

The Islamic View of Earthquakes, Human Vitality and Disaster

Mohsen Ghafory-Ashtiany
Distinguished Professor
Risk Management Center of Excellence
International Institute of Earthquake Engineering and Seismology (IIEES)
Tehran, Islamic Republic of Iran
ashtiany@iiees.ac.ir

Abstract

Reduction of a growing risk of disaster in the developing countries requires maximum public participation, which in turn needs scientific facts and methodologies to be blended with historical traditions, religious beliefs and indigenous knowledge. The objective of this paper is to apply the richness of Islamic teaching to the process of risk reduction, in order to develop an approach to risk communication and education that can be used effectively by traditional peoples and the religious community. The paper presents the guiding principal of earthquake risk reduction; the views of Islam on earthquake, disaster, God's bounty, the Earth, good deeds, human behavior and human safety; and finally the issues of environment protection, risk management, safety and human life are discussed in terms of religious teaching. The dissemination of this type of knowledge can clear misconceptions and increase people's understanding of and knowledge about disaster-related issues. This process is necessary for disaster risk reduction, improved safety and development, all of which can be viewed as demonstrations of God's love for humankind.

It should be noted that the author of this paper is not an expert in Islamic theology, but merely one who tries to benefit from the Islam teaching in order to create a stronger incentive and will for risk reduction in the Islamic countries. In the future this process will need to be strengthened significantly with the input of more expert knowledge.

Keywords: *Islam, Qur'an, Earthquake, Disaster, Risk management, Risk Reduction, Religion, Good Deeds,*

1. INTRODUCTION

In ancient times when science was in its infancy people believed that disasters, especially earthquakes, represented the power of Mother Nature. Knowledge of thunderstorms, floods, droughts, earthquakes, eclipses, and other natural events was too scarce to enable them to be interpreted correctly. Humans were weak, vulnerable to natural extremes and dominated by the need to survive amid the ferocity of nature, which was the main goal of their entire lives. Their limited knowledge suggested that powerful but arbitrary forces were responsible for their miseries. The priests told them that disasters were the will of the gods and they had no choice but to trust them. They were ready to appease the gods if the priests assured them that such disasters would not happen again. The ancient Maya people, for example, had a god of thunderstorms called *Hurakan* (the root of the word 'hurricane'); a god of earthquakes (called *Pillan*); a god of thunder, and a chief of all the gods. Aided by cohorts of evil spirits, Pillan caused earthquakes and volcanic eruptions. Greek, Roman and Egyptian civilizations all had gods that killed people who disobeyed them. Also they explained natural disaster in terms of the anger of the gods. In fact, history is full of evidence that priests, religious leaders and rulers took advantage of people's fears and consequently oppressed them in the name of a god or gods. The lesson of history is that the accumulation of misconceptions about disaster among traditional peoples and societies needs to be clarified using the same method with which it was created.

Today there is great amount of knowledge about Planet Earth, the governing physical laws and how and why natural events happen. Despite this, natural phenomena cannot be controlled by human beings and most of the time environmental and social forces do not act as though they have been modeled,

programmed or predicted by experts. Moreover, failure to utilize existing knowledge, research, guidelines, codes and recommendations designed to promote safety stems from failure to transform these instruments into something that people can understand, believe in and accept. As a result of inherited misconceptions and superstition, many people still believe that little can be done to stop disasters. In both ancient and modern times, people have tended to reason consider natural events in terms of myth, religion and psychology. There is a persistent belief that science has failed to protect people adequately and as a result people search for alternative interpretations of natural events. Even today citizens, rulers and religious leaders try to take advantage of earthquakes and other natural events in the name of religion. This unfortunate tendency was evident in the United States after Hurricane Katrina in 2005; in Indonesia, Sri Lanka and India after the 2004 tsunami, and in Pakistan and Iran after earthquakes. Moreover, when speaking of "God's wrath" and the arbitrariness of "why this is happening to us", we totally neglect the scientific evidence, which suggests it is criminal negligence that causes the terrible losses of lives and property and points out that human awareness can save lives

Today the constant threat of earthquakes and loss of human resources requires new initiatives in order to communicate and mitigate risk to traditional societies. A new approach is needed in order to change the mentality of traditional communities regarding the concepts that disasters are God's will or expressions of His wrath. It is necessary to clarify misconceptions such as those relating to fatalism and God's will about whether individuals will be saved or sacrificed to disaster, and that mosques and holy places are immune to damage, as was believed during the Izmit earthquake in Turkey in 1999 and the Indian Ocean tsunami of 2004. In seeking guidance from the Holy Qur'an we find more references to God's kindness than to His wrath. It should be also noted that no statement by the Prophet Mohammad (Hadith) ever mentioned that earthquakes or other disasters are expressions of the wrath of God or the result of disobedience or infidelity. Instead, there are many statements that show the need to prepare for disasters and prevent them from happening.

The traditional fatalistic view of disaster has to change, and today it is time to realize that by understanding the importance of science, research, technology and common sense we can save precious human lives and resources, but only if we stop attributing our negligence and bad deeds to God's wrath. We cannot survive if we refuse to use the knowledge and wisdom that God has given us.

The discussion presented in this paper is an attempt to use the Islamic teaching in favor of risk communication and mitigation. It can also be used in other aspects of our lives and is not limited to disasters, as there are important objectives of human safety, vitality and development to be considered.

