Smallman and Weir 1999; Brown and Starkey 2000). This, in turn, helps managers identify the required resources for future incidents. Alexander (2000) mentioned that building scenarios has specific aims for each emergency management phase. Taking cognisance of this, this study applied scenario building to identify gaps in the research. Scenarios were built for the response phase within the context of complexity. They were built based on different factors (location and types of hazard) to find ways to solve the problems which occurred in the scenarios and to develop the concept of an integrated emergency response system for the tourism industry in Oman.

8.2.2 Objective Two

To draw on the complex adaptive system similarities within the tourism industry.

The probability that tourism industry has to face negative events is almost certain (Pottorff and Neal 1994; Richter 1999; Evans et al. 2003; Laws and Prideaux 2005). However, the time and the types of these events require preparedness (see Ritchie 2004; Gundel 2005; Pizam 2005). Thus, in order to identify how the tourism industry can respond to emergencies (Baggio 2007), the literature in chapter three (Farrell and Twining-Ward 2005; Miller and Twining-Ward 2005; Baggio 2007; de Sausmarez 2007; Baggio 2008; Schianetz and Kavanagh 2008; Stevenson et al. 2009; Baggio and Sainaghi 2011) addressed the features that match the similarities between tourism and the complex adaptive system. Nevertheless, Hystad and Keller (2007) discovered different barriers that hindered the tourism industry from planning for emergencies such as shortages of money, lack of knowledge, size of organisations (SMEs) and lack

of cohesiveness among tourism stakeholders. These barriers were also found by this study, in addition to the lack of awareness, lack of communication, coordination and collaboration within the tourism industry and with emergency services. In the case of this study, to overcome these barriers, a Public Private Partnership was suggested (Bajracharya and Hastings 2012; Hochrainer-Stigler and Lorant1 2017) to help organisations reduce the negative effects and enhance resilience.

It was recommended to integrate tourism with emergency services (UNWTO 2014). However, it was also considered that this integrated emergency response system was a complex system because of the heterogeneity of the responders' culture, knowledge, tools, values, language or information system (Chen et al. 2007; Uhr 2007). To overcome these obstacles Alexander (2013b) suggested conducting regular training and education. Specifically, culture was also emphasised as an important element that can affect the management of emergencies (Adahl 2009) especially in tourism where tourists and involved stakeholders are from different cultures. Culture can hinder the communication and ability of organisations or destinations in handling emergencies or disasters at national, regional or local levels (Adahl 2009). Therefore, discussing culture in the case of this study was important because potential incidents might affect international cruise ships in local destinations where cultures are different.

It was found that to overcome the complexity of integrated emergency response systems, there is a need for communication, coordination, cooperation and collaboration among all stakeholders in order to enhance leadership, to facilitate decision-making, to share information and to allocate the required resources effectively (Xia et al. 2011; Pramanik et al. 2015). Huxham and Vangen (2005) found that the complexity in the integrated emergency response system increases from coordination to collaboration, which is considered to have a high degree of complexity. This is because collaboration is a long-term relationship. However, resilience was considered the most important feature of this system and it is this that enhances the organisation's preparedness and ability to mitigate the impact of an emergency (Jung and Song 2014). It was argued that resilience is a complex adaptive system (Allen et al. 2005) and that four factors can be identified and can enhance an organisation's resilience; (1) ability to live with modifications and ambiguities, (2) fostering diversity for more opportunities and decreasing hazards, (3) raising the range of experience for learning and answering problems, and (4) generating opportunities for self-organisation (Berkes 2007). In addition, it was found that the capacity for resilience is

constituted by empowering locals, responders, organisations, communities, governments, systems and the society to share the responsibility in preventing hazards from evolving into disasters (Canadian Emergency Management Framework 2011).

8.2.3 Objective Three

To examine the specific challenges presented by the Cruise Ship industry when undertaking emergency responses.

The possible hazards that might occur in the cruise-ship industry (Vidmar et al. 2013) and the possible measures needed to handle them (FSA 2008) were identified in chapter four. From examining different case studies of Costa Concordia, MV Sewol Korean Ferry and Norman Atlantic, the reasons behind their inefficient emergency response systems were identified. These reasons were the levels of crew experience, lack of training (e.g. evacuation drills), inefficient emergency preparedness measures and differences in languages and cultures (Alexander 2012; Di Lieto 2012; Anstey et al. 2015; Nthia 2015; Ramage 2015). Therefore, the study to mitigate these issues suggested establishing relations with the local tourism and emergency authorities, conducting joint drills, developing corresponded and coordinated plans and conducting collaborative work. In addition, the study also suggested integrating culture into the tourism emergency plans.

8.2.4 Objective Four

To evaluate the capability of the emergency response system of Oman when responding to emergency scenarios on or off shore;

This objective was achieved through a comprehensive review and analysis of related documents in relation to the tourism industry in Oman, focusing specifically on the cruise industry (Ministry of Information 2012). Chapter five revealed the policy of the country to diversify national income by developing the tourism industry so that dependence on oil can be minimised (Winkler 2007; Times of Oman 2015). It was found that the country is working to develop tourism industry in the country by facilitating visa procedures, adding activities, attracting investment, improving the tourism infrastructure and increasing hotel rooms (Oman 2009; Feighery 2012; PART 2016). The review of literature showed an increasing number of tourists (NCSI 2017; The Tourism Annul Report 2016), however, the study found that there was a lack of preparedness for future emergencies, which might affect the tourism industry. Chapter five highlighted the emergency management system in Oman and how the system

works when there is an emergency (Al-Shaqsi 2010; Al Shaqsi 2011; Al Hajri 2011; NCCD 2016). The analysis found that although the country is working towards developing tourism as a major source of income and thereby increase the number of projects to attract more tourists, the Ministry of Tourism has no seat in the NCCD with other Ministries.

In order to evaluate the capability of the emergency response system of Oman when responding to emergency scenarios, a set of 18 semi-structured interviews were conducted in Oman with tourism and emergency services representatives. The study found that with respect to the tourism organisation level, there is a lack of awareness of emergency management and a lack of mitigation and preparedness measures. Within the tourism industry it was found that there is a lack of cohesiveness as each organisation is working alone and has no communication network for sharing experiences or feedback regarding emergency management with other organisations. Finally, the findings revealed that there is a lack of integration between the tourism and emergency services (no communication, coordination, cooperation or collaboration,).

Overall, a major finding was the clear push towards developing the tourism industry to build economic resilience for Oman. Yet, that push was not matched by a growing awareness and capability of the tourism industry and emergency planning agencies to be able to ensure that the tourism industry could be resilient in the face of a disaster. Therefore, the study suggests two types of integration intra- and inter-integration. The intra-integration (within the tourism industry) was suggested for the mitigation and preparedness phases. This was due to the need to share experiences and feedback. Additionally, inter-integration was also required in these phases (between tourism and emergency services) to raise awareness, develop effective plans for response and to conduct regular training. Furthermore, inter-integration was also suggested in the response phase to ensure that tourism can support the emergency services with the required information, and emergency services can respond to incidents by using the resources available.

8.2.5 Objective Five

To identify European cruise lines' capabilities, requirements and challenges when responding to emergency scenarios near to, or alongside, a destination.

This objective was fulfilled by conducting semi-structured interviews with cruise representatives and experts in crisis and security management from Europe. The interviews were conducted in order to identify the requirements and expectations in case cruise ships were affected in the destination, using a set of given emergency scenarios. The focus of the interviews was derived from the analyses of the literature combined with the researcher's own knowledge of the country and the issues involved. The study found that although cruise ships often have the capabilities to manage certain incidents, they lack the coordination with the Omani emergency and tourism sectors. It was also found that although the cruise ships are in contact with the port/shipping agent to facilitate their arrival to the country, in cases of an emergency they also need contact and help from the emergency services. Surprisingly, cruise companies lack relations with emergency services in Oman, in addition they lack the capabilities of the emergency response system of the destination. This case the study found that the port/shipping agent is considered ***a single point of failure*** due to the lack of capabilities in handling several concurrent incidents. Therefore, it was suggested that there should be collaboration between cruise-ship companies, port agents, relevant tourism stakeholders and emergency services in the destination. The reasons given to support this suggestion include: establishing relations in advanced to facilitate coordination, conducting regular drills to evaluate the capabilities, identifying the resources required, ensuring that their emergency plans correspond with the destination's plans. Finally, there should be collaborative work between cruise-ship companies and emergency and tourism stakeholders in the destination to overcome communication challenges when incidents occur, to share situation awareness and to understand their own and other roles.

8.2.6 Objective Six

To develop the concept of an integrated emergency response system for the tourism industry.

This aim was achieved through the research findings by developing the concept of an integrated emergency response system between emergency services and the tourism industry and its related stakeholders. The features of this integrated system are that there is a need for communication, coordination, cooperation and collaboration (4Cs)

between emergency services and the tourism industry and its related stakeholders. This integration leads to enhanced leadership, helps make effective decisions, facilitates information sharing and the effective distribution of the required resources in the response time. To achieve this integrated system, all organisations need to demonstrate the willingness to participate in the emergency management process starting from the preparedness phase to the recovery phase.

