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Over the last decade, the term globalisation has received a lot of attention. The population has grown rapidly in many regions and the colonisation has expanded to the areas that earlier have not attracted due to security risks such as natural disasters or an unstable political situation. The globalisation has revealed new challenges in a security and safety point of view. The challenges require a constant research, planning and a long-term dedication to discover the best practices.

The objective of the thesis is on an evacuation due to a natural disaster or a manmade disaster. The emphasis is on situation awareness, disaster related risk identification, preparedness and risk mitigation related to foreign operations.

Each evacuation situation is a unique event and surrounded by numerous variable factors. To be able to make the right decisions, the organisations disaster management and the decision makers need a correct information and analysis regarding the event. The basis for comprehensive situation awareness can be built by collecting and analysing the key facts. The maintaining of correct situation awareness also requires skills to understand various dimensions of issues and skills to generate alternative scenarios.

The research literature and numerous publications as well as the case studies disclosed that the right situation awareness has an important role in a successful evacuation operation. The case Kathmandu's media follow-up from April 25th to May 1st 2015 demonstrated that a social media is in a notable role to maintain and build-up the situation awareness. In addition, the critically examined and evaluated unofficial information, combined with the validated information from official sources shall extend the situation awareness.

Even though the main earthquake of Kathmandu and the aftershocks did not lead to the mass evacuation concerning Finnish citizens, the case as well as the other case studies in thesis, produced a lot of valuable information concerning evacuation procedures.

Keywords: Evacuation, situation awareness, crisis management, disaster management, globalisation, foreign operations, evacuation plan, crowd management, risk management, preparedness, natural disaster, manmade disaster

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Viime vuosikymmenten aikana sana globalisaatio on saanut paljon huomiota.

Yksinkertaisimmillaan termi tarkoittaa yhteiskunnallista muutosta kansainvälistymisenä, sekä maailmanlaajusten yhteyksien lyhentymisenä ja nopeutumisena. Kaupankäynti, asutus ja matkailu ovat ulottautuneet alueille, jotka aiemmin jäivät vähemmälle huomiolle esimerkiksi etäisyyksien sekä turvallisuusriskien vuoksi. Globalisaatiokehitys on tuonut mukanaan turvallisuuteen liittyviä haasteita, joiden ratkaisemiseen on tarpeen kehittää koulutusta ja suunnitelmia, sekä sitoutua pitkäjänteiseen toteuttamiseen.

Työn aiheena on kansainvälisen yrityksen henkilökunnan evakuointiin liittyvät tekijät, tilanteessa jossa yritys joutuu evakuoimaan henkilöstöään katastrofialueelta. Työssä esitellään katastrofien syntymiseen vaikuttavia tekijöitä, niiden luonnetta sekä organisaation mahdollisuutta ennakoida ja vähentää riskejä. Pääpaino työn evakuointiin liittyvissä toimenpiteissä on oikean tilannekuvan ylläpidossa ja merkityksessä, riskien ennaltaehkäisyssä, vähentämisessä sekä varautumisessa.

Jokainen evakuointitilanne on ainutkertainen tapahtuma, jota ympäröi lukuisat muuttujat. Organisaation turvallisuusjohto ja erityisesti henkilöt, jotka suorittavat tärkeitä päätöksiä tarvitsevat laajan ja oikean tilannekuvan. Keräämällä ja analysoimalla tietoa tilannekuvaa voidaan rakentaa oikeaan suuntaan. Tilannekuvan ylläpitäminen vaatii myös kykyä ymmärtää laajempia yhteyksiä, sekä taitoa tuottaa vaihtoehtoisia skenaarioita.

Työn lähdekirjallisuus, useat julkaisut sekä tapaustutkimukset osoittivat, että oikean tilannekuvan ylläpidolla on merkittävä rooli evakuoinnin onnistumisessa. Huomattavaa myös oli, että kriittisesti arvioitu ja tarkasteltu epävirallinen tieto yhdistettynä viralliseen tietoon antaa tapahtumasta laajemman kuvan. Mediaseuranta koskien Nepalissa tapahtunutta Kathmandun maanjäristystä 25.4.-01.05.2015 osoitti, että sosiaalisella medially on merkittävä rooli tilannekuvan rakentamisessa sekä ylläpitämisessä.

Kathmandun maanjäristys ja sitä seuranneet jälkijäristykset eivät johtaneet alueella olleiden suomalaisten massaevakuointiin, kyseinen tapaus sekä myös muut työssä mainitut katastrofit ovat silti tuottaneet arvokasta tietoa evakuointiin liittyvistä toimenpiteistä.

Avainsanat: Evakuointi, tilannekuva, kriisinhallinta, kansainvälistyminen, ulkomaan operaatiot, evakuointisuunnitelma, väkijoukkojen hallinta, riskienhallinta, varautuminen, luonnonkatastrofi

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1 Introduction

The purpose of this thesis is to collect and categorise the relevant factors concerning an evacuation, emphasis on situation awareness and preparedness in foreign business operations due to natural or manmade disasters. Blyth (2008, 295-310) refers to an evacuation as a special and challenging event with that affects both individuals and to the entire organisation. Even though major disasters and larger scale evacuations do not occur constantly, they remain in memory due to impacts and the special atmosphere of the event.

During the last decades tourism and population has grown rapidly in many areas, the colonization has expanded to the areas that earlier have not attracted due to risks caused by natural forces. According to Ismail-Zadeh, Fucugauchi, Kijko, Takeuchi and Zaliapin (2014, 243) widespread settlements, commercial and industrial zones nearby or on hazardous areas, such as volcanic active regions or highly considered coastal areas with sensitivity to natural disasters, are one of the reasons for the increased numbers of casualties and property losses. In addition, Haddow, Bullock, Coppola and Damon (2011, 69) mentions climatological changes such as El Niño, an ocean current and global warming as factors to increasing occurrence and impact of the natural disasters.

Manmade disasters such as terrorist attacks, uprisings, unrest and wars generates a lot disorder: injuries, casualties and possible evacuation situations. In the evaluation concerning natural disasters and manmade disasters, the latter causes more uncertainties among individuals. A powerful natural disaster such as the Tohoku earthquake and tsunami combined with the Fukushima radiation catastrophe in Japan 2011 or the Indian Ocean earthquake and tsunami 2004 can be more destructive without warning and with far-reaching consequences than a single terrorist attack (Griffin 2014, 86).

In order to operate on a disaster prone area, an evacuation might be a required procedure before or during the emergency response activities. In addition, in order to be a functional in emergencies and disasters, the organisations should create an evacuation plan as a one segment of the crisis management procedures, even though the evacuation situations do not occur as frequently. The successful evacuation operation requires a comprehensive situation awareness that begins even before the incident and continues through the entire operation. An evacuation operation requires a strong leadership and ownership from various operators with skills and knowledge to identify and understand the importance of a numerous factors and signals. An evacuation should be well pre- planned, well managed and include a fluent communication and co-operation with various operators (Blyth 2008, 295-310).

1.1 Thesis objectives and research questions

The objective of this thesis is to collect and categorise the most relevant evacuation related factors and answer to the research questions. The subject has been studied with emphasis on situation awareness and preparedness.

The thesis shall answer to the research questions related to organisation's foreign operations, presuming that the disaster prone area cannot be avoided or an organisation has certain risk appetite:

- What type of a situation awareness an organisation should maintain before and during a disaster when preparing for an evacuation?
- How an organisation can maintain the right situation awareness?

The thesis shall also answer to the sub question:

- In order to operate on a disaster prone area, what type of a preparedness an organisation should retain to mitigate person or material related risks?

1.2 Research methods and Limitations

Lapan, Quartaroli and Riemer (2012, 3) defines the method as a term that is connected to the tools used to collect the relevant data and the term methodology is representing larger frames and strategies during the data collecting function.

According to Heinonen, Keinänen and Paasonen (2013, 13) the objective of the scientific research is to provide substantiated valid arguments, answers and approaches to various research questions with reliable research methods. Heinonen et al. (2013, 34) introduces the basic elements of a theoretical and an empirical research as well as a qualitative and quantitative research methods.

The theoretical research is based on research literature and the focus is on collecting the relevant data from various sources for the specific research questions. The theoretical research is not observing the research object in real time as the empirical research shall do. In the empirical research, the focus is on real time observations and the observation methods are created from the preceding theoretical research and conclusions (Heinonen et al. 2013).

Heinonen et al (2013, 34), states that the purpose of the qualitative research method is to collect and categorise a large number of data from various sources and the quantitative method is focusing to sort and process numerically information. The methods are not in a

conflict and the research can be provided with a combination of the qualitative and quantitative methods.

Hirsjärvi, Remes & Sajavaara (2004, 155) clarify that during a qualitative research, the researcher shall attempt to discover an unpredicted matters. Hirsjärvi et al. (2004, 125) describe a case study as a concentrated, detailed depiction of an individual case or a small number of cases that are connected to each other. In addition, Marshall and Rossman (2011, 267) describe that the case studies enclose a special and lively style, that is not typical to a traditional analytic reports.

Due to a reason that major disasters occur only time-to-time and most often without warning, an empirical observation of disasters might be challenging. Either a person is involved with the disaster as a participant such as a victim, a member of a rescue group, or a person enters to the disaster area to accomplish the empirical observations as a researcher. The latter alternative can lead to an ethical question when the observer needs to select an approach between focusing entirely to the scientific work by collecting data in a real time, or participating concurrently to the rescue work. The ethical questions might also limit the utilisation of a research material (PLOS, 2014).

In this thesis, the research method is the qualitative research in form of literature review and case studies concerning disaster related events (Appendix 1). Particularly, from April 25th to May 1st 2015 was a media follow-up conducted to study the case Kathmandu.

The research questions have been studied with emphasis on situation awareness and preparedness. The thesis shall also illustrate a few characteristic of disasters to demonstrate factors that might affect maintaining of a correct situation awareness and the right timing of an evacuation. The related subjects such as a contingency-, recovery- and a continuity planning are mentioned only limitedly.

The author of this thesis participated as a crewmember to an emergency evacuation of the 1000 passengers and 150 crewmembers from the m/s Sally Albatross on March 1994. The cruise ship ran aground and tilted due to chain reaction of several factors. One of the factors, leading to the incident was the severe weather conditions, more precisely the movements of the heavy ice. The mass of a heavy ice and problems with the bridge's navigation radar led to a chain reaction. This could have developed to the major disaster without a couple of favourable factors, such as the well-trained staff in respectable organisational culture, the time of accident during a daylight and the scene of the accident nearby Finnish coastal (Safety Investigation 1994).

The evacuation of the m/s Sally Albatross was accomplished successfully and only losses were material. Unfortunately, similar type of accidents with need of a well-organized evacuation has occurred subsequently. For example, on January 2012, the m/s Costa Concordia wrecked and the evacuation procedures were delayed resulting number of casualties (YouTube 2012 & World Maritime University 2013). The comparison between the m/s Sally Albatross and m/s Costa Concordia cases indicates that the accidents often repeat the similar patterns related to human errors such as a poor communication, absent leadership and lack of ownership regarding important responsibilities.

