

# Risk management cycle and strategy of jeddah disaster case study example

[Business](#), [Management](#)



## 1. Introduction

Climate change is only one of the adverse affects that experts claim would result from global warming if it were not prevented from happening through the decrease or elimination of greenhouse gas emissions. As such, experts have constantly warned governments about the possible risks. Already, we see this happening in the natural disasters that we've experienced over the past two decades. One such incident recently happened in Jeddah, particularly in the year 2009, when heavy rains caused an extensive damage to the city.

In this regard, this paper will perform an analysis of the said 2009 flooding in Jeddah and will use the risk management cycle steps in attempting to provide an evaluation of the city's response at the time. In addition, this paper will recommend a risk management strategy that may be employed for the better and more effective management of future risks.

## 2. An overview of the 2009 Flooding in Jeddah

The disastrous flooding in Saudi Arabia occurred on the 25th of November in 2009 when it took only four hours of heavy rains for the flood to cause severe damage in terms of human, financial, and environmental resources in Jeddah. In particular, Moaed (2009) reported that an estimated 11, 000 people either died or went missing due to the flood and insurance experts claimed that the Saudi Arabian government spent around US\$2. 5 billion or 10 billion Saudi Riyal (Selaihm & Altaiari, 2009) for the repair of transportation infrastructures such as tunnels, pavements, and roads, as well as for the replacement of government-owned properties and cars and for the

compensation of the people who were injured, lost their loved ones, or lost their homes and possessions. In addition, the government had to pay for the people's insured cars as the insurance companies asserted that certain government agencies were accountable for all the losses as they allowed the construction of buildings, which eventually obstructed the water from flowing into the sea; thus, causing the floods. As Momani and Fadil (2010) asserted, the problems that led to the damaging Jeddah floods were not only due to natural causes but also due to human errors and the lack of a clear public policy for dealing with natural disasters. In particular, without a public policy for accountability, decision makers won't be able to make and implement the right decisions with regards to procedures and policies and with regards planning for how to deal with both man-made and natural disasters (Momani and Fadil, 2010).

### 3. Risk management cycle

The risk management cycle consists of steps that, when performed, leads to the diminished possibility of the occurrence of future risks. This cycle consists of seven stages, as illustrated in Figure 1. These seven stages will be used in analyzing how the Jeddah flooding was handled and how the seven steps can be used to create a strategy that would have reduced the risks of the Jeddah flooding without introducing any conflicts with the law.

## **Figure . Risk management cycle**

Source: Ayling (2009).

### 3. 1. Risk identification

The first step in the risk management cycle is risk identification in which loss

exposures are identified (Harrington and Niehaus, 2003). There are many methods that can be used for the identification of exposures, which include financial statements, as well as a consultation with the authorities and with risk management experts. With this information, it would be possible to create forecasts of possible loss exposures in the future.

For the purpose of this paper, such information is obtained not only for forecasting the future risks but also for performing an analysis of the losses that were actually incurred from the flooding. In this regard, data on the actual losses that resulted from the Jeddah flood will be measured against the statements issued by the government and against the expectations set by insurance companies. In addition, the information on losses will be classified as either liability losses or property losses, which can further be categorized as indirect or direct. In particular, these losses are summarized in Table 1, as compiled by Selaihm and Altairi (2009).

Table 1: Jeddah flood losses.

property losses

## **Direct losses**

Indirect losses

Consulting experts

Public properties

Commercial properties

Private properties

Public Cars

Total direct property losses

Total indirect property losses

Liability losses

Direct losses

Indirect losses

Dead (110 x 1. 000. 000)

Polluted swamps

Injuries (11. 000 x 15000)

Total direct liability losses

Total indirect liability losses

Total losses for Jeddah flood

Source: Selaihm and Altaiani (2009)

As shown in Table 1 , the Saudi Arabian government assumed accountability for all the losses and damage incurred during the floods, especially because the government was held responsible for making a lot of wrong decisions, which exacerbated the flood's adverse effects. In particular, the government made inaccurate judgments in their identification of the risks that were associated with the Jeddah floods where they were not able to properly forecast the possible losses from such an occurrence. They failed to make

the necessary preparation should a disaster such as the Jeddah flood occur. They were not able to build drainage systems that would be capable of handling heavy rains. Instead of using the available land to develop more drainage courses, such land were used for the construction of private properties. Moreover, there were no laws or policies that required property owners to obtain insurance against disasters, which would in turn allow for the eventual losses to be shouldered by the insurance companies.

### 3. 2. Risk measurement

The second step in the risk management cycle is risk measurement, which involves the distribution of the probable losses that would be incurred. This is the most widely used method for measuring the frequency, probability, and severity of the losses. Loss frequency, the first variable, pertains to the number of times that losses are incurred during a given period. Loss severity, the second variable, pertains to an assessment of the level of danger involved with the loss should something unfortunate happen within a given time. It should be noted that, according to William (1998), the values for these two variables can be estimated based on historical data.