8.3 Main Research Findings

The findings of the study are presented here for the tourism industry, emergency services and cruise-ship industry.

8.3.1 Tourism Industry

The study has found that there is a lack of awareness among tourism industry representatives with respect to what incidents or hazards might affect the industry and how to deal with them. Therefore, the tourism stakeholders, as the literature in chapter two found, could not identify what kind of information they need in regards to the type of incidents and how to deal with them (Eide et al. 2013). Although the country has been affected by two recent cyclones, in 2007 and 2010, as mentioned in chapter five, the knowledge participants have is basic on the personal level and is related to natural hazards only. They lack knowledge regarding what emergency management includes. This will hinder organisations from planning for the future and the unexpected. The study has shown that there was no prominent role for the Ministry of Tourism in raising awareness of potential incidents or in conducting meetings or workshops for the industry's stakeholders. Thus, the study suggested conducting training and workshops for the tourism stakeholders organised by emergency services and the Ministry of Tourism, in order to raise their awareness and enhance their knowledge.

Regarding the current situation of dealing with incidents, the study found that tourism organisations in Oman are dealing with incidents based on their experiences and not following specific procedures. This finding demonstrates the reactive approach the tourism stakeholders are following (Pauchant and Mitroff 1992). In addition, there is no consistency and control over emergency management because there are no plans and organisations depend on the operational mangers to take action and make decisions. This will result in ineffective handling of the emergency and might affect the image of the destination. This will also result in making irrational or wrong

decisions in case managers are unavailable or have to deal with cases differing from the norm. The study found that the country is becoming more vulnerable to natural disasters such as cyclones than before. This requires more comprehensive preparation for the tourism sector because it is more vulnerable and also due to the complexity of emergencies. Therefore, the study suggested adopting written plans that are connected to procedures (Alexander 2013b) to respond effectively and to mitigate future hazards.

From the interviews conducted with tourism and port representatives in Oman, the study found that there are poor mitigation measures. For example, tourism organisations are not conducting risk assessments to help them identify potential risks and how best to handle them; this demonstrates the previous findings derived from the literature of there being a lack of knowledge, awareness and cohesiveness (Nateghi 2000; Hystad and Keller 2007). Nor was there any evidence that they were evaluating and/or monitoring new sources of risk. However, those who are doing safety check are doing so to fulfil the requirement of international cruise lines so that they can maintain the market. The study found that although the cruise industry is growing in the country and the number of ships is increasing annually, there are no procedures related to cruise incidents. Thus, it suggested including tourism and the cruise-ship industry in the emergency service's plans.

Additionally, there is no specific platform or source of information for mitigating hazards that might affect the industry. Although some organisations attend meetings, important stakeholders are not involved. Thus, the study suggested having a central platform to share information with all tourism stakeholders so that they can be in a well-prepared position in case of future incidents. As well as this, it suggested conducting regular meetings with all tourism stakeholders where the important stakeholders from the emergency services are involved. One of the main findings is that what tourism organisations are following are operational procedures rather than strategic because they are focusing on providing goods and services rather than safety and security of tourists or emergency management. The study suggested linking emergency management with strategic management. This was in line with the literature to identify any potential incident (Aguilar 1967) and develop adaptive techniques to deal with them (Hofer and Schende 1978; Bourgeois 1980), and to better understanding the dynamic nature of emergencies, so to be able to develop emergency management procedures (Bowonder and Linstone 1987). Finally, the findings have revealed that the tourism industry lacks networks and communication within the

industry itself and across the industry with emergency services. Hence, the study suggested the intra-and inter-integration that were illustrated in the findings chapter.

In regard to preparedness measures, the study found that organisations are not planning for future incidents; they do not list what might happen and how they may be handled. This finding supports the other findings of the study which suggested the tourism industry does not have well-trained staff to deal with emergency management and the required resources in time of an emergency are ill defined. The study revealed that there is low level of preparedness because there is no clear or standard emergency management planning for the tourism industry, especially in regards to cruise ships. The reasons why organisation do not have plans were identified by the study and the literature. This included the size of organisation, poor integration with emergency organisations, lack of knowledge concerning planning and lack of cohesiveness (Hystad and Keller 2007). Therefore, the Ministry of Tourism should start with planning for emergencies before establishing any tourist projects, in terms of evaluating the vulnerability of the location of any project, for example any natural hazards like cyclones. As well as evaluating and identifying the future risk of already established projects and how the risk can be minimised to a minimum level. One of the main findings is that tourism organisations are not prepared for the unexpected; they are only prepared for minor cases. So, the tourism industry does not have the ability to make decisions in case of an emergency (Alexander 2009). There is also no single emergency plan available to tourism organisations, nor committees for emergency planning. Thus, the study suggested that emergency services should take the lead based on their experience and design proper standard plans for the tourism industry. It was also identified that there is a lack of training and workshops that could enhance the ability of organisations to prepare an emergency plan and take the necessary mitigation and preparedness measures. The study emphasised that there is a need to upgrade the training conducted by the Public Authority for Civil Defence and Ambulance from first aid and safety and security to emergency and disaster. As acknowledged by the literature, specialised training helps in developing the capacity of the industry (Waugh and Streib 2006; Nivolianitou and Synodinou 2011) and consequently reduces human error and improves responses (Ritchie 2009). In addition, the study has shown that there is no sharing of information regarding emergency preparedness within the tourism industry and across the sector with emergency services. Lastly, the study found that tourism organisations lack relations with the

media so that they can avoid or mitigate damage to the destination's and industry's image as well as the fact that no organisation has an assigned spokesperson. These issues can be solved through the integration suggested by the study in chapter seven.

From the given scenarios and from examining the past experience from the responses in the tourism industry, the study found that the most devastating disasters in the country are cyclones. However, cyclones revealed the inadequacy in dealing with natural disasters because, for example Port authorities, are following codes for safety and security. The study found that what interviewees learnt from previous incidents is awareness, but no physical things or mitigation or preparedness measures have been taken. The study has shown that the tourism industry has no such identification or prediction of what might happen, what should be done and what kind of support is required.

Moreover, employees who receive the cruise are not following specific or clear procedures; they have general procedures in case of an incident. In addition, the study found that there is no single unified point of contact in case of an emergency. Thus, it was suggested to have a central point of contact in time of an emergency to facilitate communication. The study acknowledged the limited capacity and responsibility of tourism stakeholders because it is largely comprised of SMEs, so their current role is to be a promoter and marketer for the destination. The study has identified no specific role for the tourism industry in the response phase, except one of coordination, because they do not have physical resources, plans, or well-qualified personnel. What the tourism stakeholders can provide is information alongside volunteer work and recovery in branding the destination. Thus, current roles and responsibilities need further development and because the actual cooperation is poor, there is a need to integrate the tourism industry with emergency services. The study identified several reasons for integration; to connect cruise lines to the local authorities due to the sensitivity of the industry, the nature and complexity of the emergency, also because tourism projects are expensive and require security and a quick response and additionally to facilitate the dissemination of emergency information on any incident to enhance awareness of taking the necessary precaution.

8.3.2 Emergency Services

Although emergency services are responsible for emergency responses, the study has identified that there was a duplication of some roles of the emergency services and

their plans are not unified. The study found that tourism and culture are not considered in the emergency services plans and trainings. The importance of cultural awareness in emergency management was also emphasised by the literature to establish clear communication and to facilitate work with different and similar cultures (Adahl 2009). In addition, the findings illustrated that there was lack of collaboration because there is no shared training between cruise and emergency services. Although emergency services are well prepared with the required resources, these resources and capabilities have not been tested to handle mass incidents like those related to a major cruise-ship incident. This is because tourism incidents are considered unlikely to happen, especially on cruise ships. The study found that although emergency organisations are working consistently, they cannot judge the capability of their response system.

The study illustrated the reasons why tourism currently is not integrated with emergency response system. Firstly, it has not been affected by a major incident. Those incidents that happened in the past were in the off-season. Tourism was not affected directly. Secondly, lack of communication between tourism and emergency services. Lack of awareness among tourism stakeholders and emergency services. The focus of the tourism industry is on establishing projects and attracting investments.

8.3.3 Cruise-Ship Industry

The findings of the have revealed that although cruise ships have some capabilities, they lack coordination and communication with the Omani Emergency and Tourism sectors. It also found that cruise ships, when arriving at the country, only communicate with the port or shipping agent to facilitate their arrival. However, in the case of an emergency, they need to communicate with the emergency services. The most obvious finding to emerge from this study is that the port or the shipping agent is considered to be *a single point of failure*. This is because it is the only point of contact and its capability is highly limited.

The study has identified several needs and expectations from the cruise ships, like in case of a fire, they need the support of the local emergency services and they expect the local authorities' cooperation as well as coordination to solve any problems that might occur. In addition, they need the collaborative work with the destination to match their plans and overcome any cultural differences. Further needs as revealed by the study include cruise ships needing to communicate with the local media to manage situations positively.