1.3 The structure

The first section of the thesis, shall introduce the subject, research questions and the theoretical background of the thesis.

The figure 1 shall illustrate the main structure of thesis. The second section, titled “Risk Identification”, introduces the idea of a crisis management in emphasise on a situation awareness and an identification of the main factors related to the possible event. The subsection 2.2 “From hazard to the disaster” introduces more factors that may change a hazard situation to the uncontrollable disaster. The subsection 2.4 shall describe the various stages of disaster and demonstrate a few evacuation signals.

The section 3 “Preparedness” shall underline the importance of a mitigation and an evacuation planning.

In addition, the thesis contains examples from various disaster cases and in sub subsection 3.3, the case Kathmandu has been analysed to test a few mentioned theories. Finally, the section 4 is dedicated for the conclusions.

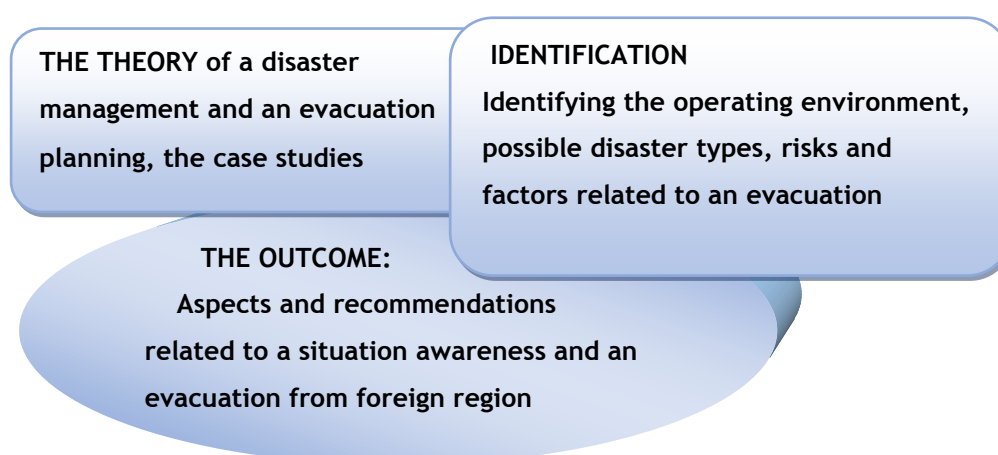


Figure 1: The main structure of the thesis

1.4 Key Terms

Term	Definition
Crisis Management	According to Blyth (2008, 140), the organisation's crisis management is a collection of well-managed procedures to protect organisation's reputation and existence.
Crisis Management Team	The Crisis Management Team is group of responsible persons to coordinate all necessary activities during a crisis (Blyth 2008, 143).
Disaster	In the code of the conduct, The International Federation of Red Cross and Red Crescent Societies defines the term disaster as a "destructive event, resulting in loss of life, great human suffering and distress, and large-scale material damage" (IFRC No Date). Erickson (1999, 424) explains that the terms disaster or a disaster management most often refers to a large-scale event, typically to a natural disaster.
Emergency	To define the term emergency, Erickson (1999, 424) mentions a minor-scale events that have developed from a hazard to a danger level. Haddow et al. (2011, 29) states that the realized risk is called an emergency.
Evacuation	Blyth (2008) introduces the term evacuation as a definition for actions performed under exceptional circumstances, where a few or numerous people are transferred or relocated to the safe or safer location, area or site to safeguard lives. The purpose of a controlled evacuation is a rapid and safe exit from the danger zone.
Hazard	The definition for a term hazard is according to Haddow et al. (2011, 29), " A source of a danger that may or may not lead to an emergency or a disaster."
Remote-Site	Organisation's premises or facility that is located overseas (Blyth, 2008).
Situation Awareness	Situation awareness is a central element of effective operations. The decision makers need a correct information and analysis regarding the event to be able to make the right decisions (Haddow et al. 2011, 143) The colleting and assimilating the key facts is the basis for a situation awareness. The maintaining of correct situation awareness also requires skills to understand various dimensions of issues and skills to generate alternative scenarios . (Howitt and Herman 2009, 8)

Table 1: Key Terms

The terms might vary a bit depending on author referred, therefore, in this thesis the term crisis is connected to the organisation's crisis management. The terms disaster and catastrophe are related to large manmade, natural or other disasters. The term hazard describes all kind of actions that deviate from normal operating mode and the term emergency describes all situations with need of an intervention to safeguard lives or material.

2 Risk Identification

According to Blyth (2008), the ideal crisis management is a combination of various elements such as maintaining a situation awareness, protecting reputation and executing the pre-planned response plans such as an evacuation plan.

Operating on a foreign territory and as a part of a situation awareness the organisation's crisis management team should recognize the influences of the foreign region's culture, legislation and the emergency routines accomplished by the foreign region's or country's governmental bodies or representatives. The active monitoring may increase the possibilities to survive in an emergency. The region's political situation, governmental activities or lack of the activities can have a significant impact to the organisation's resources, both positively and negatively for example in an evacuation situation.

2.1 Security Policy

A security policy is the core of the company's security management, instructing organization's employees to adapt the correct operating method. The security policy supports managers and leaders to proceed clear actions regarding employees, customers and use of technology. The well-prepared security policy has plans for example for a crisis management and includes statements concerning training, auditing and reporting (Blyth 2008).

The purpose of a security policy is to reduce threats, incident expenses and stabilize the hazard situation back to normal level. An evacuation is one segment of the emergency management and hence, a well-designed security policy includes the methods and plans for an effective evacuation (Erickson 1999, 443-453).

Blyth (2008, 115, 132, 191) describes company's security policy as a statement that includes guidelines for various hazard situations. A well-prepared security policy should contain the detailed instructions for assigned responsibilities for individuals in an emergency, incident response teams and guidelines for various planning phases. The head of the security should have a direct connection for conversation to the senior management and to the top level of the company.

Erickson (1999, 446) mentions an evacuation as one of the general procedures of protection in organisation's security policy. In order to develop evacuation procedures, the company has to specify the circumstances that requires an immediate evacuation. The evacuation plan has to contain certain elements such as precise procedures, designated persons and a clear chain of command. Furthermore, the co-operating with local authorities to harmonise the plans with regional requirements is advisable.



Figure 2: The position of an evacuation in a security policy chart

To summarise, the security policy for foreign operations is a document or statement that describes the procedures regarding safety and security in operations outside the company's origin country since the culture, legislation and environment can be a different compared to company's conventional operating area (Blyth 2008, 295).

2.2 From a hazard to the disaster

Ismail-Zadeh et al. (2014, 243, 388) refers to the International Strategy for Disaster Reduction's (ISDR) statistics of natural hazards and claims, that the most frequently occurring natural hazards worldwide with serious impacts on communities are earthquakes, tsunamis, floods and hurricanes. The statistic categorises nearly a million fatalities under the period 1991-2005 and several billion (US\$) losses to business. The annual average number of catastrophes has increased noticeably during the years 1980-2011.

In addition, Ismail-Zadeh et al. (2014, 397) states, that the type of a development has been especially noticeable in Asia. The authors clarify the development as shown in table 2. Under the period 1980-2011, 33% of all worldwide disasters and 66% of loss of life has occurred in the Asian region. At the same time, the business and investment activity in the areas has been rising considerably. New areas with a serious hazard risks are developed for a business activities, a residential purposes and for a tourism. The similar type of a development has also noticed in the other developing regions such as in South-America.

Period	1980-1989	1990-1999	2000-2009	2001-2011
Average number of registered hazards per year	405	650	780	800

Table 2: Natural catastrophes since 1980 according to Ismail-Zadeh et al. (2014)

Haddow et al. (2011, 70) refers to the United Nations (UN) estimations concerning the year 2008 natural disasters. During the year 2008 over 230 000 people deceased in natural disasters. The disasters affected approximately to the 210 million lives and the costs were during a one year over 180 billion (US\$). In recent times, the severe weather has continuously caused emergencies worldwide to both, individuals and to the business. As long as the weather hazards are under a control and duration of the hazards is short, the societies may manage the situation independently. However, if the situation develops beyond the response limits, it might turn to a disaster.

On 2008, the largest single disaster was the Sichuan 7.9 on Richter scale earthquake in China. Over 87 000 people died or were missing during the earthquake and a several million people of the Sichuan region's 4, 8 million inhabitants became homeless. The main reason to the extent of the disaster was the weak infrastructure (Esnard & Sapat 2014, 169 & BBC 2013).

Furthermore to specify disasters, Ismail-Zadeh et al. (2014, 234) mentions four factors that might change the natural hazard into a disaster: time, region, society and the type of event. Ismail-Zadeh et al.'s (2014) factors are illustrated in table 3. Firstly, the time refers to duration of the event; longer the hazardous event persists the more impact it will have to the community. Secondly, the region refers to an area where the event occurs, thirdly the term society is connected to the vulnerability and the resilience capacity of the community and finally, the term type of event includes various factors such as magnitude, extent and form of the hazard.

Ismail-Zadeh et al. (2014, 47-49, 127, 243) emphasises that the factors are connected to the disaster's characteristics and society's resilience. The specific factors strengthen the disaster impact while some of the factors will reduce the probability of a disaster. Ismail-Zadeh et al. recommends a comprehensive risk evaluation concerning of possible disaster's duration, space, resilience of local society and type of the possible events.

In addition to Ismail-Zadeh's, theory of four factors that can turn hazardous event to the disaster, Burton, Kates & White (1993, 227) introduces an alternative perspective, that can increase the impact of a disaster. The Burton et al. (1993) factors are illustrated in table 4.

The perspective introduces four human related factors that can affect to response reactions and thus as well affect to a vulnerability assessment or to selected response tools. The Burton et al. (1993) factors are the characteristics of event, local skills to response to a hazard, intensity using resources and the attained material wealth.

Long duration, several factors simultaneously	<i>1. Time</i>	Short duration, no other factors
Difficult or distant location for rescue workers, risk of chain reactions	<i>2. Space, location</i>	Controllable area or place, no risk for chain reactions
Poor countries, no resources	<i>3. Resilience of society</i>	Wealthy countries, resources
Powerful event such as an earthquake with tsunami	<i>4. Type of event</i>	Minor event such as wind without other factors

Table 3: Disaster impact factors according to Ismail-Zadeh et al. (2014)

Powerful event such as an earthquake with tsunami	<i>1. Characteristics of event</i>	Minor event such as wind without other factors, minor fire, car stuck in snow
Poor countries, lack of training, lack of awareness	<i>2. Local skills</i>	Wealthy countries, training, awareness
No resources or resources but no skills to use resources	<i>3. Intensity using resources</i>	Resources available and ability to use resources
Nothing to lose	<i>4. Attained material wealth</i>	A lot of material wealth

Table 4: Human related factors in disaster response according to Burton et al. (1993)

The most powerful disaster type is related to a chain reaction such as earthquake combined with tsunami. If this type of the disaster shall occur in region with no resources for emergency respond the results can be catastrophic; therefore, an immediate evacuation is a required action. Burton et al. (1993, 227) claims that an ability to use resources during a disaster event and an emergency response, addresses a significant impact to a success of an operation. In addition, the motivation and attitude regarding rescue work is in relation to the achieved material wealth. If the attained material wealth is high, the persons are more motivated to protect the properties.