## **Figure 2. Risk management cycle.**

Source: Ayling (2009).

Figure 2 illustrates the probability of the Jeddah flood's risk, as well as the risk's probable severity. However, considering that the Jeddah flood occurred only once during the past twenty years, the probability of it happening again would be calculated as follows:

Frequency = = 0. 05 per year

Severity = 9, 909, 266, 430 x 0. 05 = 495, 463, 321. 5 SR per year

A standard deviation must also be included in the measurement of the risk's probability. However, the limited amount of information obtained for this paper makes it difficult come up with a standard deviation measurement that can be used. Nevertheless, it is still notable that the risk measurement made for the Jeddah flood was inaccurate due to the fact that the Saudi government did not anticipate the flood in any way. It can be presumed that the government's complacency with regards to its infrastructure was the fact that the last time a similar disaster occurred was twenty years prior and nothing as catastrophic has occurred since then. This in turn probably led to the assessment that the drainage problems can be blocked without any problems ensuing. However, the historical data – although the same disaster happened only once – and the adverse climate changes (Moaed, 2009) that are starting to take place all over the world – should have been enough to alert the Saudi government of the possibility of severe weather conditions.

### 3. 3. Risk analysis

The third step in the risk management cycle is risk analysis, which employs the following techniques: risk retention, risk control, risk prevention, and risk transfer (Crockford, 1991).

## **Figure 3. Methods of reducing risks.**

Severity

Frequency (probability)

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High

Low

**High**

Avoid

Source: Ayling (2009).

Figure 3 shows the effectiveness of the techniques proposed by Crockford (1991) in terms of the amount by which they are capable of reducing the risk. The application of this step to any natural disaster and to the Jeddah floods, in particular, enables the analyst to determine the possibility of completely avoiding the risk. Moreover, despite the difficulty of retaining or controlling a risk due to its costliness, it may still be possible for the government to avoid major risks and to transfer the minor ones.

It can be presumed that the Saudi Arabian government performed an inaccurate analysis of the risk posed by the Jeddah flood in that some of the results from the analysis were correct while others were not. In particular, although the Saudi Arabian government had drainage systems in place in order to control possible risks, the drainage systems that were constructed were inadequate. What made the problem worse was that the government also allowed private entities to construct buildings, which prevented rain water from flowing to the sea; thereby causing the massive floods. As well, there was no initiative from the government to transfer some of their risks. More specifically, the government issued no mandate for property owners to obtain insurance policies as a way to protect their properties from the



damages brought about by natural disasters.

Experience from the Jeddah floods led the Saudi Arabian government to improve their risk analysis methods. The government removed the blockage from the drainage courses through the abolition of the structures that caused the blockage where the owners of such structures were duly compensated. This move is expected to prevent floods from occurring in the future. In addition, the government has implemented the construction of extra drainage systems and of large dams, which will further facilitate the exit of rain water out to the sea. These initiatives will help the government in the prevention and control of future flooding. As well, the owners of commercial property are now required to have their properties insured against natural disasters, in turn providing them with protection from property loss and damage should another natural disaster occur. Not only does this requirement ensure protection for the property owners; it also enables the government to transfer some of its risks.

#### 3. 4. Risk decision

The fourth step in the risk management cycle is risk decision. It should be noted that, when making decisions with regards to the risk, residual risks are bound to exist regardless of how well the risks were measured (Hertz and Thomas, 1983). With regards to the decisions that the Saudi government made, such decisions can be classified into three stages, namely before, during, and after the disaster.

It can be noted that the government made the wrong risk decisions prior to the disaster as they did not take the necessary steps to avoid or transfer the risk. In addition, they did not make any public announcement with regards to

the approaching disaster, which prevented the people from becoming aware of the looming danger. However, it should also be noted that the government made the correct decisions during and after the flood, as they made sure that support and rescue teams came from the other cities. These teams helped in the rescue and evacuation efforts where many people, together with their families, were moved to safer places.

As well, the government provided alternative housing and financial assistance for the families who either lost their homes or were staying in unsafe places. The government also made many decisions for the reduction of future risks after the events from the flood have settled down. In addition, the government also made sure that the government officials and the investors that were involved in corruption were duly punished. More specifically, these were the government officials who were bribed by the investors in order to obtain permission for the construction of buildings in the prohibited areas. As also mentioned earlier, the government has implemented the removal of the blockages on the drainage systems and has initiated the construction of large dams in order to ensure that the city will be capable of handling future disasters. Moreover, the government has now imposed a law that requires commercial property owners to obtain insurance policies for the protection of their properties against natural disasters.