In addition, the study found that basic services, such as those relating to the provision of food and water to passengers when there is a need for evacuation, is challenging and as is likewise the provision of appropriate shelter. Due to the language differences between cruise-ship passengers and the local destination, the findings identified communication as a challenge. This was also identified in the incident of Costa Concordia (Alexander 2012) because cruise ships carry so many passengers, the study found that there could be a lack of capacity in local hospitals if there was, for example an outbreak of the Nor virus.

8.4 Contributions

8.4.1 Contribution to Theory

This study provides the opportunity to understand how complexity and complex adaptive system work within emergency response systems and argues there is a need for coordination, collaboration, cooperation and communication among the different stakeholders. The study tackled the relationship between complexity and between the different levels of planning (strategic, tactical and operational) and how the degree of complexity increases from operational to strategic planning. The focus of this study is more specifically on the cruise-ship industry, which has not been highlighted by other researchers. This study is considered to be the first study conducted in this area of emergency management for the tourism industry in Oman. It contributes to the body of knowledge of emergency management in Oman and the emergency response system in particular. This study is the first study that develops the concept of an integrated emergency response system for the tourism industry in Oman. In addition, it is the first that highlights incidents that might affect the cruise-ship sector in Oman. This study is the first in terms of identifying both the capability of the emergency response system of a destination, based on scenarios built using factor design. It also identifies needs, expectations and challenges for cruise lines in case of an emergency. So, the development of the concept of an integrated emergency response system is a result of identifying different issues from different sides, not only the destination. Furthermore, this study will add to the literature on emergency management in the tourism industry in Oman. The findings of the study contribute to the development of the concept of an integrated emergency response system for tourism.

8.4.2 Contribution to Practice

This study identified the lack of capability of the tourism industry to handle potential incidents and discovered the reasons that hinder the tourism industry from planning for an emergency. Therefore, the study suggested intra-integration (within the tourism industry) and inter-integration (between tourism and emergency services) for the mitigation, preparedness and response phases. The findings of the study will help cruise lines develop more relations for effective coordination, collaboration and communication. The findings also suggested integration between destination stakeholders (Tourism and Emergency Services) and cruise lines to establish relations, to conduct joint drills, to ensure their plans correspond and to have more collaborative work. Implementing the proposed suggestion will help to enhance responses in case of an emergency. It also emphasises establishing public private partnerships to support the tourism private sector in handling any potential incident.

8.4.3 Contribution to Methodology

This study in order to evaluate the capabilities of the destination (Oman) emergency response system and to identify the capabilities, requirements and challenges of cruise lines designed scenarios. Scenarios were used in different research to collect data. However, this study built the scenarios based on a factor design for several reasons. First, to encourage participants to think logically and carefully because a little difference in the factors can reveal differences in capabilities, needs, expectations or challenges. For example, in this study the factors are type of hazards (single and multi) and the location (on-shore and off-shore). These different factors revealed to what extent an organisation has or does not have the ability to handle on-shore or offshore incidents. Second, to identify to what extent organisations are willing and able to participate in emergency management, especially with respect to response. Thus, building scenarios on factors can also show if an organisation is able to participate or not, as well as its willingness to do so. Some organisations, although they have the capabilities, are unwilling to participate or share resources with others. It also reveals if an organisation has the required resources and plans in times of incidents or if it lacks them. Third, to identify as well as evaluate the mitigation, preparedness and response measures of organisations. Fourth, to tackle the current situation and encourage participants to think about future incidents and identify new sources of risk and new potentials. So, the use of factors can help organisations to look for new sources of hazards and prepare for them with the required resources and plans. Fifth,

to identify and evaluate an organisation's current capabilities and future needs by using different factors in designing the scenarios. For example, in the case of this study, the outcome showed the current capabilities are lacking and further improvement is needed for future incidents. Sixth, to discover the gaps in the emergency response system. For example, it helps easily identify the gap in the response that might be in coordination, or communication or information sharing or other. Finally, using factors to help to analyse the strength, weakness, opportunities and threats (SWOT) of an organisation.

8.5 Limitations

There are a few limitations with respect to this study. One of them is that there is no literature specifically on emergency management systems for tourism in Oman. Emergency representatives in Oman during the interviews could not release some information due to confidentiality. In Oman all interviews were conducted in Muscat and involved only Sultan Qaboos Port, although there are two tourism ports: Salalah and Khasab. These ports were excluded due to the long distance from Muscat and it was difficult for the researcher to travel to these ports. The study intended to use survey questionnaires to identify capabilities, requirements and challenges of cruise lines. However, due to the low response rate, this was substituted by semi-structured interviews. Due to the sensitivity of the topic, a number of cruise lines in Europe withdrew from the interviews. This results in a reduced number of participants (five).

8.6 Recommendations

8.6.1 The Tourism Industry Roles/Functions

- The tourism industry should understand the business of the emergency services in order to help them identify future risks that might affect the sector. For example, the tourism industry should corporately understand how the emergency services identify potential hazards, how they categorise these hazards and how they apply the mitigation and preparedness measures to those hazards. The aim of such understanding is to improve integration and cooperation.

- All tourism stakeholders should meet regularly to share any information, feedback and updates in the area of emergency management. This will help them update their plans and learn from the experiences of others.

- A common system of communication is needed between the tourism industry and emergency services, so that both are fully aware of situations and updates and are prepared to respond to each other's needs and so that resources can be located conveniently.

- A law is required that all tourism stakeholders in the country should regularly update emergency management plans and exercises. The NCCD should be the responsible for auditing as it is the specialised authority in the country.

- The tourism industry should develop, in collaboration with emergency services, a written framework agreement for tourism stakeholders that connects plans to procedures in case of any potential incident.

- There should be an information platform where all tourism stakeholders can get information about crisis/disaster/emergency management.

- International Tour operators or hotels, if they have emergency plans, they should share with local agencies and hotels. So, they can enhance their preparedness level because most organisations are SMEs and therefore lack resources and money.

- All tourism stakeholders should organise a FAM trips for international tourists if an incident occurs. This to be done to ensure business continuity and enhance the destination's image.

- Critical infrastructure and their complex interactions should be considered when planning for tourism emergency management.

- Tourism should set the objectives and priorities when handling tourism emergencies to avoid any conflict in objectives and priorities with the supply market, for example, the objectives of the destination vs. the objectives of the cruise ship.

8.6.2 The Ministry of Tourism Roles/ Function

- The Ministry of Tourism should establish a Directorate for Emergency Management in the sector with different sections based on the emergency management cycle (e.g. disaster risk reduction section, response section and recovery and business continuity section). This Directorate should have direct

contact with the emergency services to design emergency management plans for the sector and to update current plans. It should ensure that all travel agencies, tour operators and the accommodation sector all have emergency management plans that are updated regularly.

- The Ministry of Tourism should have membership of the International Emergency/Crisis/Disaster or Risk Reduction Organisations to enhance the system in the country.

- The Ministry of Tourism should establish a committee, which consists of all tourism stakeholders for emergency management. This committee is needed to act on the results of the scenario training and have an appropriate follow up to fill any gap in the capabilities or resources. This committee, prior to the cruise ship season, should meet all shipping agents, travel agents, port authorities and emergency services in order to prepare them for any potential incident. For example, they make sure that all stakeholders have plan A and plan B for in case of an emergency.

- The Ministry of Tourism should hold an annual symposium and conferences related to crisis, emergency and disaster management in the tourism industry to gain benefits from international practice.

- The Ministry of Tourism, in collaboration with the Emergency Services, should conduct workshops to increase tourism stakeholder knowledge and awareness.

- Ministry of Tourism can send its employees for international training and in order to reduce the cost of training, these employees can be asked to train the tourism stakeholders, especially in the case of SMEs.

8.6.3 The Emergency Services Roles/ Function

- Emergency services should understand the economic importance of the tourism industry to the country. This will assist them in integrating tourism in their plans.

- Emergency services should be familiar with the dates of tourism high season, the number of tourists annually, tourist routes, the most attractive areas, as well as the demographics of tourists. This will help them prepare for any potential hazards, helping them during responses in case of an incident.

- They need to establish policies and construct methodologies that are appropriately consistent across the sectors and are suited to Oman's model and ensure they do not use a one size fits all foreign model.

- There should be a system to link emergency services to the central reservation system of the hotels in Oman, so in case of an emergency, it will easier for them to accommodate passengers if they need emergency shelter.

- There should be a communication hub for the tourism industry, so in case of an emergency they can easily communicate with response authorities and easily share required information.

- Emergency Services should upgrade the currently conducted training from safety and security to emergency and disaster.

- The training and scenario planning for emergency responses should capture complexities from bottom to the top and to fit with Omani, but it should also take the foreign interests into account because that will also affect their image and reputation.

- Tourism Police should be adopted and they should be trained how to handle incidents that affect tourists from different cultures and who speak different languages. Tourism Police should be taught different languages for easy communication.

- Emergency services should have visual books (using images) to facilitate communication with tourists who are not familiar with the main languages like Arabic or English to help them identify their needs in case of an emergency. A speech creator can also be used to help responders communicate with foreign tourists.

- Planning for emergency management should be fed into the government and private sector strategic business decision.

- The emergency management system in Oman is currently focusing on the response phase, it should be directed to all phases of emergency management.