The Fukushima disaster in city of Sendai in Japan on March 2011 is the recent example of the powerful and destructive chain reaction. An earthquake with nine magnitudes on Richter scale was a start for an extending chain reaction that led to a wide disaster. The components of the chain reaction were tsunami, flood, radiation, contaminated areas and large number of deceased and injured. The disaster led to a large-scale evacuation among the Tohoku region residents, even though Japan is developed country and possess knowledge, skills and resources. As result of the catastrophe, several foreign companies started to perform evacuation procedures to safeguard employees and to assist them with rapid return to origin country (YouTube, 2013). The Reconstruction Agency of Japan (2013) confirms the number of evacuated persons on Tohoku region to 154 000.

According to Griffin (2014, 84-86) a hazardous event may also develop slowly during a longer period and finally escalate to a disaster. The term escalation can be connected to the recent manmade events such as the Arab Spring 2011 and Ukraine conflict 2014, which had similar muted signals and noticeable indicators such as growing demonstrations, unrest and provocation that led to serious confrontations and casualties (YouTube 2011). Blyth (2008, 192) confirms the Griffin's (2014) claim regarding development during a longer period and recommends political analyses to recognise all political and social factors that may have influence to business in short-, medium- and long term.

According to Blyth (2008, 191), the important elements of the remote-site's risk evaluation are for example a threat analyses, reviews, audits and training for staff. In addition, Burton et al (1993, 35) mentions, that if the event occurs quickly and unexpectedly, little can be done to avoid the outcomes as well as when the event's continuance is short and powerful; less actions can be performed during the hazardous event.

To summarise, the possibility to predict possible disaster events or the impact of the disaster is in correlation with the number of indicators that typically are noticed quite easily afterwards. Even though the indicators exist before the event, they are not always recognized and evaluated with suitable measures in advance. To achieve a correct situation awareness, these factors should be studied in advance or no later than during the first moments of event. The correct timing for an evacuation is related to capability to recognise the early "symptoms" of a disaster and hence, the success to predict the forthcoming disaster can safeguard lives. Hence, if the company is expanding to new geographic regions, the risk assessment concerning the site and region should be performed properly.

2.3 Identifying various disasters

According to Haddow et al. (2011, 29), identifying the hazard is the basis of crisis management activities, to simplify the situation Haddow et al. (2011, 30, 51) and Blyth (2008, 313) has categorized (table 5) the disasters in main groups: the manmade disasters and natural disasters. The third segment describes catastrophes that might occur time to time.

Manmade disasters	Natural disasters
Technical failure e.g. in nuclear power plant Radiation Chemical spilling Conflict, war, riot, unrest Serious criminal activities Terrorism	Earthquake Tsunami Hurricane Tornadoes Tropical cyclones Flood, Flash flood Volcanic eruption Heat or cold waves Drought Wild fires Landslides Blizzard Avalanche
Other conceivable threats	
Serious epidemic Pandemic Solar flare, meteor impact	

Table 5: Typical disasters and other conceivable threats

Earthquake

Annually approximately a thousand earthquakes worldwide are enough strong to be recognized from shaking or rolling movements of the ground. From ten to one hundred of them are enough powerful to cause damages. Vulnerability to earthquake damages is related to the several factors such as extend and power of the event, event location, ground conditions, strength of the buildings and the population density (Ismail-Zadeh et al. 2014, 47, 53-57).

On January 2010, an earthquake struck Haiti with 7 magnitudes on Richter scale. The epicenter was 25 kilometers from the capital Port-au-Prince in area with a high density of population and weak buildings. The death toll in Haiti was over 200 000, including 92 United Nation's employees. The earthquake in Haiti affected to over three million people's lives (WHO 2011).

In comparison, on March 2011, an earthquake with a massive 9 magnitudes on Richter scale occurred under the seabed near Tohoku, Japan. In Japan, both the situation awareness and

training are in much higher level than in Haiti, still the earthquake was destructive and launched series of an events such as tsunami, flooding and nuclear power plant accident that led to serious radiation. The disaster in Japan has caused, thus far, loss of 16 000 lives and destruction of 46 000 buildings (WHO 2014e).

According to the Wall Street Journal (2011), the economic costs of Japan earthquake were several hundred billions US\$. The list of latest earthquakes is available online for example on the European-Mediterranean Seismological Centre's website (EMSC). The EMSC is also providing real-time information of earthquakes to the mobile phones (EMSC, 2010).

Blyth (2008, 313) confirms the World Health Organisation's (WHO, 2014a) claim that the acute stage, referring to first moments of earthquake disaster (Figure 2, 20) causes most of the casualties and injuries. The major physical external and internal injuries derived from collapsing buildings and fires. The minor injuries such as cuts and bruises, dust inhalation and in addition, dehydration due to lack of water or contaminated water are common. During the disaster, the roads and communication networks can be seriously damaged and as a result the aid might not be available immediately (WHO 2014a).

Tsunami

The tsunami waves are a consequence of an underwater landslide, collapse or earthquake with epicentre under the seabed. The massive waves are able to travel thousands of kilometres with speed up to several hundred kilometres per hour. A tsunami wave can grow up to tens of meters height and extend onto land several kilometres; therefore, the massive wave shall destroy quickly all objects on its route (USGS 2015c).

The tsunami warning systems have raised the awareness on the coastal areas, but due to many alarms caused by small waves after earthquakes, individuals are not reacting to alarms always enough seriously. A tsunami warning system may tolerate from couple of minutes to hour time for evacuation but still, most tsunamis do not produce big breaking waves. Rather, most tsunamis come onshore as very strong and fast tides (Haddow et al. 2011, 45).

On December 2004, the Indian Ocean 9.1 on Richter scale earthquake, followed by the tsunami affected 11 countries and the death toll was over 225 000. The WHO estimated that over a million people were displaced from destroyed areas (WHO 2014c). According to the WHO's web page, the direct health risks after tsunami are contaminated drinking water, lack of food, medication and shelter. The major physical injuries such as broken limbs and head traumas are often outcome of the forceful contact with debris such as pieces of metal, wood or plastic, rising and falling in water (WHO 2014d).

Hurricanes, tornadoes

Weak buildings located to lowland areas near by the water are in the immediate danger zone. In areas with a high poverty, the systematic pre-evacuation plan can be missing or people might remain in the area refusing to follow the evacuation plan to protect the property. The major injuries are often a result from the factors such as collapsed buildings and flying debris in a strong wind (Haddow et al. 2011, 41).

On 2004 in Louisiana, USA, during the hurricane Katrina, over 10 000 people were evacuated to the Superdome football stadium in order to protect the lives. The total number of the displacement during the Katarina was over 1.3 million people (YouTube 2014). The hurricane Katarina has been the most expensive and destructive natural disaster in USA within 80 billion (US\$) losses (Haddow et al. 2011, 104).

According to WHO (2014) in flooding disasters only few lives are lost in acute stage or in comparison to medium- and long-term health risks that affect later on the area and rise number of the casualties. Diseases such as malaria, cholera and diarrhoea may spread rapidly on a disaster area. In addition to the material losses and physical injuries, emotional pressure can cause irrational behaviour during and after the event (Sommer, 2005).

Volcanic eruption, ash cloud

A volcanic eruption may cause serious side effects such as lava flows, toxic gases, ash clouds and landslides. Griffin (2014, 86), mentions the Eyjafjallajökull volcano that erupted on April 2010 in Iceland creating several days long disruption period to air transportation. Most of the North European countries were compelled temporarily to close the airspace. The unexpected interruption of air transportation created problems for millions of travellers, and in addition, congestion in alternative solutions such as in hotels, railroads and busses. Several companies suffered financial losses due to a disturbed supply chain. To monitor volcanic activity various institutions such as Smithsonian Institution is providing weekly reports of worldwide volcanic activity (Smithsonian Institution 2013).

Epidemic, pandemic

An epidemic is an infectious disease that occurs from time to time among a large number of the population. If the epidemic spreads around the world, it is called pandemic. The 2009 outbreak of H1N1 (swine influenza) infected several millions of people worldwide; therefore, it was called a pandemic. The annual death toll by a normal seasonal influenza is approximately 500 000 worldwide but concerning H1N1, the precise statistics are not available

due to reason that the H1N1 has exacerbated other fatal sicknesses and therefore the cause of decease has not been directly the H1N1 (WHO 2009).

According to WHO's announcements during the year 2014 and case study of Howitt and Herman (2009, 125-12) the Ebola outbreak is following similar paths than Severe Acute Respiratory Syndrome (SARS) outbreak in Toronto Canada on April 2004. The SARS epidemic transmitted from Asia to Toronto with an airline passenger. In its first wave, most of the infected were medical staff: nurses and doctors. This caused concern and panic, many health care workers refused to work due to SARS stigma. Similar reactions as in Toronto have been observed during the Ebola 2014 outbreak in West Africa. (Relief Web 2014).

Manmade disasters

Manmade disasters such as wars, riots, industrial accidents and terrorist acts are creating disorder, damage and potential need for rapid evacuation. Blyth (2008, 313) mentions that manmade disasters may spill over to neighbouring areas such as the Arab Spring on 2011 demonstrated (YouTube 2011).

In addition, on 2014, Ukraine conflict escalated to a civil war with numerous casualties, including Malaysian passenger airplane carrying over 300 passengers. Most of the victims in the destroyed airplane were civilians from Netherlands. The Ukraine conflict was expanding as well to a form of financial disputes. EU decided to establish sanctions against Russia and as a result, Europe confronted Russia's counter sanctions. On May 2015, the situation in Ukraine is still unstable (European Union Newsroom 2014).

Griffin (2014, 13, 86) confirms the Blyth's (2008, 295) claim, people worries more the manmade risks than natural risks. According to Griffin (2014): "Although the weather has no intent, it does not make it any less destructive." Moreover, by comparing visible threats and invisible threats, it appears that the people fear more the invisible threats such as viruses and radiation than visible manmade or natural disasters. In addition, by comparison of visible manmade threats such as war, crime and terrorist attacks to natural disasters, the visible manmade threats frightens people more than pure natural threats.

Blyth (2008 313-327), states that disasters have several types of an appearance. The organisations with a capability to predict and recognize the entity of disasters that might affect to the organisation on short-, medium- and long-term and capability to be prepared with all forms of actions hold the highest probability to survive over the crisis.

2.4 Stages of a disaster and the correct evacuation time

In order to activate suitable disaster response measures and evacuation procedures at the correct time, Blyth (2008, 318) recommends to recognise the various stages of disaster. The acute phase of a disaster contains the first moments of the disaster and inflicts the largest number of the immediate victims. In comparison to the immediate post-disaster phase where number of the injuries and victims is decreasing progressively, the acute phase victims suffer directly more fatal and critical injuries. The various stages of disaster are illustrated in figure 3.