### 3. 5. Implementation

The fifth step in the risk management cycle is implementation, which emphasizes the importance of the completion of project implementation initiatives in order to ensure that the possibility of future risks is reduced

(Hertz and Thomas, 1983). In relation to the Jeddah floods, it was evident that the Saudi government failed to take the proper steps for preventing the risk before the flooding took place and they also admitted that they failed to monitor the development of drainage projects, which were not completed despite the provision of funds. It should be noted, however, that there was a significant improvement in the implementation of government initiatives during and after the Jeddah floods.

During the Jeddah floods, the Saudi government initiated many evacuation and rescue efforts and provided safe shelters for those who lost their homes. In addition, the government offered financial assistance to the people in need. After the floods, the government started the implementation stage, which consisted of construction projects that were aimed at minimizing future risks. As well, punishment was imposed on the government officials who were involved in the embezzlement of government funds, and they were also forced to return the stolen funds.

### 3. 6. Monitor

The sixth step in the risk management cycle is monitor, which aims to track the progress and performance of the implementation of decisions. Prior to the Jeddah flood, it can be said that the Saudi government incorrectly implemented this stage as the government was not aware of the projects that were incompletely implemented prior to the 2009 Jeddah flood and remained unaware of such until years later. Needless to say, the monitoring system they had in place at the time was weak. However, this improved during and after the Jeddah floods, as the government appointed the Saudi

prince of Jeddah, Prince Khalid Alfaisal, to personally oversee the progress being made with regards to the evacuation and rescue efforts.

Prince Alfaisal made TV appearances to report about their progress and the government also provided 24-hour hotlines to accommodate the people's problems and complaints. In addition, the government allowed the officials to contact the king directly should there be any problems. Moreover, progress reports on the projects' implementation were announced on TV and in the newspapers.

### 3. 7. Policy

The seventh and last step of the risk management cycle is policy where the information obtained through the various steps of the risk management cycle is used to create and enhance policies that would lead to the prevention and reduction of risks.

With these policy changes, the Saudi Arabian government filed lawsuits against the officials who were involved in corruption. They also authorized the media exposure of the said government officials' corrupt ways. In addition, the government required all project managers and project implementers to provide quarterly reports on their progress. As well, authority was distributed among several parties to promote transparency.

### 4. Risk management strategy

A risk management strategy consists of strategic plans, which in turn involves smaller tasks, which would enable the achievement of an organization's strategic goals (Williams et al., 1998).

With regards to the Saudi government, strategic plans to minimize the risk of

losses were implemented through the prevention and transfer of risks. In particular, the following are the Saudi government's strategies for the prevention of risk losses: the construction of extra drainage systems and new large dams for the management of rainwater; and the removal of obstacles on the rain drainage courses. With regards to the government's strategy for the transfer of risk losses, they plan to do so through the implementation of a law that requires commercial property owners to obtain property insurance policies; and the imposition of due punishment and penalties against officials who perform unlawful acts and who embezzle government project money. With these strategies, the Saudi government aims to greatly reduce their risks by 2015.

## 5. Conclusion

In performing an analysis of the Jeddah floods, the seven stages of the risk management cycle were used in assessing the way that the Saudi government handled the disaster. Risk management strategies were discussed and with the risk management cycle stages as bases, it was concluded that the risk management capabilities of the Saudi Arabian government prior to the 2009 Jeddah floods was poor, but that it improved during and after the said floods. As well, the Saudi government took steps to reduce the risk of loss should disasters occur in the future. With the Saudi government's implementation of risk prevention and risk transfer strategies, things will only get better for the recovering city of Jeddah.

## 6. References

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**Ayling, D. (2009) Corporate risk management. Lecturer notes for module ASB\_4414, Bangor: Bangor University.**

Crockford, N. (1991). Risk Management. 1st ed, London: Witherley.

Hertz, D., & Thomas, H. (1983). Risk analysis and its applications. Bath: John Wiley & Sons, Ltd.

Harrington, S., & Niehaus, G. (2004). Risk management and insurance. 2nd ed. New York: Tata Mc Graw-Hill Education.

Moaed, A. (2009). Tsonami Jeddah: 110 dead, 11, 000 missed. Available: <http://www.alyaum.com/issue/article.php?IN=13317&I=719837>.

[Retrieved on 25 November 2010].

Momani, N., and Fadil, A., 2010. Changing public policy due to Saudi city of Jeddah flood disaster. Journal of Social Sciences, 5(1), pp. 424-428.

Selaih, T., & Altairi, A. (2009). Insurance experts estimated Jeddah flood losses of 10 SR Billion. Available: <http://www.al-madina.com/node/204208>.

[Retrieved on 24 November 2010].

**Williams, A. et al. (1998). Risk management and insurance. Singapore: A Division of the McGraw, Hill Companies, pp 26-27.**