- Emergency services should teach tourism stakeholders how to design an emergency management plan and they should follow it regularly.

- Emergency Services, especially NCCD should work extensively to increase the awareness of crisis/disaster and emergency management in the tourism sector.

- Emergency management should be taught, as a module in the tourism specialisations in universities and colleges in Oman and the content should be prepared in cooperation with the tourism and emergency services.

- This study proposes a new structure for the NCCD (**See Appendix 15**) replacing the organisational structure in **Figure 5-5.** The NCCD can be replaced with the National Authority for Emergency and Disasters Management. This new structure assigns the Inspector General of Police and Customs as the president. While the Vice-President is the Assistant Inspector General of Police and Customs for Operations. Under the vice-president are the command and control officer, safety and security officer, liaison officer and communication and information officer. All of them are work at the strategic and tactical level. Then the new structure suggests replacing the name of the executive office with the Emergency Management Centre. This Centre is divided into four departments: Disaster Risk Reduction, Operations Department, Services and Support Department and Governorates Emergency Centres Management Department. The first department is divided into two section: mitigation which is responsible of early warnings, hazards identifications and risk assessment and any other activities related to mitigating incidents from occurring. Then the preparedness section, which is responsible for planning and designing, plans, increasing public awareness, education and training and other related activities that enhance the preparedness of the country and organisations. The second department sections are response and recovery. The response section will include all sectors mentioned in **Table 5-1** the media and public awareness sector, search and rescue sector, relief and shelter sector, medical response and public health sector, basic services sector, hazardous material sector and victims and missing persons affairs sector. Then the recovery section, which is responsible for evaluating reparations and needs, removing damaged properties, the discarding of debris, restoration of infrastructure and any other related activities to recover the country after any incident. The third department is services and support, which consists of two sections: the human

resources section to manage all employees in addition to the local community, volunteers and the private sector. The second section is finance and logistics and is responsible for any financial expenditures and providing any support in terms of logistics needed. The final department is responsible for managing the Governorates' emergency centres in terms of coordination, communication and follow up. The members of the Emergency Management Centre are those listed in **Figure 5-5**, in addition to the Ministry of Tourism and the involvement of locals, volunteers and the private sector.

Overall, these recommendations can be communicated with the actors through conducting workshops or gathering for the tourism industry separately or between tourism and emergency services. All involved actors should evaluate their current situation regarding risk reduction response and recovery based on a checklist. Then all involved stakeholders should evaluate to what extent they can apply these recommendations and what the results will be. The obstacles that might hinder the tourism industry from applying any recommendation can be identified to look for better solutions. There should be clear communication between the tourism industry and emergency services in identifying and evaluating their capabilities and needs.

8.6.4 For Cruise Lines

- Cruise lines should establish and develop different relations with tourism and emergency services in the destination and not depend only on the port or shipping agent.
- Cruise lines should communicate with the port agent and emergency services to conduct drills at least once a year, so that they can identify the available capabilities, needs and challenges.
- The roles and responsibilities of all tourism stakeholders should be identified.

8.7 Future Research

Since this study is the first to develop the concept of an integrated emergency response system for tourism, further research can be conducted as following:

- Future research can be conducted in Oman using each phase of the emergency management cycle, for example it can highlight mitigation, or preparedness or recovery.
- It can also be directed towards business continuity for the tourism industry.
- The factor of the scenarios can be changed depending on the aim of the study or the phase of emergency management as well as the incident itself.
- Further research can be conducted in different countries, such as the Gulf countries that have similar cultures or countries with different cultures. This can help to examine the relation between culture and emergency management and to identify a benchmark.
- Future research on emergency management in tourism can be conducted on a specific type of tourism like adventure tourism, eco-tourism or business tourism etc.
- Further research can be conducted specifically for other ports like Salalah Port or Khasab Port.
- Future research can be also carried out to cover a case study of airplane incidents.
- Different cases or hazards can be tackled.
- More than two factors can be added when designing scenarios for future research.
- Cruise passengers can be participants in a study so that they can identify the needs instead of cruise lines.
- Further studies can be conducted using different method like focus groups with members of the Emergency Services, Tourism industry, Port Authorities, and shipping agents.
- Further research can be conducted to identify the reliability of this emergency response system after identifying its capability.
- Future research can be carried out to identify the point of failure for the emergency response system.

- Each component of the emergency response system can be highlighted in a single piece of research. The researcher can study a single strategy from these strategies (coordination, collaboration, cooperation, communication, leadership, decision-making, information sharing and resource allocation).

- A case study can be conducted on the effect of the recently occurred Mekuno cyclone in May 2018 in Salalah-Oman. This case study can highlight the effect of Mekuno Cyclone on the tourism since Salalah is a tourist destination depending on the monsoon and autumn season that starts in June.

- Future research can be conducted on the vulnerability of the tourism critical infrastructure to natural or human-induced hazards.

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Appendices

Appendix 1: Differentiating Criteria between Emergency and Disaster

Differentiating criteria	Emergency	Disaster
Definition	"An emergency is an out-of-the-ordinary situation that must be managed by urgent procedures in order to stop it escalating and thus having consequences that are more serious and damaging."	"A disaster is an event that has a substantial negative impact on human lives and activities and on the built or natural environment. Commonly it will be marked by mortality and morbidity (death and injury), destruction and damage, interruption of normal activities and economic losses."
Dominant origin of the initial events	Internal	External
Frequency of occurrence	Higher	Lower
Events timeline	Prolonged	Brief
Forecast potential	Higher	Lower
Degree of control over the evolution of the events	Higher	Lower
Reaction time frame	Preceded by a period that allows decision and action	Immediately before or only after initial events
Response	It requires timely response and a high degree of organization.	They can be dealt with using resources that are normally locally available without the need for significant changes in quantity and quality.
Impacts and consequences	Lower	Higher

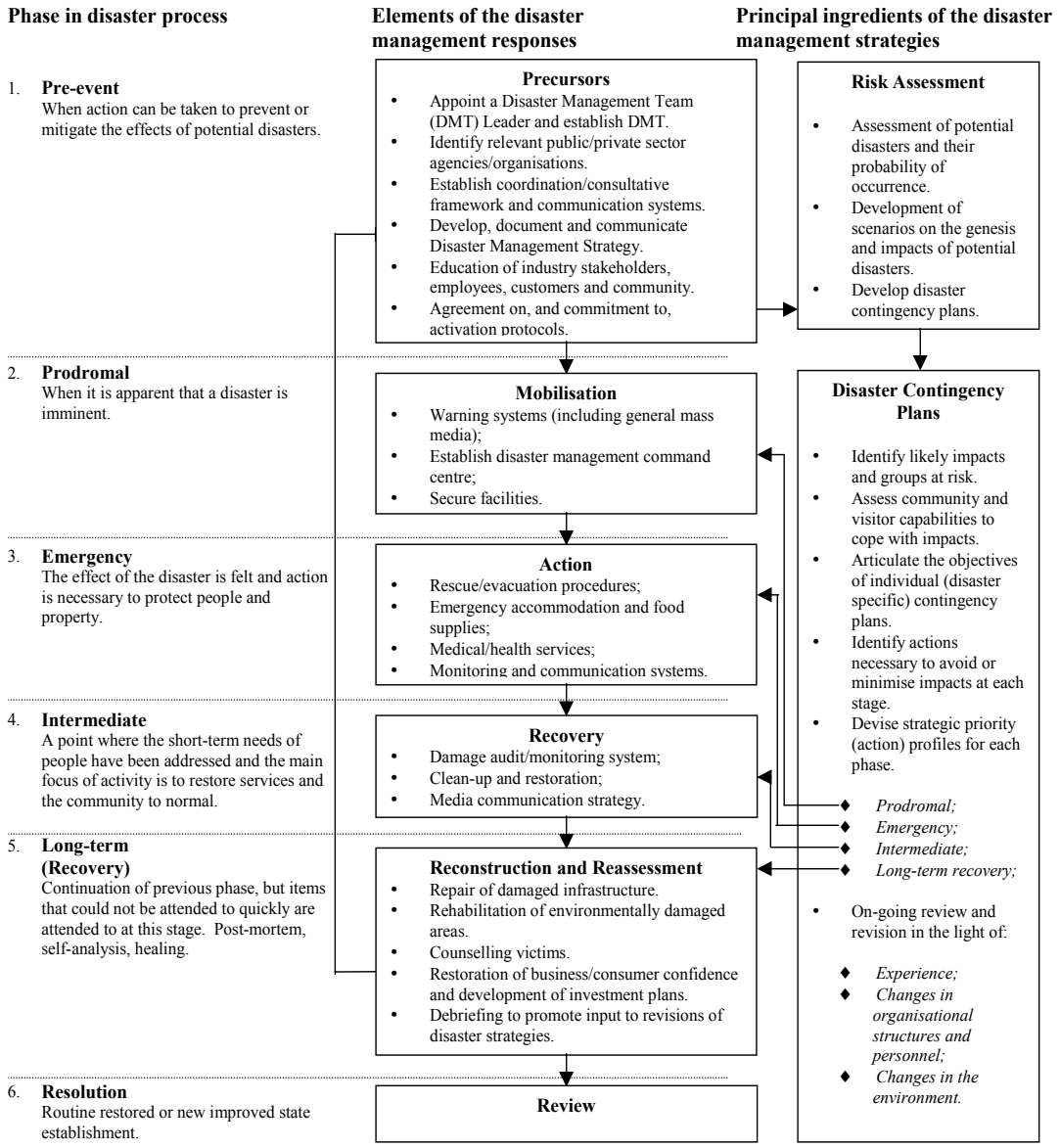
Source: Developed from Alexander (2016. p14); Laws el al. (2007. p56)