The duration of disasters may vary on acute phase from a couple of minutes to several days, depending on type of the disaster. For example, earthquake can be over in minutes but a flood can remain several days. In addition to this, a war is example of the disaster that can have various phases simultaneously ongoing in separate regions of a country. The certain areas of a country may be in the immediate post-disaster phase even though the other regions are still in the acute phase (Blyth 2008, 318).

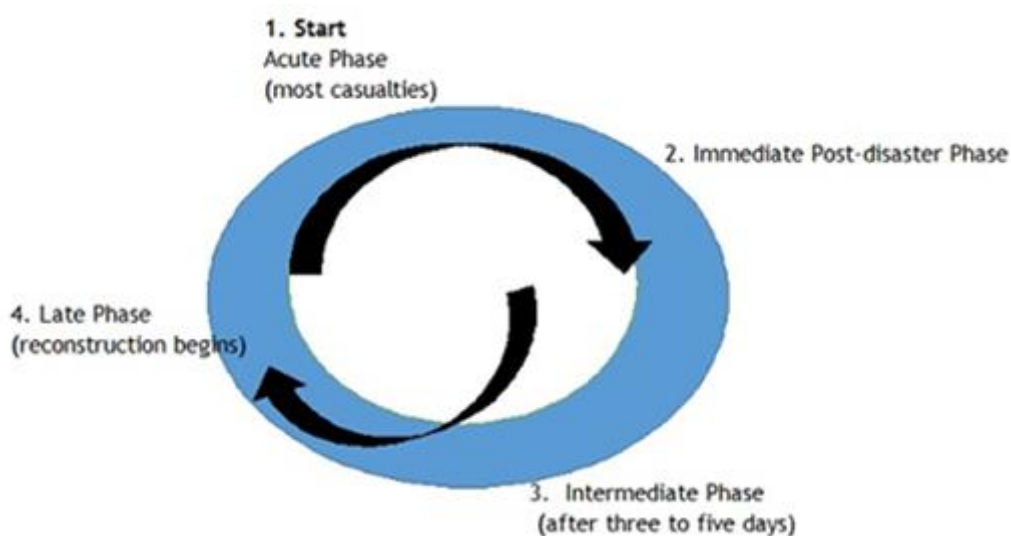


Figure 3: Stages of a disaster according to Blyth (2008)

The first disaster response responsibility during an acute phase is addressed to the remote-site's staff and the local authorities. The staff should independently accomplish the required first response procedures inside the site. The acute phase disaster response may require capability to various actions such as a spontaneous leadership with extinguishing fires or providing a first aid. The success of the acute phase procedures is related to the training and functionality of the plans and policies (Blyth 2008, 318). The desirable characteristics during the acute phase are according to Howitt and Herman (2009, 620) a resistance to a stress, an analytical decision-making and a capability to improvise.

During an immediate post-disaster phase, the local emergency response teams of the country are typically activated, if available, and the response teams have proceeded or are proceeding the required crisis measures such as a professional firefighting, search of victims, and patient transportation to the hospitals. No later than in the immediate post-disaster phase, the private organisation headquarters should be able to perform the rehearsed procedures according the plans and for example, start the evacuation of the staff (Blyth 2008, 318).

The intermediate phase of a disaster will typically start in three to five days after the immediate post-disaster phase. During this time, the survivors typically gather to a same area and the first symptoms of diseases such as fever, infections, diarrheal typically occur. The possible unpleasant weather conditions, lack of clean water, food and medication increase the number of infected and end of the period the diseases such as dysentery, cholera and hepatitis might be spreading. In addition, the victims and rescue workers mental capacity can be overburden. The organisation may start the recovery plan procedures, interrupt the remote-site's business activities temporarily or complete the evacuation and terminate all activities in the remote-site (Blyth 2008, 318).

The late phase of a disaster is a start of a reconstruction. The precise starting point and the duration of the late phase is related to the several factors such as to a resilience of the society and infrastructure, impact of the disaster, disease outbreaks and the region's health care infrastructure. In this phase, business organisations typically abandon the region with full-scale evacuation or execute the recovery plan procedures (Blyth 2008, 318).

To summarise the disaster stages and duration, it is important to notice that the each disaster has characteristic features and numerous factors that may affect to duration of various stages. Therefore, the timeline is not constant, and the evacuation can be performed in any stage. The correct timing of the evacuation is related to various factors such as the level of an immediate danger in remote-site facility, existing possibilities to a safe transportation or the danger level of the neighbourhood areas. In some situations, the evacuation might start for example due to a warning signal.

2.4.1 Evacuation signals

Griffin (2014, 84-86) introduces the warning signals of manmade hazards in his example describing the events of Arab Spring in Libya 2011. The author encourages to observe and identify the "muted signals" such as in Libya where was a noticeable change in the mood among the local inhabitants, open and public criticism against government, unrest in prisons, gasoline and bottle purchase restrictions. This type of muted signals should be interpreted as

“triggers” which should launch the more accurate situation awareness, and a communication between the headquarters and remote-site. The muted signals should also launch the pre-preparations for a possible evacuation.

The specific evacuation alarms are typically pre-agreed and used to provoke attention. The alarms are start of predetermined actions such as a fire alarm that will typically start an immediate evacuation of the building. The purpose of signals can vary, for example on board Finnish passenger vessels, the fire alarm is only a signal of detected fire and the evacuation signal sounds different (RINA 2014 & IMO 2009).

The large-scale warning alarms that predict an evacuation or any dangerous situation that might lead to evacuation can be for example the general warning alarm, the specific tsunami- or hurricane warning alarms, or the previously mentioned ship’s evacuation alarm that might lead again to the new alarm that indicates the abandon ship-situation (Haddow et al. 2011, 128-129 & IMO 2009).

The number of various warning signals and alarms is large and therefore, it is important learn to recognise each alarm on own area of operations and adapt the precise significance and actions that need to be performed after the specific signal. However, sudden need for an evacuation might not have the pre-determinate alarm. The specific alarms and signals are primarily used on regions or locations with resources, knowledge or previous experiences of dangerous situation (Haddow et al. 2011, 128-129).

2.4.2 Comparison of response modes

Howitt and Herman (2009, 617-621), introduce in table 6 various elements of routine emergencies in comparison to elements of large-scale disasters. The differences within elements shall appear for instance concerning the response time, first responders and with aftereffects. In a routine emergency response the situation awareness, skills and knowledge are in high level and well trained. By contrast, in large-scale disasters the first responders on event scene can be individuals, totally without specific training and situation awareness.

In large-scale disasters, the creativity and capability to improvise with available materials and tools are more desired skills than in routine emergencies. Therefore, the organisation’s crisis management team should identify the characteristics of an individual event and the stage of the disaster, in order to launch correctly proportioned procedures in right time and address the right persons with for example a capability to improvise during the response tasks (Howitt & Herman 2009, 620, Exhibit C1).

Characteristics	Routine emergencies	Disasters
Situation awareness/ expertise	High	Low
Decision making	Rapid and recognition-primed	Cognitively driven and analytic
Scripts	Comprehensive	Unavailable
Customization	Simple	Wide
Skills required	Well-defined, highly developed	Not specified, creativity, improvisational ability needed
Leadership	Trained, practised	Adaptive, comfortable sharing authority, ideas from team, innovative
Command presence	Authority-based, directive	Muted, more hierarchic in execution
Organizational structure	Hierarchical	Flattened, hierarchical for execution
Execution	Aims to trained results	Must be fault-tolerant

Table 6: Comparison of response modes according to Howitt & Herman (2009)

In addition, Howitt and Herman (2009, 621) argue the need for capability to operate on both modes, and state that many organisations are not prepared for this type of performance. The main reason is that the organisations often perceives the government bodies' responsible of disaster response mode routines. Another obstacle may also be that the companies may experience difficult to reorganize the routine emergency response actions for disasters that are not occurring often. In addition, organizations with strong and hierarchic management might have difficulties to accept and adapt spontaneous and improvising response model if that is not normally recognised operation model on organisation. Howitt and Herman (2009) emphasises that the characteristics of disasters requires effective response that can produce reasonable fix or rapid approaches to the situation.

3 Preparedness

Blyth (2008, 145, 319), recommends that each organisation should create a crisis management team to be prepared to response effectively and quickly to hazards that can vary depending on type of a business and an operated region. The term crisis management refers to functions such as preparing plans for example for an evacuation and procedures for example to mitigate risks before the organisation shall confront the actual emergency. A comprehensive crisis management procedures demands commitment from various persons from a senior management to a working level.

3.1 Mitigation

According to Erickson (1999, 239) a crisis prevention and response actions both should contain elements of hazard and risk reduction. The hazard and risk reduction are two areas of a risk mitigation. In the hazard reduction, the focus is on minimizing the harm or damages connected to material, circumstances or condition. On the contrary, reduction of a risk is connected to the methods provided for protecting operating persons against the risk impact. However, the risk acceptance is one valid strategy and with this strategy, the company shall evaluate the costs of mitigation or prevention compared to the costs of realized risk.

Erickson (1999, 239-243) introduces various methods for mitigation: Firstly, reducing the number of incidents. The natural disasters and manmade disasters might not be avoidable but prevention measures and training of the remote-site's staff can minimize the unpleasant consequences. The proper healthcare, vaccinations and insurances both for staff and to company property are important in new region. The staff should be trained to provide first aid, purify contaminated water and to discover route to the predetermined assembly point. For example, a person can survive from collapsing building in an earthquake but decrease later on without water, medication or shelter.

Secondly, Erickson (1999, 243) recommends to prevent the natural disasters by avoiding a location with hazard risks. The remote-site's physical location should be chosen carefully; more or less risks can be reduced by avoiding high-risk areas. Geographic and topographic evaluations can predict some of the forthcoming problems. In addition, a review to the area's history can forecast imminent incidents. Haddow et al. (2011, 73) agrees with the Ericson's point of view and recommends to provide a careful hazard identification in particular region during the risk assessment phase.

Thirdly, minimizing the size of an event. The size of the event can be described with numerous indicators, such as a geographic extent and impact of the event. According to Ericson (1999, 240, 261) a death toll and a number of the injured persons, the economic costs of property loss, duration of incident and value of used resources are quite often used indicators to describe a crisis. A private organisation or company's remote-site is not be able to minimize the duration of natural or manmade disasters on current location, but as an alternative, the organisation can invest for example to a prevention methods such as strengthening the building or carefully consider the positions for example for gas tanks or electric wiring. Furthermore, the co-operation with neighbouring organisations is a good method to reduce expenses.

Ericson (1999) and Haddow et al. (2011, 73) reach a similar opinions concerning the building structures. Haddow et al. (2011) recommends studying the building codes in various regions and countries to achieve right level to construction projects. The author also mentions the insurance as one of the debated mitigation instruments. According to Haddow et al. (2011, 78) not all agree with the insurance's mitigation position. Primarily, the insurance is defined as a Risk Transference, an instrument for transferring the risk to another operator such as to an insurance company.

Finally, the last recommendations to mitigate risks, according to Erickson (1999, 243) is the continuous learning process. "Every emergency incident is a unique opportunity for learning how to plan or respond better". In addition to the previous mentioned mitigation instruments, Haddow et al. (2011, 72) address a request for the governmental bodies to provide a financial incentives such as a tax deductions or a grant for citizens and organisations that improve a security in hazardous regions. However, the Haddow's recommendation might be difficult to implement if the hazardous region's infrastructure and governance is not developed enough. Therefore, the recommendation might be more suitable for the countries that already have initiated some actions to mitigate harms and risks within the state or region.

3.2 Evacuation planning

Blyth (2008, 295), emphasises that the purpose of an evacuation plan is to identify a necessity and practices to relocate people or assets quickly and securely to the predetermined safe location. The evacuation plan is a one segment of the crisis management and according to Blyth (2008, 295) "Evacuation planning should reflect local, regional and national level needs". The Blyth's claim characterizes requirements for a risk assessment; it would be beneficial to implement a co-operation with consultants or local experts to the planning process. The national level evacuation is a one segment of the each individual county's internal security procedures. Hence, the operating organisations in foreign region should be familiar with the evacuation procedures of the relevant country.

If the company's remote-site is located to North America and the main threat is a hurricane, it is easy to adapt local procedures, follow the state's and region's pre-determinate guidelines and add company's security requirements to the final evacuation plan. In contrast, if the remote-site is located in peripheral region in Asia, the situation requires more pre-planning and assets from the company (Blyth 2008, 295).

Numerous security-consulting companies offer outsourcing for planning and immediate aid with crises; this type of a solution might be advisable if the company's knowledge of the region or networks in the area are not sufficient. In addition, the company's evacuation plan

can include co-operational assistance or bilateral contracts from neighbourhood companies or aid request from governmental bodies or non-governmental organisations (Blyth 2008, 295).

Blyth (2008, 297-301) introduces the six elements of the evacuation planning in figure 4:



Figure 4: Strategic evacuation plan mapping (Blyth 2008, 297-301, Exhibit 10.1)

An evacuation plan should be designed each time precisely for an individual site or location taking in consideration the risk assessment. Blyth (2008, 339) mentions examples of influences such as historical and political factors, socioeconomic issues, ethnic and religious issues, the arrangement of the natural and artificial physical features of an area, climatic and geographic threats that may vary depending on the country or region.

According to Blyth (2008), the identified elements such as an evacuation schedule and the extent of the operation should be determinate. The *triggers*, referring to the accurate moment to launch an evacuation operation should also be defined and the specific persons such as decision makers should be nominated. The evacuation order of the staff members should be determined and the focus should be primarily on the key persons. The company's manager is not always the most valuable person. The key person question is related to the company's operating area, priorities and to the key person's specific skills.

According to Blyth (2008, 202, 296) during an important safety-related decision-making, the company's senior management should be involved and support the evacuation planning, as well as to the approval and implementation. An evacuation planning is not only a security department's concern, but also several of company's decision makers and key persons on various levels should be participating in the planning. In certain situations, the evacuation may result a temporary or permanent closure of the remote-site and therefore during the decision-making, various aspects should be taken into consideration.

Hence, it is important to recognise and determinate ownerships and assign the mandatory duties during an evacuation planning and with the implementation. The staff should be familiar with the planning process and importance of the plan. The staff should participate to the evacuation training and after the rehearsal the plan should be evaluated (Haddow, 2011, 128). The important sections of an evacuation planning are:

Ownership

The duties and responsibilities should be addressed to designated persons in all levels of the company. Blyth (2008, 301) emphasises the commitment with the security objectives from high-level management to working level persons. The security department is not by itself responsible of all security related plans. Certain important positions concerning evacuation requires designated person to be in charge. The management structure and responsibilities should be visibly defined. The precise defined areas of responsibility will help to perceive the authority and the decision-making entitlement.

Decision-making, decision makers

The designated persons have to provide important decisions such as defining, *the triggers*, referring to the recognizing an event or a hazard that may launch certain activities such as an evacuation in correct time. A person with decision-making responsibility shall also determinate the alert states such as three or multiple-stage system to indicate current danger level. The evacuation contains a number of decisions and the staff and operating responders requires clear instructions and commands during the event.

Information

Both an internal and an external information should to be managed fluently. The Internal information is connected to collecting and analysing of data, concerning for example situation awareness, forecasts and scenarios. The information have to follow the official predetermined command chain from the decision providers efficiently to the persons proceeding the commands. External information is concerning for example media reports from incident location, eyewitness reports, stakeholder reactions and statements from official sources.

Continuity planning

A well-prepared company has ready plans regarding various hazard situations and for after affects that might threat the company. After the hazardous event, a Recovery Plan is an

important component of re-starting the disturbed business. In addition, the after-action report is an investigation statement that summarises the success of the evacuation procedures. The statement includes various factors such as the provided procedures, successful actions and possible losses. The statement is necessary for lawsuits, insurance claims, and incident investigations and for most important to analyse the success of various processes and decisions. The collected data can be used to update the security policy.

Administration

The administration is responsible for funding, materials, tools and other resources needed in the evacuation. Therefore, the commitment of the senior management is important. Furthermore, the legal department have to be available to assist and advice all the decision makers during the event. The Human Resource department have to administer information such as working contracts, updated on-duty list, and contact information to both the employees and the family members regarding person's working in the remote-site.

Crisis Communication Team

The available physical communication systems, devices and alternative solutions have to be listed. In addition, The Crisis Communication Team need to follow continuously numerous media sources, including the social media and be prepared to provide media releases. The external information includes also a contact and information delivery to the stakeholders such as family members, co-operating partners, vendors and investors. The Crisis Communication Team have to be able to provide information also for media.

To sum up, the well-prepared evacuation plan should be resourced in all its phases. Both the key persons and the management in all levels should be committed to the evacuation planning and implementation. The plan should be tested and rehearsed, but at the same time, it should be able to modify with no trouble if the circumstances are shifting to unexpected direction. In addition, during a crisis, safeguarding the lives is the priority; however, specific files, business contracts or business secrets should be protected or destroyed before abandoning the remote-site (Blyth 2008, 299).

3.2.1 Information, Communication

The crisis management and operating teams requires constantly current and accurate information regarding the incident for instance to create and maintain a comprehensive situation awareness concerning the disaster and disaster related events, to evaluate various stages of a disaster and to launch right evacuation procedures in correct time. One of the

main challenges during the remote-site evacuation is the crisis communication with the remote-site. The communication is vital to attain and maintain a correct situation awareness. The data and telecommunication connections might not be available during a disaster; therefore, the company should discover the alternative communication systems and predetermine the backup procedures in case of a communication blackout between the headquarters and the remote-site (Haddow et al. 2011 154-162).

A crisis communication is an important section of a crisis management and therefore, also a part of the efficient evacuation procedures. A crisis communication team (CCT) should collect the information for internal and external use. During the evacuation, the organisation's management and the leaders of the operation require valid and analysed data from various sources for the decision-making. In addition, the crisis communication team is responsible for example: for press releases, communication with family members and other stakeholders (Blyth 2008, 139,149).

Haddow et al. (2011, 138) demonstrates the importance of the media, especially concerning the communication with the public. The big media organisations has developed effective networks to produce an information flow from various sources continuously. Therefore, good relations with all forms of media are beneficial for continuous media follow-up and monitoring the situation development to maintain a situation awareness and in order to launch the appropriate procedures, for example regarding company's reputation or emergency response operations such as an evacuation.

In addition, in order to conduct all these aspects efficiently the organisation should have well-organized communication plan (Blyth 2008, 139).

3.2.2 Command Chain Structure

In United States and in Europe have established a number of the security related statements and provided a lot of legislation renewal after the September 11 terrorist attacks in New York 2001 and the hurricane Katarina 2005 disaster in Louisiana. Haddow et al. (2011, 303), states that the one of the main failures during the September 11 response operations was an unclear command chain, especially the lack of leadership and ownership.

Howitt and Herman (2009, 131-136), introduce in Figure 5 the Incident Management System (IMS) and describes the Incident Command System (ICS) structures that has several important features such as fast, flexible and human resource saving format that allows the first few responders to build up a command system. In addition, if the incident continues and is developing to more demanding direction the system allows and supports cooperation and communication between several similar command and management units. ICS can be

occupied in subsequent stages with numerous specific professionals or experts to combine skills and knowledge in order to conduct the situation. Each of the main sections on ICS can be sub-divided or modified.

The command chain during an evacuation is connected to the situation and actors involved. The start of an evacuation can be commanded and conducted for example; by the persons first entering the incident scene and then step by step with larger structures such as police, fire- and rescue departments, or on a minor-scale private company's security department, captain of the aircraft or cruise ship or a doorman of the building.

In the situation where an incident or a series of incidents are developing to the large-scale disaster evacuation, the leader of the command chain might be changed and actors in the situation have to adapt the new form of command chain and experts. The leadership modification is easier if all actors involved are familiar with the similar command structure Howitt & Herman (2009, 131-136).

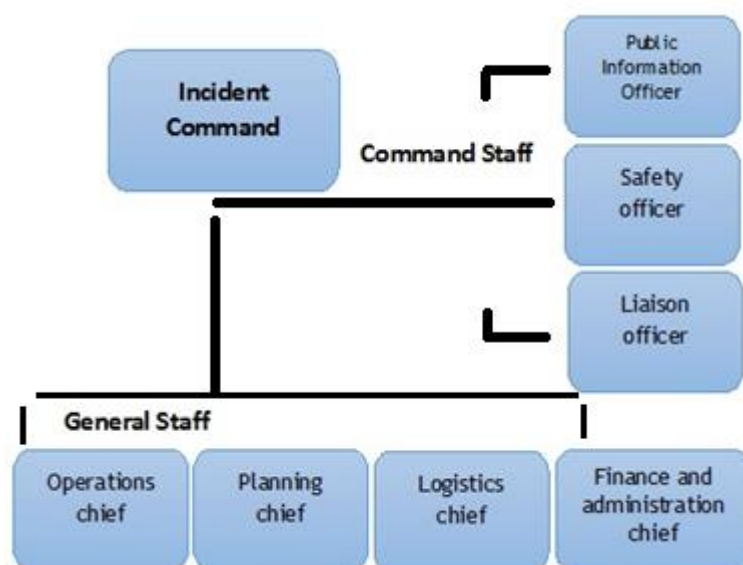


Figure 5: Basic structure of Incident Command System Howitt & Herman (2009)

The ICS system figure according to Howitt & Herman (2009, 134):

Command Staff

The Incident Command can include one commander or several representatives from different units or stakeholders such as a governmental, an organizational or a specific area of expertise. The Incident Command shall determine the goal of the mission and priorities for the activities. In addition, the Incident Command or Commander is the main responsible unit until the command responsibility shall be delegated or appointed to the other person or unit.