Appendix 2: Related Activities and Procedures Taken in all Emergency Management Phases

Activities/ Procedures
Mitigation Phase
The sequence of the mitigation plan according to Sanjeewa et al. (2012) should include; ● Recognition of possible technique to identify the signs of a disasters, ● Decreasing the probability of occurrence, ● Decreasing the effect and magnitudes, ● Evaluating the required capabilities (cost and time) that help in minimizing effect and magnitudes, ● Link to the responsible authorities the possible signs of a disaster, ● Prepare communication strategies to inform people when a disaster occur, ● Putting an action plan in order to activate the mitigation plan and ; ● List the relevant stakeholders who will participate in executing the mitigation plan**.**
Preparedness Phase
Good disaster preparedness follow certain steps according to (Ritchie 2009; Lindsay 2012; Ireni Saban 2014) like: ● The design of plans or measures to deal with incidents ● Improving the capacity such as ensuring the competency of personnel and entities to respond to a wide range of potential events ● Exercises, to ensure the efficiency of planning, ● Purchasing required resources like water, food and medications,
Response Phase
The response phase involves activities (Cappola 2011; Jackman and Beruvides 2013; UNWTO 2014) like: ● Search and rescue, ● Emergency medical services, ● Evacuation and shelter, ● Casualty tracking and ● Victim identification
Recovery Phase
Coppola (2011), Lindsay (2012) and Ireni Saban (2014) list the actions and activities to be undertaken in the recovery stage that are: ● Frequent connection with the community, ● Providing them shelters,

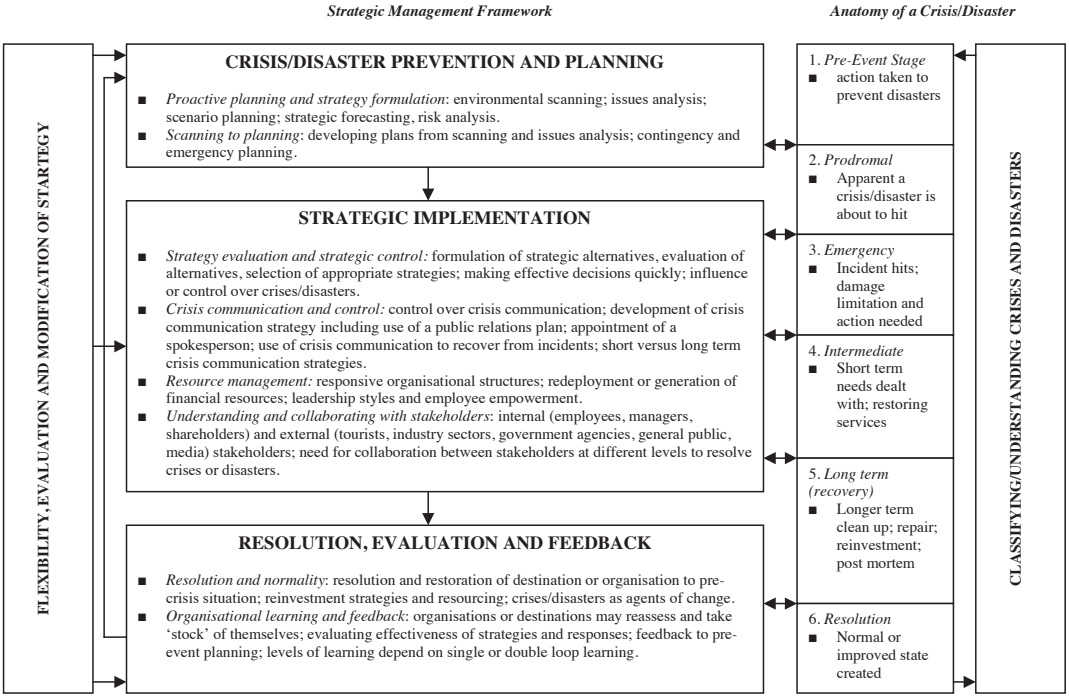
- Evaluating reparations and needs,
- Removing damaged properties and throwaway of debris,
- Restoration of critical infrastructure,
- Investigating and repairing damaged buildings compensation for estate losses and establishing new one when needed,
- Social recovery program and offering job opportunities,
- Recovering injured people; and
- Re-evaluating the sources of hazards.

Appendix 3: Framework for Crisis/Disaster Management



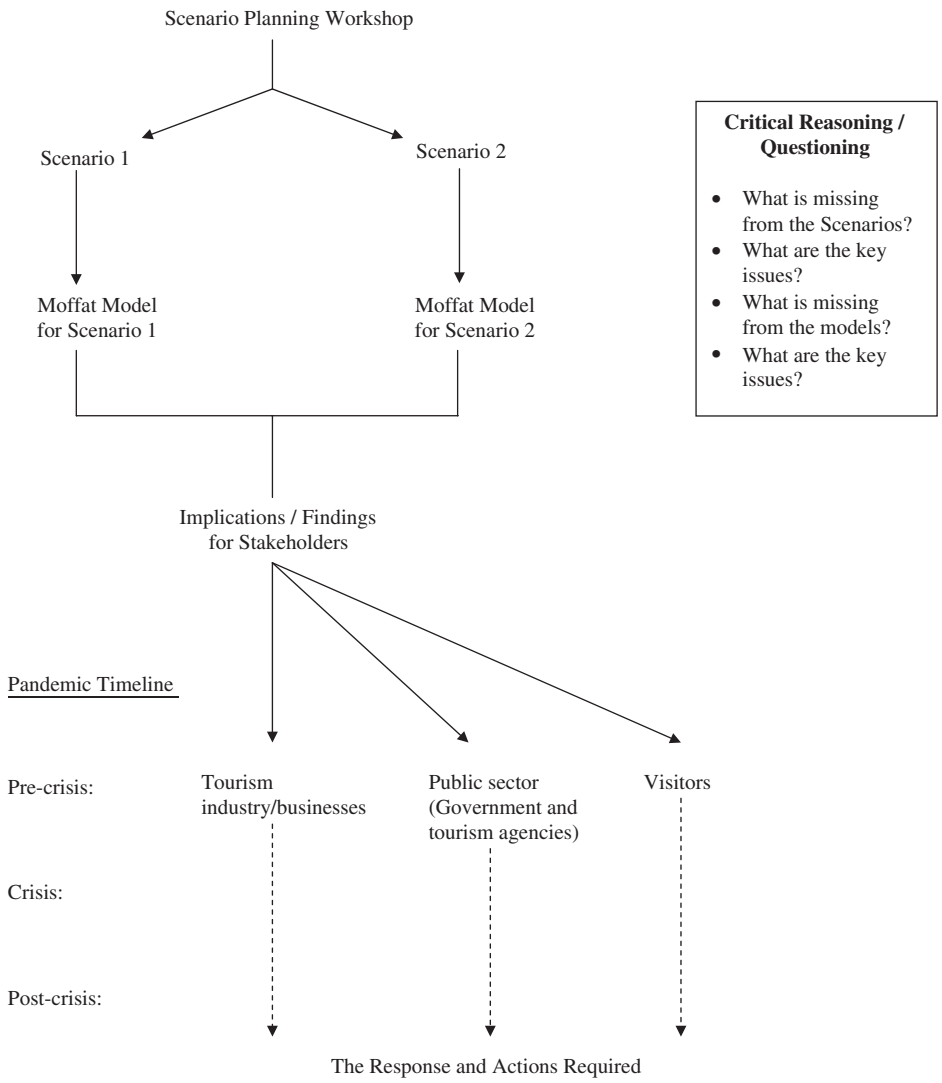
Source: Faulkner (2001, p.140)

Appendix 4: Crisis and Disaster Management: A Strategic and Holistic Framework



Source: Ritchie (2004, p.674)

Appendix 5: Framework for operation of workshop and research process for crisis and disasters



Source: Page et al. (2006, p.367).

Appendix 6: Scenarios

Scenario A (In-shore)

A European cruise ship arrives in Oman in January during the tourist season (Jan, Feb Mar). The ship is carrying around 2500 passengers and 1250 crew. It anchors at Sultan Qaboos Port intending to stay for four days. During the first day ashore some of the passengers have a tour of the city of Muscat, finishing their day with an evening meal at a local restaurant before returning to the ship at 20:00 to spend the night. At around 22:15 a fire breaks out in the main engine causing total loss of power in the ship. Since there is no electricity on board (affecting air conditioning, food refrigeration, toilets and showers and room locks) the Captain seeks guidance concerning a full evacuation of the ship pending repairs to the engine and the restoration of power.