The command staff and assistants should be positioned to the situation room or other location with the necessary equipment available to maintain the situation awareness efficiently. The room or space need to support an efficient centralized situation management.

The Public Information

The persons responsible of Public Relationships (PR) shall provide information for the media and if the organization has, only few persons available in an emergency, the same person may provide information for the response team and other related persons and organizations. The information can be announced as a press release or in form of messages in the organizations intranet, Facebook, Twitter or in any related instrument. The PR person should also be available for answering to interview requests.

Safety Officer

The safety Officer is supporting Incident Command and Commander with recommendations. Safety officer is the person with most skills and knowledge concerning the disaster event and primary causes of the event. The person should be familiar with the remote-site's location and other important subjects related to the region.

Liaison Officer and General Staff

The Liaison Officer is the link between several units. The Liaison Officer coordinates the activities between various groups. All the General staff sections communicate with Liaison Officer to the Incident Command. The Operations Chief and/or the team are responsible of all sub-missions supporting the primary mission.

Planning Chief and/or the team are responsible for planning of the strategies, collecting the relevant information for evaluation, dissemination of the tactical information to relevant other sections and maintain the action log documentation.

The Logistics Chief and/or the team is responsible for providing services, facilities and resources for the incident response teams.

The Finance and Administrative Chief and/or the team is responsible for all monetary and administrative decisions including cost analysis of the incident.

In conclusion, a comprehensive understanding of the command system structure is valuable asset for a private organization's crisis management, especially in an emergency that requires a co-operation with authorities or multiple partnerships. By adapting the system to an organization's crisis management protocol, the organisation can participate efficiently for

example to a challenging evacuation even though the situation is developing to a more demanding position that requires co-operation with the authorities.

3.2.3 Co-operation

The various elements of an evacuation such as planning, implementation and execution should be well coordinated in all levels. An important resource for functional evacuation is the co-operation. An organisation should assure fluent co-operation inside the organisation as well as with all co-operating partners. The co-operating partners can be for example: local authorities, non-governmental organisations, scientist, business partners and neighbouring organisations on the remote-site's region (Blyth 2008, 298).

During the disaster related response activities such an evacuation, it is probable that a number of operators on the same area or region start to perform the evacuation procedures at the same time and the evacuation routes, safe havens and assembly points can be overloaded. Therefore, it is beneficial to consult the other operators to explore how the evacuation plans are constructed. In addition, co-operation with neighbouring organisations can reduce costs notably (Blyth 2008, 298).

Co-operation with local authorities

In an emergency, the first responders on accident scene are typically the local police, fire department or medical staff. The need of an evacuation can be detected immediately in most of the cases. If the incident is beyond the responder's resources, the local governmental bodies may request help from the national level or in larger scale disasters, the aid request can be addressed to the international level. Related to the sovereignty, the country may decide independently shall the official aid request be sent to the international community or shall the country accept and receive international aid (Haddow et al. 2011, 254 & ECPR 2013).

On 2008, the Burma (Republic of the Union of Myanmar) refused to accept an international aid organisation's entry to the state after a disastrous tropical cyclone (BBC News 2008). The similar situation was experienced on 2011, when Japan limited the information sharing for a two days and refused to receive international aid during the Tohoku earthquake and tsunami. In this type of a situation, the private company has to accomplish operations such as the evacuation, together with local authorities or with own resources and with co-operative partners in remote location (ECPR 2013 & Daily Mail Online, 2011).

Co-operation with NGOs

The globalisation provides a lot of new challenges and requirements regarding cultures, religions and political situations for the organisations expanding to new regions.

Blyth (2008, 192) recommends to co-operate with experts owning a previous working experience with governmental bodies or non-governmental organisations (NGOs) in the specific area. These persons are a valuable support for organisations, for example concerning networking, liaison and cultural- and political knowledge. In addition, Blyth (2008, 314) introduces the Code of Conduct for the Red Cross and Red Crescent Movement and Non-Governmental Organisations (NGOs) in disaster relief. In disasters such as the earthquake in Haiti 2010, the aid from Red Cross, Red Crescent and other NGOs was valuable.

Haddow et al. (2011, 173) emphasises the co-operation with volunteer groups and mentions that the first responders in a disaster area to provide aid and shelter, are often NGOs due to reason that sufficient response in massive disasters can be beyond the public sector resource's and experiences. Haddow et al. (2011, 254) also bring to mind the sovereignty of the state during the large-scale disasters, therefore, the state in question is responsible to provide an aid request before the international organisations can deliver help to the catastrophe area. In some cases, the state might decline the help from international operators.

State of Finland assistance and services

According to the Ministry for Foreign Affairs of Finland, the Finnish citizens abroad are justified to obtain an assistance from either consular or embassy in emergency, for example with missing travel documents such as passport, communicating with home country or requesting an immediate evacuation aid. In addition, this request can be addressed to the other Nordic consular or EU-country consular in the situation where Finland do not have an own representative body available in the destination country (Ministry of Foreign Affairs of Finland 2014).

Constitution of Finland 731/1999, 9§ Freedom of movement, states that all Finnish citizens and legal residents have right to travel and relocate without any question or permission. Citizens and legal residents should consider the willingness to take risks.

The Consular Services Act 498/1999, states that the Finnish consular units' worldwide shall provide needed information and assist within its jurisdiction and resources (Finland 731/1999 & 498/1999).

In addition, according to the international justice, the host country is responsible primarily for the security on its own territory. The tourists should follow the orders from the host country's authorities if the host country is capable to provide it.

Despite this, referring to the Finnish Consular Services Act 498/1999, section 4: "Services in crisis situation", in sections 15§ and 16§ is mentioned the state of Finland's assistance for personal safety and security during the major crisis abroad for Finnish citizens and legal residents (Finland 731/1999 & 498/1999).

Travel Information

The Ministry for Foreign Affairs of Finland releases and updates a travel information regarding current affairs concerning a foreign countries general security situation, special situations, and cultural- and political situations, on the ministry's website in Finnish and Swedish language. The ministry is providing Sms-service and RSS-feed regarding current travel information directly to the phone or computer. In addition, the Embassies are providing information to their Facebook walls (Ministry for Foreign Affairs of Finland, 2015d).

Travel Notification

According to Ministry of Foreign Affairs of Finland (2014), the Travel Notification is a Finnish service for companies and travelling workers to inform the Ministry of Foreign Affairs in Finland concerning a person's current location. In case of emergency, the Ministry shall attempt to contact the persons in question and review the number of Finnish citizens in that specific area.

The Travel Notification is especially recommended when travelling or relocating to the risk areas. A travel notification contains both personal data, a valid contact info during the travel period and information regarding the journey. In comparison, citizens of United State of America has the travel notification system called "Smart Traveler Enrolment Program" (Department of the State, USA 2014). The government of Sweden provides a similar website and system called: "Sweden Abroad" (Sweden Abroad 2014).

3.2.4 Evacuation transportation

A congested traffic and overload vehicles full of escaping people can create more serious accidents and damages than an original emergency. The public transport might be interrupted, errors in passenger's name spelling can deny the transportation, flights can be overbooked, cancelled or the availability of the gasoline can be restricted. The organisations

crisis management should maintain the right situational awareness during the operation to discover the available and best possibilities for the transportation (Griffin 2014, 84-86).

The 2005 hurricane Katarina disaster's aftermath disclosed challenges with transportation especially with large number of escaping people, pets and persons with special needs. The traditional emergency planning for evacuation is typically addressed for a standardized population referred as a community. However, the communities and organisations encloses individuals and some of them may have special needs during the evacuation, for example persons with a disability such as low vision or challenges with mobility (Howitt & Herman 2014, 105-106).

The legislation may impose requirements for planning. For example, according to the Geneva Convention, that defines: "States shall take, in accordance with their obligations under international law, including international humanitarian law and international human rights law, all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including the occurrence of natural disaster". Furthermore, a disaster may take place in a region or culture that might mostly use typographies that are not common for new operators on region. For example, the traffic signs and the written text may contain challenging symbols such as Japanese, Chinese or Cyrillic alphabets (Howitt & Herman 2014, 105-106 & YouTube 2014).

After the staff has relocated or returned to the origin country, depending on the characteristics of a disaster and degrees of the risk, the organisation's disaster management may start to provide the recovery plan procedures after the evacuation if the region is stabilised and the evacuation can be cancelled. The decision is related to the stages of a disaster (figure 3, 20) and to the organisation's recovery and continuity plans.

The organisation's contingency plan should be reviewed and updated due to possible changes and new threats in operating environment. The disaster may have exposed vulnerabilities in the organisation's preparedness level. Depending on the extent and intensity of a disaster, it may also be possible that the organisation is not able to return to the area (Blyth 2008, 311-318).

3.2.5 Staff's wellbeing

During a risk analysis, the various aftereffects of natural disasters should also be taken in consideration. The aftereffects such as destroyed infrastructure and lack of shelter may lead to various psychosomatic reactions such as to a chaotic situation where several people without food, water and medical care become hostile and may start violent protests that can

complicate the evacuation procedures especially if first steps of the procedures are delayed. This may cause direct physical threat for staff members (Blyth 2008).

In addition, according to Sommer (2005), individual's stress tolerance and stress reactions can vary. Therefore, a mental wellbeing of the staff members, the crisis management team or the evacuation team members should be monitored. Stress reactions such as crying, incapacity, hyperactivity or anger can occur in middle of the operation or afterwards. If the emergency or disaster procedures are prolonged and extended, the staff should be entitled for a sufficient rest-period or the staff should be replaced with substitutes.

The support of the management and colleagues is important. The supervisors are trained to monitor staff's wellbeing, but the monitoring should also cover the persons in decision-making position and on the management level. The supervisors and management need to provide several commands and decisions that can be very stressful. In the most demanding situations, the unloading of the pressure and mental stress should be fulfilled with healthcare professionals. In addition, if the evacuation is prolonged the victims, crisis management members and evacuation team members may suffer from various stress reactions that can disturb the operation (Sommer 2005).

3.3 Case Kathmandu

Description of the event

On Saturday 25th April 2015. 11:56 local time, 9:11 Finnish time. The 7.8 magnitudes earthquake on Richter's scale followed by a half an hour later 6.6 aftershock was reported near Kathmandu, Nepal. During the day, the Nepal region confronted over 20 smaller aftershocks from 4 to 5.6 magnitudes and 24 hours later, Kathmandu met one more, larger 6.7 magnitudes aftershock (USGS, 2015a).

The information concerning the event was released immediately in numerous media forms, including the social media, Facebook and Twitter. The Finnish Embassy of Kathmandu provided the first information release regarding the event on the Embassy's Facebook wall approximately a half an hour after the first earthquake, at the same time the Ministry for Foreign Affairs of Finland released the information on Ministry's webpage and on Twitter. The Embassy of Finland in Kathmandu estimated on Saturday 25th that the number of Finnish citizens on region is approximately 120 but later on Monday 27th the number was revised to 220 Finns. On Tuesday 28th April, the Ministry for foreign Affairs of Finland announced that total number of Finns in region is 240 and the Ministry has not been able to contact four

persons (Embassy of Finland, Kathmandu FB 2015 & Ministry for Foreign Affairs of Finland Twitter 2015b).

Identifying an environment

The location of the Nepal is in Southern Asia, between China and India. The country's location is partly isolated in central hill region, surrounded by the Himalayan Mountains in north that encloses eight of the world's ten highest peaks; therefore, the numerous areas are difficult to access. Natural hazards such as severe thunderstorms, monsoon rains, landslides, and earthquakes are potential (The World Factbook, 2015). The estimated population of the Nepal is roughly 31 million and the valley located capital Kathmandu has officially approximately one million, but unofficially four to five million inhabitants. The region is poor and has a high risk for major infectious diseases such as bacterial diarrhea, hepatitis A and E, and typhoid fever (CNN 2015). The tension and thrust of Indian and Eurasian tectonic plates is providing a great earthquake sensitivity and risks to the Nepal region (USGS 2015b).

According to the Ismail-Zadeh's et al. (2014, 234) and Burton's et al. (1993, 227) factors such as identifying the Nepal's geography, building codes and culture (tables 3 & 4) the situation in Kathmandu could be interpreted as an extremely dangerous from the very first beginning of the event. The factors indicated immediately that death toll and injuries would be in high level. In addition, the typical characteristics of earthquake predicted that large number of people might need for instance first aid, water, shelter and transportation. The Ministry for Foreign Affairs of Finland stated already on January 2015 in Ministry's Travel Information concerning Nepal that the country is located to earthquake sensitive area and is not prepared for a major earthquake (Appendix 2).

Information, communication

The social media has been effective during a numerous disasters. Haddow et al. (2011, 149) mentions that during the Hurricane Sandy 2012, the New York Office of Emergency Management and New Jersey Governor operated successfully via Facebook and Twitter to disseminate situation awareness, orders and information.

During the case Kathmandu, the fastest and most powerful situation awareness and information disseminator was the social media, Facebook and Twitter. The new Facebook tool "Safety Check" proved to be popular during the disaster. In addition, the organisations used Facebook notably. For example, the Embassy of Finland in Kathmandu updated actively the Facebook wall during the Nepal earthquake. In three hours after the announcement of earthquake, the friends and family members published over 30 Nepal region travelling

person's names on the wall. The microblog Twitter was also full of information and pictures related to the Nepal earthquake. According to the messages on the Finnish Embassy's Facebook wall, the telephone networks were out of order in time to time and due to lack of the electricity on the region, one of the threatening problems was a discharging smartphone batteries. The Finnish embassy provided possibility to charge mobile phones and in addition, emergency shelter in tents, shower, water and nutrition. A few citizens criticised that response was slow (Embassy of Finland Kathmandu FB 2015).

Evacuation signals, stages of a disaster and the correct evacuation time

Griffin (2014, 84-86) encouraged observing and recognising the *muted signals*. These type of muted signals should be interpreted as *triggers* that should launch more accurate situation awareness, communication between the headquarters and the remote-site. The muted signals should also launch the pre-preparations for a possible evacuation.

The Nepal 2015 earthquake was a sudden and destructive without a warning. According to the media sources, the only warning signals before the earthquake were predictions of the researchers and locals. In CNN web broadcast (2015) the reporter Sumnima Udas, states two days after the event that the locals have expected and mentioned the "impending earthquake" that strikes every 60-70 years, but according to Udas, "no one supposed that would really take a place." The last major earthquake, 8.4 magnitude on Richter's scale, occurred in Nepal on 1934 causing over 10 000 fatalities (CNN, 2015).

According to the information received directly after the earthquake from numerous media sources, the various Embassies' Facebook walls and from Twitter, the possible evacuation could have been started at earliest immediately after the earthquake (Embassy of Finland Kathmandu FB 2015).

At that time, the number of casualties was already a high due to general characteristics of earthquakes and factors related to Nepal such as a weak infrastructure (WHO 2014a). Therefore, the only logical actions after the event were providing the first aid to injured, data collecting and maintaining the right and wide situation awareness via, for example, social media to help victims and concerned relatives. The risks related to the aftershocks complicated the situation (CNN News 2015).

Co-operation and Transportation

During the disaster related response activities such an evacuation, it is possible that a number of operators on the same area or region start to perform the evacuation procedures at the

same time and the evacuation routes, airports and the assembly points can be overloaded. Therefore, it is beneficial to consult with other operators to explore how the evacuation plans are constructed. In addition, co-operation with neighbouring organisations can reduce costs notably (Blyth 2008, 298).

On Saturday 25th, the small Tribhuvan international airport in Kathmandu was closed for a several hours. On Sunday 26th, the Kathmandu's small airport was overloaded by flights carrying relief supplies. Due to congestion, the Kathmandu's air traffic control did not grant permission for landing for instance to the Finnish Rescue Team with sniffer dogs. Later on, the operation was cancelled due to delay. In addition, numerous commercial flights from India, carrying relief supplies, were diverted or cancelled due to the congestion (HS 2015, CNN News 2015 & YouTube 2015).

On Wednesday 27th and Thursday 28th, the Finnish Embassy in Kathmandu published a few road and traffic related posts on the Facebook Wall. For instance, the information regarding exit roads condition to China or India and the damaged roads were announced. In addition, The Ministry for Foreign Affairs of Finland stated on Wednesday 29th of April 2015 that Finland has assumed the responsibility of for the coordination of EU consular co-operation in Nepal (Ministry for foreign Affairs of Finland, 2015a & Embassy of Finland Kathmandu FB 2015).

To assist travellers, the Embassy of Finland in Kathmandu established temporary Nordic joint consular point to the Tribhuvan International Airport to assist travellers. According to the Ministry's web page, the exit from Nepal is possible on commercial flights and by road to India. There was no need for the governmental organized mass evacuation; however, Finland has sent on Tuesday 29th the three persons group from Helsinki as a consular rapid response team to Kathmandu to assist Finnish citizens with travel arrangements (Ministry for Foreign Affairs of Finland, 2015c).

Case Kathmandu summary

To summarise the case Kathmandu after a media follow-up from April 25th to May 1st 2015 from perspective of Finnish travelling workers and vacationers: it can be noticed that the information, communication and building of the situation awareness demonstrated to be the most important activities during the first days of the disaster. Even though the massive earthquake and the aftershocks did not lead to mass evacuations such as with the Indian Ocean earthquake and the tsunami 2004 in Thailand, the various operators conducted an evacuation assistance to numerous persons in form of assisting travellers that needed emergency shelter or desired to arrive back to the homeland. The co-operation with other Nordic and European Union countries was also provided during the disaster. On Friday 1st May

2015, the Finnish Ministry for Foreign Affairs announced that all 240 Finnish citizen on the region has been contacted, but unfortunately, over a thousand European Union citizen are still missing. Currently, the number of deceased is over 7000 and over 1400 is injured. The numbers are increasing. (Date: On 1st May 2015)

4 Conclusions

In order to provide complete research and summary, the research should answer comprehensively to the research question or questions with reliable arguments and analysis (Lapan et al. 2012 & Heinonen et.al 2013).

The thesis questions were related to organisation's foreign operations, presuming that the disaster prone area cannot be avoided or an organisation has certain risk appetite:

- What type of a situation awareness an organisation should maintain before and during a disaster when preparing for an evacuation?
- How an organisation can maintain the right situation awareness?

The thesis shall also answer to the sub question:

- In order to operate on a disaster prone area, what type of a preparedness an organisation should retain to mitigate person or material related risks?

Under the period 1980-2011, 33% of all worldwide disasters and 66% of loss of life has occurred in the Asian region. Simultaneously, the business and investment activity in these areas has been rising considerably. During the year 2008, several hundred thousand people deceased in natural disasters. The disasters affected to the millions of lives and the material costs raised over a hundred billions US dollars. Haddow et al. (2011) stated; as long as the weather hazards are under a control and duration of the hazards is short, the societies might manage the situation independently. However, if the situation develops beyond the response limits, it might turn to a disaster.

Operating on a foreign territory and as a part of a situation awareness, an organisation's crisis management team should recognize in advance the influences of the foreign region's culture, legislation and the emergency routines accomplished by the foreign region's or country's governmental bodies and representatives. The active monitoring of an environment may increase the possibilities to survive in an emergency.

Therefore, it would be valuable for an organisation to invest resources for careful studies and maintenance of a situation awareness concerning the operational environment and possible visible and muted signals before the disaster occurs. The capability to predict possible disasters or the impact of the disaster is a valuable asset. The possibilities to forecast an event or impact is related to the number of indicators, illustrated in tables 3 & 4, that typically are noticed quite easily afterwards. Even though the indicators exist before the event, they are not always recognized and evaluated with suitable measures in advance.

Burton et al. (1993, 35) stated; if the event occurs quickly and unexpectedly, little can be done to avoid the outcomes as well as, when the event's continuance is short and powerful; less actions can be performed during the hazardous event.

The Indian Ocean 2004 catastrophe, the Haiti 2010 earthquake and the case Kathmandu on 2015 are examples of a fast and powerful natural disaster that is difficult to predict, however, the extent of the earthquake impacts were predictable.

The organisation should maintain a comprehensive situation awareness during all emergencies and especially during the special response actions such as an evacuation operation. For example, the correct timing for an evacuation is connected to a situation awareness and to a capability to recognise the early indications of the disaster. Hence, the success on predicting the forthcoming disaster or disaster impact may safeguard lives.

The knowledge related to various disaster type's characteristics might produce an advantage during a maintaining of a situation awareness or planning the evacuation operation.

The comparison between m/s Sally Albatross on 1994 and m/s Costa Concordia on 2012 accidents indicated that a responsible leadership and dedication to the responsibilities would decrease the number of victims. In order to maintain a comprehensive situation awareness, all participants must be committed to the duties and the command chain should be effective. In addition, Howitt and Herman (2009, 621) argued the need for capability to operate on both, normal emergency and disaster modes, and he stated that numerous organisations are not prepared for this type of performance.

Haddow et al. (2011) emphasised that the crisis management team and various response teams requires constantly a current and accurate information regarding the incident. The crisis management team should create and maintain a comprehensive situation awareness concerning the disasters and disaster related events. The situations may change quickly, for example, a chain reaction of numerous accidents such in Tohoku Japan 2011 with earthquake, tsunami and radiation can unexpectedly develop the event to a more dangerous direction. In addition, the Ukraine 2014 case is an example of a manmade disaster that can very quickly

escalate to the numerous phenomena for example riots shall expand to a war and financial disputes to the wide political instability.

A number of scientific associations such as the Smithsonian institute or the European-Mediterranean Seismological Centre and various governmental bodies produce information concerning impending threats. In Finland, the Ministry for Foreign Affairs of Finland distributes emergency messages on social media or a RSS-feed and Sms-service regarding the current travel information to a phone or a computer. The instructions regarding on natural phenomena or for example regarding an evacuation could be delivered directly to the mobile phones such as during the hurricane Sandy on 2012, when the evacuation and protection instructions also were disseminated on social media.