Scenario B (Off-shore)

A European cruise ship is cruising 10 to 12 miles off the coast of Oman in January during the tourist season (Jan, Feb Mar). The ship is carrying around 2500 passengers and 1250 crew. At 06:00 the coastguard in Oman receive a distress call from the ship. A fire has broken out in the main engine causing total loss of power in the ship. Since there is no electricity on board (affecting air conditioning, food refrigeration, toilets and showers and room locks) the Captain is now requesting a rescue operation to assist the evacuation of passengers and crew from the affected ship. Wind speeds are up to 60 km/h and rough waves will make the rescue operation difficult.

Scenario C (In-shore)

A European cruise ship arrives in Oman in January during the tourist season (Jan, Feb Mar). The ship is carrying around 2500 passengers and 1250 crew. It anchors at Sultan Qaboos Port intending to stay for four days. During the first day ashore some of the passengers have a tour of the city of Muscat, finishing their day with an evening meal at a local restaurant before returning to the ship at 20:00 to spend the night. The next day, during breakfast, several passengers display symptoms of vomiting and diarrhea. They blame the restaurant where they ate the night before. At 09:00 a fire breaks out in the main engine causing total loss of power in the ship. Since there is no electricity on board (affecting air conditioning, food refrigeration, toilets and showers and room locks) the Captain seeks guidance concerning a full evacuation of the ship pending repairs to the engine and the restoration of power.

Scenario D (Off-shore)

A European cruise ship is cruising 10 to 12 miles off the coast of Oman in January during the tourist season (Jan, Feb Mar). The ship is carrying around 2500 passengers and 1250 crew. A fire has broken out in the main engine causing total loss of power in the ship. Since there is no electricity on board (affecting air conditioning, food refrigeration, toilets and showers and room locks) the Captain is now requesting a rescue operation from the Omani Coastguard. Just as he commences his request the ship's Doctor comes to his office to bring him the news that a number of passengers are displaying symptoms of vomiting and diarrhea and that it is believed that they have a particularly strong, and contagious form of norovirus. The passengers currently believe that it their symptoms have been caused by eating in one of the ship's restaurants. The virus could rapidly spread between the passengers affecting around 1000. Owing to the loss of power, the ship is obviously unable to leave Omani waters.

Appendix 7: Timeline of events associated with the wreck of the Costa Concordia

Time CET)	Event	Elapsed time (hrs.mins)
	Friday, January 13th, 2012	
19:33	Ship sets sail from port of Civitavecchi	00.00
21:30	Starts 'salute' approach to Giglio Island (Tuscan Archipelago)	01.57
21:45	Traveling at 15 knots, ship strikes the Scola Piccola rock off Giglio	02.12
21:45-21:55	Ship decelerates to zero knots and turns more than 180 degrees	02.12-02.22
21:56	Ship comes to rest on the shore of Giglio north of the main tourist and fishing port	02.23
22:12	Officers begin contact with Port Authority of Livorno (on Italian mainland)	02.39
22:15	Passengers advised to "return to their cabins"	02.42
22:26	Captain requests assistance of a tug	02.53
22:42	Captain admits to Port Authority that situation is critical	03.09
22:45	Ad hoc unofficial evacuation begins; main evacuation lasts until about 01.45	03.12
22:58	Captain gives general order to evacuate	03.25
	Saturday, January 14th, 2012	
01:30	Captain abandons ship	05.57
01:45	Harbor Master of Livorno 'orders' Captain to return to ship (he does not do so)	06.12
03:45	Six hundred passengers evacuated from Giglio Island to mainland by ferry	c. 08.15
05:30	Last senior officer abandons ship: a few tens of people left on board	c. 10:00
	Sunday, January 15th, 2012	
7:30	Last living person (a crew member) evacuated from ship; search for bodies continues for more than one month.	c. 36.00

Source: Alexander (2012, p.6-7)

Appendix 8: Interview Questions for the Tourism Industry its relevant stakeholders

General Questions

1. What type of emergency or disasters have you experienced most frequently?

    1. Which threat do you think is most likely to disturb your organisation or destination in the next 12months?

    2. How well embedded is crisis management in your organization?

    3. Does Ministry of Tourism or (your organisation) have a seat at the National Committee for Civil Defence?

    4. Where are the national emergency plans within which tourism can be effectively integrated?

    5. Who is the principal emergency management point of liaison for tourism?

    6. To what extent do you agree that tourism industry as a victim should be involved in emergency management planning and should play a full role in case emergencies affecting tourists?

    7. What are the barriers and challenges that may hinder the tourism emergency and disasters planning?

List of Barriers
Shortage of money
Scarcity of knowledge on what an emergency management plans should include
Continuous change within emergency management structures and systems
Issue of confidentiality, duplication and security
Incapability of making changes because of the small size of the organisation
Lack of cohesiveness in the tourism industry
Lack of awareness

Mitigation phase

1. Have you conducted a risk management process, which identifies analyses, evaluates and treats risk to your destination/tourism industry/business?

2. Are you continuing to monitor and evaluate new sources of risk? How?

3. Do you attend multi-agency disaster management meetings or maintain information on their current activities?

4. Have you established effective liaison with regional or national disaster/ emergency management agencies? With whom do you contact?

5. Have you established liaison with industry organizations and government agencies?

6. Have you established an effective working relationship with the media?

7. Do you have clear guidelines detailing the appropriate actions to be taken before, during and after emergencies (emergency management strategy)?

8. Do you have a continual revision of the available materials?

9. How did you learn from the previous disasters effect of Guno and Phet cyclones on the tourism industry?

Preparedness Phase

Questions

1. Have you established a tourism crisis planning committee? Who are involved?

2. Has the committee developed a tourism crisis management plan which:

● Describes activation procedures?	Yes	No
● Allocates roles and responsibilities?	Yes	No
● Identifies control and coordination arrangements?	Yes	No
● Includes Standard Operating Procedures?	Yes	No
● Identifies information management requirements?	Yes	No
● Establishes communications methods?	Yes	No
● Describes public relations and media management arrangements?	Yes	No
● Includes response, recovery and business continuity?	Yes	No

3. Has the committee identified training needs? What they are?

4. Has regular training been developed and organized, including induction training for new staff? How many times you conduct training?

5. Has the committee conducted/scheduled regular mock exercise? How many times?

6. Has the committee included informal (discussion) exercises as part of its normal meeting routine?

7. What is the current scope of crisis planning and preparedness among tourism organisations or business?

8. Are you familiar with the available frameworks and models for tourism emergency/ disasters or emergency management?

9. Do you conduct regular workshops with the tourism stakeholders in order to plan and develop simulations based on scenarios to train staff on crises, disasters and emergency principles and practices?

10. Is there any coordination between Ministry of Tourism and emergency management organisations?

11. Do you nominated or have a tourism disasters spokesperson?

12. Do you have a devoted webpages to cover these issues?

Response Phase

Questions

1. In case a crisis or a disaster affects tourists or in the case of scenarios A,B,C and D, who are in charge, what is the role of the Ministry of Tourism?

2. Have you assessed the:

   - Effects of the crisis upon regional tourism?
   - Damage to property and infrastructure?
   - Disruption to services?
   - Consequences of the crisis?
   - Personnel, equipment and measures needed?

3. Are tactical and strategic plans being developed?

4. Have you established a media Centre and appointed a media spokesperson?

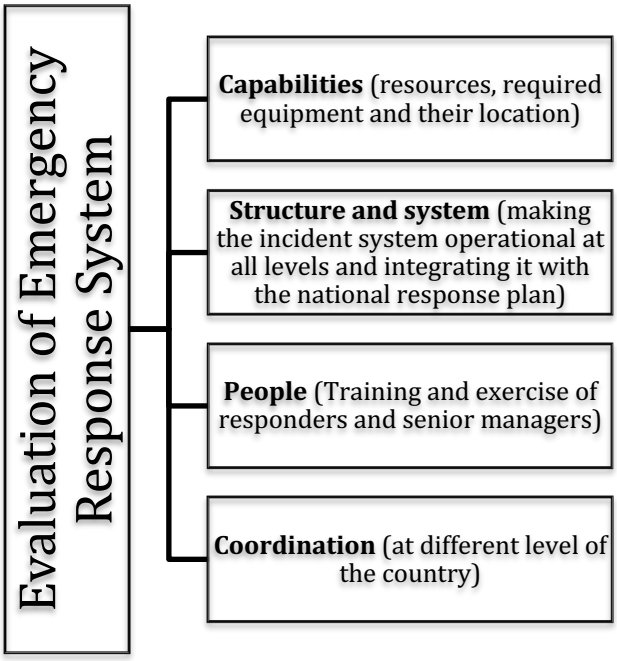
5. Are visitors' needs being identified and met?

6. Have you established liaison and communications with government official and emergency services?

7. Do you have a emergency/disaster communication strategy and designed marketing campaign for recovery that you will implement once the destination is affected?

8. How can you assist the emergency organisations during response? What kind of resources do you have?

Appendix 9: Interview Questions for Emergency Services



Capabilities (resources, required equipment and their location)

1. What are the needed resources to be developed in case of scenario A, B, C and D?

2. Where is the location of your resources? How far each location from each other?
3. How can you ensure the arrival of the needed resources at the scene of the incident in case of scenario A, B, C and D?
4. Are the available resources enough to manage high-scale disasters for example in case the incidents in scenario A, or B or C or D?
5. Who is in charge of evacuating the cruise ships and how?
6. Who is in charge of search and rescue operation?
7. Do you have a translator services in case passengers speaking different languages? And what they are and why? And based on what did you choose them?
8. Do you have specific tools for communication for example speech creators or communication display board or book?

9. What medical capabilities do you have for this number of affected passengers and crewmembers in scenarios C and D?
10. Do you have or provide a mental health services?
11. How would you contact the families and relatives of the affected passengers?
12. How to respond rapidly and effectively while maintaining needed level of security?
13. How are you going to provide the needed food and water in case of scenarios A, B, C and D?

Structure and system (making the incident system operational at all levels and integrating it with the national response plan)

1. Do you have clear guidelines detailing the appropriate actions to be taken before, during and after emergencies?

2. Do you have a continual revision of the available materials?
3. How many members are in the National Committee for Civil Defence? Based on what they have been selected? What are their roles?
4. In case of these scenarios, where are the national emergency plans within which tourism can be effectively integrated?
5. To what extent do you agree that tourism industry as a victim should be involved in emergency management planning and should play a full role in case emergencies affecting tourists?

People (Training and exercise of responders and senior managers)

1. How often does your organisation train its crisis management team?

2. What type of training do you conduct for your responders and relevant stakeholders? Discussion-based (To develop awareness), table top (to test procedures and plan by developing scenarios) or live exercise (to test fully all aspects of disasters response)

3. When you train your personnel do you make them aware of the cultural differences and discuss the cultural awareness?

Coordination (at different level of the country)

1. Have you established liaison and communications with government official?
2. How can collaboration between responding agencies be stimulated at the incident site?
3. Are the local people involved in the planning process? Or in designing the crisis plans?
4. Do you have volunteer groups that you can ask for their help or participation in case the disaster exceeded you available personnel?

   Do you have a special training program for the volunteer groups?

How might you further incorporate volunteers in your operating models?

How to coordinate massive numbers of volunteers?

5. What can be done to obtain more information on what has happened and what was happening in a cruise?
6. Where are your shelter sites?
7. Does your organisation have access to a centralised reservation system to place evacuated in available lodging in your area or region?
8. Have you established an effective working relationship with the media?
9. Have you established a media centre and appointed a media spokesperson?
10. How can you maintain effective communication with responders on scene and emergency organisations off scene?
11. In case of communication failure what are the alternatives?
12. Do you have a devoted webpage to share what is happing with the relevant stakeholders?
13. Have you established a liaison with the embassies for victim identification and tracking?

Appendix 10: Interview Questions for the Cruise Industry

The interview questions for cruise shipping Industry

Scenarios A and B or C and D

- Here are some typical key objectives when faced with a disaster. They are not in order of priority:
- Save Life
- Maintain Reputation
- Maintain Business Continuity
- Restore Normality
- Maintain wellbeing of affected people
- Maintain provision of timely and accurate information

Please keep these objectives in mind as you answer the following questions:

1. What are the challenges you think you will be facing when responding to these scenarios?

    - What is the challenge?

List of the tasks that could be a challenge for the organisation:

Tasks	Yes	No	NA
1. Achieve situational awareness by activating a communication hub that ensures relevant information and data being regularly transmitted to and from your operation room in order to build a commonly recognised information picture.			
2. Liaise with the local authorities			
3. Liaise with the head office			
4. Conduct evacuation			
5. Provide medical services			
6. Carry out search and rescue			
7. Provide reception center (shelter)			
8. Provide food and water			

9. Identify the dead			
10. Track and locate the affected people			
11. Fight the fire			
12. Brief the media			
13. Assist all affected people in order to communicate with their friends and relatives			
14. Liaise with embassies			
15. Restore normal services			
16. Preserve the environment			
17. Repatriate affected passengers and crewmembers			
18. Maintain reputation			
19. Maintain business continuity			
20. Reassure the public			

1. Why is it a challenge?
2. Who is in charge of it?
3. What could be done to overcome this challenge?
4. Does your organisation have plans in place to handle these scenarios?
5. Does your organisation have resources in place to handle these scenarios?
6. If you are sharing your plans and resources, which organisation(s) do you share it with?
7. What are your requirements and expectations from the port authority, tourism industry and the emergency management?
8. How confident you are when you travel to a port in the Middle East compare with your base and why?

- **Company Profile**

1. Company Name
2. How long have you been working in this field?
3. Job position
4. What are the countries you sail to?

Thank you again for your time and participation.

Appendix 11: Explanation of scenarios as presented for all participants

Type of Hazard		Location	
		In-shore	**Off-shore**
	Single-hazard	**Scenario A** ● A European cruise ship arrives in Oman in January carrying around **2500 passengers and 1250** crew members, intending to stay **four days** ● After a city tour in Muscat the passengers return to the ship at 20:00 ● At around 22:15 a fire breaks out in the main engine causing total loss of power in the ship ● The Captain seeks guidance concerning a full evacuation of the ship pending repairs to the engine and the restoration of power	**Scenario B** ● A European cruise ship is cruising **10 to 12 miles** off the coast of Oman in January, carrying around **2500 passengers and 1250 crew members** ● At 06:00 the coastguard in Oman receive a distress call from the ship. A fire has broken out in the main engine causing total loss of power in the ship ● Captain is now requesting a rescue operation to assist the evacuation of passengers and crew ● Wind speeds are up to 60 km/h and rough waves will make the rescue operation difficult
	Multi-hazard	**Scenario C** ● A European cruise ship arrives in Oman in January carrying around 2500 passengers and 1250 crew intending to stay **four days** ● After a city tour in Muscat the passengers had a dinner at a local restaurant ● The next day, during breakfast, several passengers display symptoms of vomiting and diarrhea. They blame the restaurant where they ate the night before. ● At 09:00 a fire breaks out in the main engine causing total loss of power in the ship. ● The Captain seeks guidance concerning a full **evacuation** of the ship pending **repairs to the engine and the restoration of power.**	**Scenario D** ● A European cruise ship is cruising **10 to 12 miles** off the coast of Oman in January, carrying around **2500 passengers and 1250 crew members** ● A **f**ire has broken out in the main engine causing total loss of power ● The Captain is now requesting a rescue operation from the Omani Coastguard at the same time a number of passengers are displaying symptoms of vomiting and diarrhea and that it is believed that they have a particularly strong, and contagious form of Norovirus ● The virus could rapidly spread between the passengers affecting around 10**00.** Owing to the **loss of power**, the ship is obviously **unable to leave** Omani waters.

Appendix 12: Focus Group Questions for Tourism Industry

Mitigation Phase (Intra-Integration)

1. To what extent do you agree there is integration on crisis management within the Tourism Industry (T) in the **mitigation** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

To what extent is there a need for future integration on crisis management within the Tourism Industry (T) in the **mitigation** phase?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

Are there any particular reasons for these scores?

Mitigation Phase (Inter-Integration)

1. To what extent do you agree there is integration on crisis management between the Tourism Industry (T) and the Emergency Services (E) in the **mitigation** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

To what extent is there a need for future integration on crisis management between the Tourism Industry (T) and the Emergency Services (E) in the **mitigation** phase?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

Are there any particular reasons for these scores?

Preparedness Phase (Intra-Integration)

1. To what extent do you agree there is integration on crisis management within the Tourism Industry (T) in the **preparedness** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

To what extent is there a need for future integration on crisis management within the Tourism Industry (T) in the **preparedness** phase?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

Are there any particular reasons for these scores?

Preparedness Phase (Inter-Integration)

1. To what extent do you agree there is integration between the Tourism Industry (T) and the Emergency Services (E) in the **preparedness** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

To what extent is there a need for future integration between the Tourism Industry (T) and the Emergency Services (E) in the **preparedness** phase?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

Are there any particular reasons for these scores?

Response Phase (Intra-Integration)

1. To what extent do you agree there is integration within the Tourism Industry **(T)** in the **response** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

To what extent is there a need for future integration within the Tourism Industry **(T)** in the **response** phase?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

Are there any particular reasons for these scores?

Response Phase (Inter-Integration)

1. To what extent do you agree there is integration between the Tourism Industry **(T)** and the Emergency Services **(E)** in the **response** phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

To what extent is there a need for future integration between the Tourism Industry **(T)** and the Emergency Services **(E)**?

ACTIVITIES	**SCALE**			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

Are there any particular reasons for these scores?

Appendix 13: Emergency Focus Group

Mitigation Phase (Intra-Integration)

1. To what extent do you agree there is integration on crisis management within the Emergency Services (E) in the mitigation phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

To what extent is there a need for future integration on crisis management within the Emergency Services (E) in the mitigation phase?

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

Are there any particular reasons for these scores?