The organisation's decision makers should evaluate the various stages of a disaster and launch the correct evacuation procedures at the right time. One of the main challenges during the remote-site evacuation is the crisis communication with the remote-site. For example, during the Arab Spring in Libya 2011 was a noticeable change in the mood among the local inhabitants and an open public criticism against government. The fluent communication is vital for a correct situation awareness; therefore, the muted signals such as in Libya 2011 should be delivered to decision makers instantly.

The large media organisations has developed effective networks to produce an information flow from various sources continuously. Therefore, good relations with all forms of media are beneficial for continuous media follow-up and monitoring the situation development to maintain a situation awareness and in order to launch the appropriate procedures.

During the case Kathmandu 2015, the social media, Facebook and Twitter, turned out to be valuable tools to reach and to communicate in the Nepal region located Finnish citizens and their relatives in Finland. The Finnish Embassy of Kathmandu provided a lot of information via Facebook for example concerning an emergency shelters, smartphone battery charge, road conditions and return to the homeland. Furthermore, the Ministry for Foreign Affairs of Finland was active on Twitter updating the situation awareness.

In order to build up an efficient information network, the co-operation with multiple local operators such as authorities, NGOs and neighbourhood organisations is important. The critically examined and evaluated unofficial information, combined with validated information from official sources shall extend a situation awareness. In addition, if the governmental bodies of the disaster country refuse to receive international aid, such as in Burma 2008 and in Japan 2011, the organisation should then operate with the local NGOs or other co-operative partners, to assist the remote-site.

An effective information flow may also create unwanted side effects such as panic and overreactions. The Severe Acute Respiratory Syndrome (SARS) outbreak in Toronto, Canada on 2004 and the Ebola 2014 outbreak in West Africa created immense reactions among citizens in the western countries. Griffin (2014) stated: “It appears that the people fear more the invisible threats such as viruses and radiation than visible manmade or natural disasters.”

The crisis management team should monitor the aftereffects related to the destroyed infrastructure and lack of a shelter. This situation may lead to various reactions such as anger or incapacity to operate. In a chaotic situation, numerous people without food, water and medical care can become hostile and might start violent protests. This can complicate the evacuation procedures especially, if the first steps of the evacuation procedures are delayed.

The sub question was related to the preparedness and risk mitigation. In order to operate on a disaster prone area, the organisation’s crisis management organisation should be prepared to respond effectively and quickly to hazards that can vary depending on a type of a business and an operated region. The organisation should also increase the preparedness level, for example with a risk mitigation.

A proper healthcare, vaccinations and insurances both for staff and to company property are important in new region. The staff should be trained to provide first aid, purify contaminated water and find a route to the predetermined assembly point. For example, a person can survive from collapsing building during an earthquake, but decease later on without water, medication or shelter.

Ismail-Zadeh et al. (2011, 54) emphasised that the disaster policy and funding in many countries is mainly focused on a disaster response and recovery procedures as a substitute for identifying and mitigating the disaster risks. In addition, Ismail-Zadeh et al states that the focus on mitigation would decrease the number of casualties and financial losses.

Therefore, the physical location of a remote-site should be chosen carefully. A large number of risks could be reduced by avoiding the high-risk areas. The geographic and topographic evaluations may predict some of a forthcoming problems and the organisation should invest for example to prevention methods, such as building strengthening or carefully consider the positions for gas tanks or electric wiring. The organisation’s top management should recognise that an evacuation planning is not only a security department’s concern, but also several company’s decision makers and key persons at various levels should be participating to the planning.

Finally, “Every emergency incident is a unique opportunity for learning how to plan or respond better”. Therefore, all incidents should be reported and evaluated. The updated security policy with an accurate evacuation planning designed in co-operation with the company’s senior management and numerous other persons are essential.

4.1 Self-Evaluation

Marshall and Rossman (2011, 39), states: “The thesis should be created following the principles for a good research practice, and it should be well designed and analytic. In addition, the reliability and validity of a thesis is related to these fundamentals.”

During the writing process of this thesis, the author has endeavoured to follow the Marshall and Rossman’s advices and guidelines. The reviewing and studying the cases was very rewarding. It was also interesting to notice that the similar patterns such as lack of information or absence of leadership recurred on various disasters.

Due to reason that disasters occur unpredictably, it was challenging to create precise research plans in advance for a disaster evacuation. The case Kathmandu occurred during the last moments of the thesis process, and immediately came clear, that it was impossible to travel to Nepal. Therefore, the focus in case Kathmandu was addressed on situation awareness analysis, collected from various media sources with emphasises on characteristics and impact factors of the event.

In addition, organisations, especially the large listed companies were not willing to expose the security plans or activities, since the subject was related to the disasters that often contain losses and are most difficult to manage. Therefore, the author of this thesis had problems to find a neutral co-operative partner from a business world to study an evacuation and disaster related theories. Nevertheless, the reliability of the numerous literature sources in the thesis is high and to retain the objectivity, the case study materials were examined from various perspectives and sources before the final analysis.

4.2 Further studies

The correct and comprehensive situation awareness is an important function to safeguard lives. Even though the earthquake and the aftershocks in Nepal did not lead to the mass evacuations regarding Finnish citizens, the case still produced a lot of valuable information concerning evacuation procedures and therefore, it would be challenging to analyse and study the case further.

An evacuation is a special operation with variable outlines depending on the location and characteristics of the event. An evacuation as a thesis theme is an extensive and rewarding for future studies. The detailed analysis concerning, for example an evacuation of a key person or a creating an evacuation plan for a specific remote-site could be interesting.

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Appendix 1: List of case studies cited in thesis

CASE STUDIES			
Name	Year	Page	Type
M/s Sally Albatross	1994	8, 9, 42	Shipwreck, severe weather conditions, navigation failure
Indian Ocean Earthquake	2004	6, 40	Earthquake, tsunami 9.1 magnitudes on Richter scale
Hurricane Katrina	2005	18, 30, 35	Hurricane, over 10 000 people evacuated, lack of an effective command chain
Burma, Myanmar	2008	33, 43	Tropical Cyclone, rejected aid
Sichuan Earthquake, China	2008	13	Earthquake 7.9 magnitudes on Richter scale
Swine Influenza (H1N1)	2009	19	Pandemic, panic
Haiti Earthquake	2010	16, 17, 33, 41	Earthquake, humanitarian catastrophe 7 magnitudes on Richter scale
Iceland the Eyjafjallajökull	2010	18	Volcanic eruption, ash cloud
Tōhoku Earthquake & Tsunami (Sendai, Fukushima)	2011	6, 15, 17, 33, 42, 43	Chain reaction, earthquake, tsunami, radiation 9 magnitudes on Richter scale, rejected aid
The Arab Spring	2011	15, 19, 42	Riot , uprising, spilling reaction, muted signals
M/s Costa Concordia	2012	9, 42	Shipwreck, navigation failure, lack of a leadership and commitment
Hurricane Sandy	2012	38, 42	Hurricane, communication via social media
Ebola	2014	19, 43	Epidemic, panic
Ukraine	2014	15, 19, 42	Riot, war, spill over reaction, financial disputes
Kathmandu Earthquake	2015	8, 9 36-44	Earthquake, avalanches, social media, 7.8 and aftershocks 6.6 & 6.7 magnitudes

Appendix 2: Travel information concerning Nepal, released on January 12th

vaikeat saarolosuhteet, vanha kalusto ja turvaimisuusrjeiden puutteellinen noudattaminen. Lennot viivästyvät tai peruuntuvat toisinaan huonon sään takia.

Luonnonolot Embassy of Finland, Kathmandu
12.1.2015 Travel Information

Nepalin topografia on kolmiosainen: Terain alue lähellä Intian rajaa on tasaista, Kiinaan rajoittuva Himalajan alue on vuoristoista. Näiden alueiden väliin jää niin sanottu kukkula-alue. Lämpötilat vaihtelevat suuresti paikasta ja vuodenaikasta riippuen. Kylmimmät kuukaudet ovat joulutammikuu, jolloin kukkula-alueellakin yölämpötilat saattavat laskea miinukselle. Tosin talvikuukausinakin päivälämpötilat ovat pitkälle toistakymmentä astetta.

Monsuunisateet alkavat yleensä kesäkuun lopulla ja loppuvat syyskuun alkupuolella. Sadekautenakin aamupäivät ovat yleensä aurinkoisia. Parasta matkustusaikaa on maaliskuuhuhtikuu sekä lokamarraskuu. Sateista ja metsänhakuista johtuen maanvyörymiä aiheutuu joka vuosi.

Nepal on maanjäristysaluetta. Maa on puutteellisesti valmistautunut mahdolliseen maanjäristykseen eikä sillä ole riittävästi lääkkeitä eikä pelastuskalustoa. Myös lentokenttä menee suurella todennäköisyydellä käyttökelvottomaksi suuren maanjäristyksen sattuessa, joten avun saaminen maan ulkopuolelta tulee olemaan vaikeaa.

Suurlähetystöllä ei ole valmiusvarastoa Nepalissa matkustaville Suomen tai EU:n kansalaisille.

Translation: "Nepal is an earthquake prone region. The country is insufficiently prepared for earthquakes and has no sufficient number of medicines or rescue equipment.

In addition, the probability that the airport suffers damages during a major earthquake is high and the aid might not be available immediately. The Finnish Embassy of Kathmandu has no disaster preparedness stock for Finnish or EU citizens in Nepal.

(Ministry for Foreign Affairs of Finland 2015)

Appendix 3: Crisis Communication via Facebook on April 27th 2015



Tykkää · Kommentoi · Jaa

Jaana ' ja 215 muuta tykkäävät tästä.

11 jakoa

Tinde Veljenpojalle Tuukalle terveiset, olen kuullut että on saapunut suurlähetystön suojiin
2 · Eilen 8:26

Reijo voimia henkilöstölle, toivottavasti vaihtomiehistöä on saapuvilla!
3 · Eilen 10:18

Jesse Onko Shankamulin kortteli säilynyt? En saa tuttuun yhteyttä.
Eilen 11:12

Teemu Tämä ratkaisu teidän olisi pitänyt tehdä välittömästi, kuten teki Tanskan lähetystö. Itse vietimme kaksi yötä taivasalla Suomen lähetystön sanottua että paikalle saa tulla vain jos on todellinen hätä.

Iso kiitos nepalilaisille pyyteettömästä avusta hädän keskellä, kotimaani lähetystöä en pysty kiittämään.

3 t



Suomen suurlähetystö Kathmandu - Finlands ambassad Kathmandu

11 min ·

Juuri saamamme tiedon mukaan tie Pokharasta Kathmanduun on ajettavassa kunnossa.

Below are brief updates on the road and transport situation in Pokhara-Kathmandu route:

- There are no serious damages along Pokhara-Kathmandu as of 27th April evening except falling down of few stones and boulders on the road near Jogimara (ahead of Mugling towards KTM) but those were removed and the road was clear in the evening. A dozer is kept standby.
- No cracks on the road; bridges are al... Näytä lisää

(Embassy of Finland Kathmandu FB, 2015)