Mitigation Phase (Inter-Integration)

1. To what extent do you agree there is integration on crisis management between the Tourism Industry (T) and the Emergency Services (E) in the mitigation phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

To what extent is there a need for future integration between the Tourism Industry (T) and the Emergency Services (E) in the mitigation phase?

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Risk Assessment: (working together to analyse a hazard like fire or terrorism)				
Early Warning: (working together to provide early warning against particular threat e.g. like terrorism or earthquakes				
Sharing information (common meetings on types of crisis and intelligent gathering on threats)				
Establish relations with regional or national partners within the industry (on common standards for crisis management in Oman)				

Are there any particular reasons for these scores?

Preparedness Phase (Intra-Integration)

1. To what extent do you agree there is integration on crisis management within the Emergency Services (E) in the preparedness phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

To what extent is there a need for future integration on crisis management within the Emergency Services (E) in the preparedness phase?

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

Are there any particular reasons for these scores?

Preparedness Phase (Inter-Integration)

1. To what extent do you agree is there integration between the Tourism Industry (T) and the Emergency Services (E) in the preparedness phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

To what extent is there a need for future integration between the Tourism Industry (T) and the Emergency Services (E) in the preparedness phase?

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating on Writing an Emergency Plan				
Sharing best practice on forming crisis management committee or teams or nominating spokesperson				
Cooperating on workshops/ exercises/training on emergencies				
Liaise with the media				

Are there any particular reasons for these scores?

Response Phase (Intra-Integration)

1. To what extent do you agree there is integration on crisis management within the Emergency Services (E) in the response phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

To what extent is there a need for future integration within the Emergency Services (E) in the response phase?

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

Are there any particular reasons for these scores?

Response Phase (Inter-Integration)

1. To what extent do you agree there is integration on crisis management between the Tourism Industry (T) and the Emergency Services (E) in the response phase?

Instruction for Focus Group: Please note the extent of your agreement using a value of 1-10 in terms of scale where 1 represents no integration and 10 represents full integration. I would like you to demonstrate which elements you agree with in terms of activities.

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
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Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

To what extent is there a need for future integration between the Tourism Industry (T) and the Emergency Services (E)

ACTIVITIES	SCALE			
	No Integration Score scale=1	**Little Integration Score scale=2-5**	**Some Integration Score scale=6-9**	**Full Integration Score scale=10**
Cooperating in allocating resources for response (e.g. food stockpiles, storage facilities, rooms)				
Identifying roles and responsibilities :(e.g. casualty tracking, victim identification)				
Sharing information and situational awareness				
Cooperating on common media communication for reputation management (common press release)				

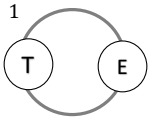
Are there any particular reasons for these scores?

Appendix 14: Explanation of the Degree of Integration between Tourism and Emergency Services for the Focus Group

MITIGATION PHASE

No Integration

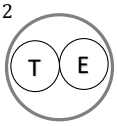
1



Each organization is applying mitigation measures independently of one another with minimal linkage.

Little Integration

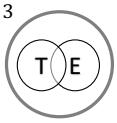
2



Limited collaboration between tourism & emergency services. The involvement with one another is viewed as an obligatory effort rather than a commitment to a partnership.

Some Integration

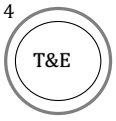
3



There is some interconnectedness between tourism and an emergency service includes both formal and informal agreements like allocation resources and identifying roles and responsibilities.

Full Integration

4

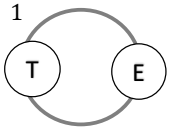


A strong formalized network between tourism and emergency services working in an ongoing coordinated way to mitigate crisis and disaster.

PREPAREDNESS PHASE

No Integration

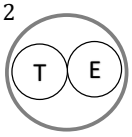
1



Each organization is applying mitigation measures independently of one another with minimal linkage.

Little Integration

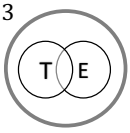
2



Limited collaboration between tourism & emergency services. The involvement with one another is viewed as an obligatory effort rather than a commitment to a partnership.

Some Integration

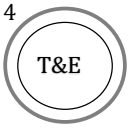
3



There is some interconnectedness between tourism and an emergency service includes both formal and informal agreements like allocation resources and identifying roles and responsibilities.

Full Integration

4

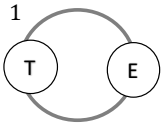


A strong formalized network between tourism and emergency services working in an ongoing coordinated way to prepare for crisis and disaster.

RESPONSE PHASE

No Integration

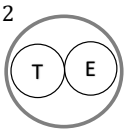
1



Each organization is applying mitigation measures independently of one another with minimal linkage.

Little Integration

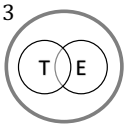
2



Limited collaboration between tourism & emergency services. The involvement with one another is viewed as an obligatory effort rather than a commitment to a partnership.

Some Integration

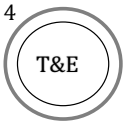
3



There is some interconnectedness between tourism and an emergency service includes both formal and informal agreements like allocation resources and identifying roles and responsibilities.

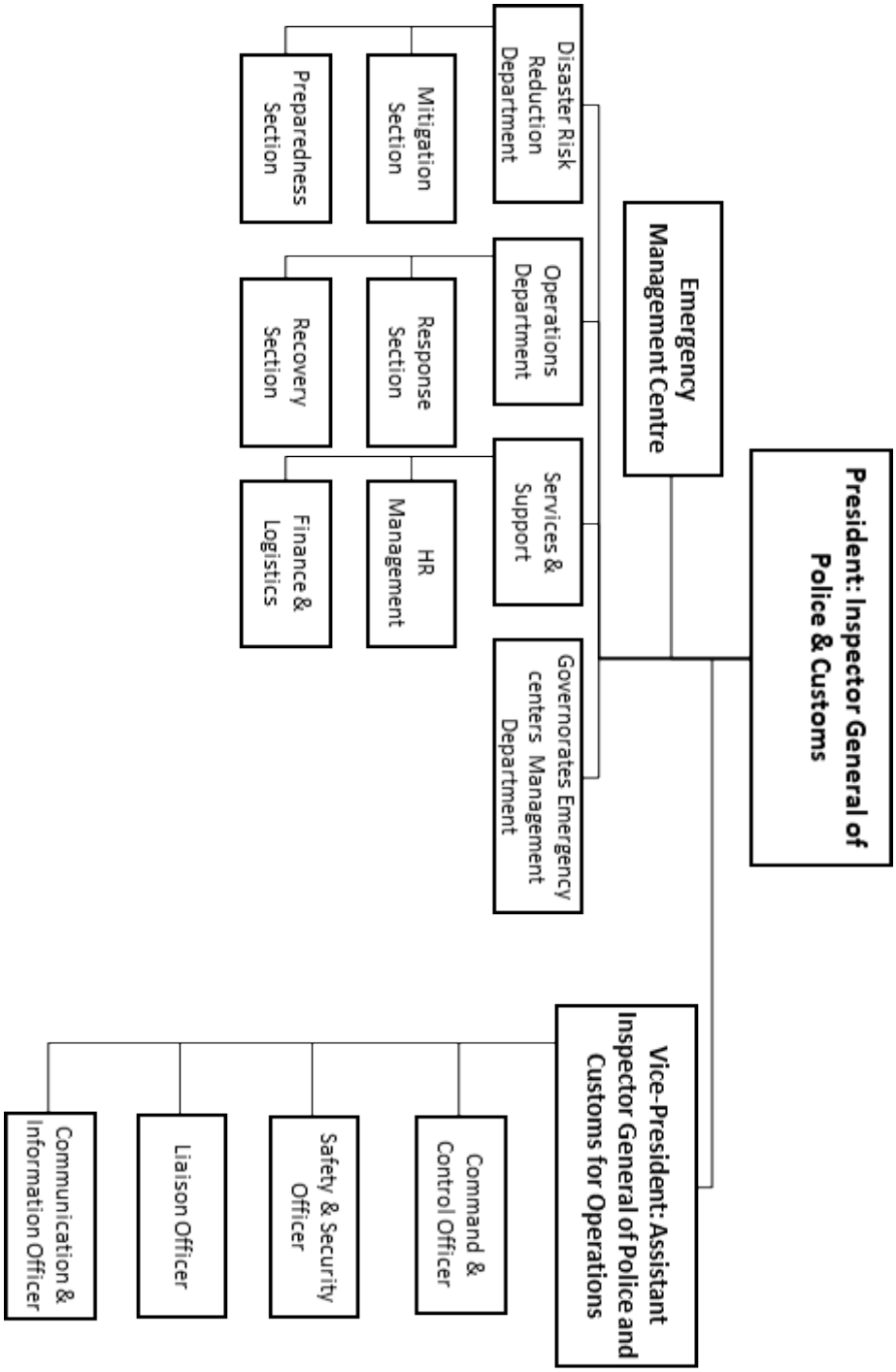
Full Integration

4



A strong formalized network between tourism and emergency services working in an ongoing coordinated way to respond to crisis and disaster.

Appendix 15: The proposed organisational structure for the National Authority for Emergency and Disasters Management



(Author 2018)