2. KEY ELEMENTS OF EARTHQUAKE DISASTER RISK REDUCTION

In order to appreciate the Islamic view of earthquakes, disasters and human safety it is necessary to outline the key concepts of disaster risk management and reduction, with especially reference to earthquakes, as these are a very important source of hazard in some of the world's most populous Islamic countries, including Iraq, Iran, Afghanistan and Indonesia. Earthquake risk is shown schematically in Fig. 1 as a combination of seismic hazard, vulnerability of the built environment, and human socio-economic and cultural impacts, as well as in terms of a country's level of preparedness and response to catastrophic events when they occur. Earthquakes are unavoidable events and such is the power of geological faulting that they cannot be controlled. In reality, seismicity can be considered as God's bounty in terms of the tectonic stability that earthquakes bring in their wake. The secondary effects of seismicity, including tsunamis and geotechnical hazards such as landslides and liquefaction phenomena, should also be accepted as ineluctable facts of Earth and Nature. The risk potential that people are exposed to is determined by earthquake vulnerability in terms of the probability of failure of the built environment due to poor or inadequate urban development, planning, design, construction and structural weaknesses. Earthquake risk should also be understood in the context of socio-economic systems, which determine people's health, income and access to information at the time of disaster. Finally, the effectiveness of emergency response is an important variable. This last category has increased in importance both as a result of the greater value accorded to human life today in relation to the past and the higher levels of investment in each individual in terms of

(CXT 3)

training and education that have resulted from improved economic development. These descriptions of seismic risk can be expressed as follows (equation 1).

$$\text{SEISMIC RISK} = \frac{\text{Seismic Hazard} \times \text{Vulnerability} \times \text{Value}}{\text{Governance}}$$

(1)

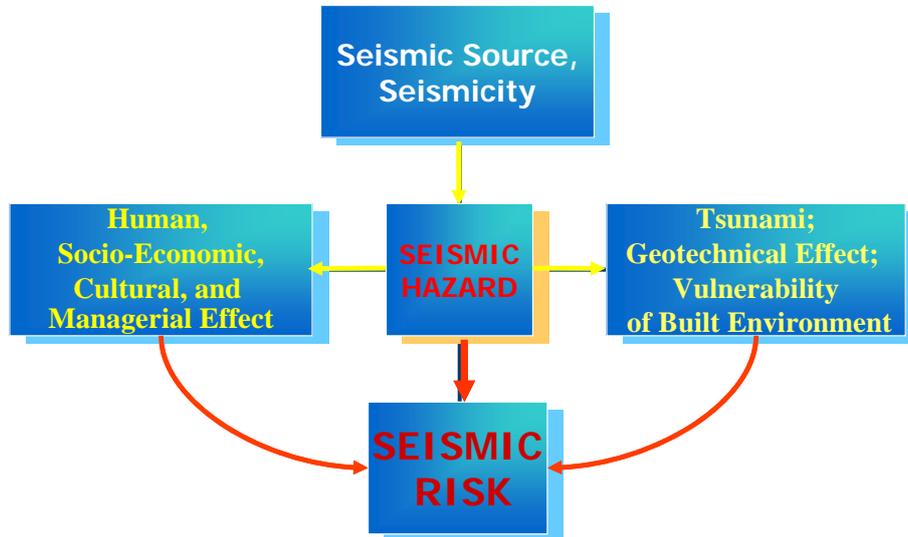


Fig. 1 Schematic definition of seismic hazard as the result of seismic source and seismicity of the Earth; and seismic risk expressed as the consequences or effects of hazard on the social and built environments.

Based on the above explanation, the "guiding principles" of earthquake risk reduction can be outlined as follows:-

1. Belief in the facts of nature and existence of seismic hazard of the Earth; as well as in the fact that we can only survive natural events if we are prepared and structures are built to be safe and compatible with nature forces and hazards.
2. Comprehensiveness: effective and successful risk reduction requires a comprehensive or all-embracing approach to earthquakes that extends from their sources of occurrence to their effects and impacts.
3. Expert leadership and good governance is essential to the success of risk reduction programs. Risk cannot be reduced without knowledge and scientific management. Thus the role of people is to understand, believe and implement knowledge and follow the guidance and recommendations of experts.
4. Risk reduction should have the objective of sustainable development, but this can only be achieved effectively through collaborative efforts devoted to promoting good management.
5. Risk reduction requires long-term actions based on consistent policies and backed by tolerance of the slow pace of implementation. One must also ensure full accountability for actions taken. In other words, managing earthquake risk requires collaboration, patience and transparency of process.

It should be noted that, after the Bam earthquake of December 2003 and based on the lessons learned from the past catastrophes, in 2005 these guiding principles were formally incorporated into Iran's "Long-Term Strategy on Natural Risk Reduction". In the following section, we will consider how Islamic

(CXT 3)

teaching can be used to strengthen the implementation of these principles and how, by increasing awareness of disaster risks, a collective prevention and safety culture can be promoted, and the public can be alerted to their role in the reduction of vulnerability.

3. KEY CONCEPTS IN ISLAMIC BELIEF

Islam, which is based on a perfect conception of the universe, is a comprehensive and realistic school whose principal objective is to address or answer all questions regarding human needs, whether they are spiritual, intellectual, sentimental, individualistic or social and whether they pertain to this world or the next. Some of the key concepts in Islamic teaching which relate to the principles of risk reduction listed above and that can be used to benefit disaster risk reduction can be outlined as follows:-

1. "Islam" means submission to the will and guidance of Allah (God), as the creator of the Universe, which can be traced according to the signs of knowledge and power through the different aspects of anything that exists in the Universe. In today's meaning, Islam relates to the guidance that has been revealed through the teachings of the prophet Mohammad (PBUH) about 1430 years ago which in principle are valid for all time. Generally the term "Islam" in Qur'anic scholarship relates to the all of the Abrahamic religions, due to their common belief in one God and the prophets. Muslims say: We believe in Allah and that which is revealed to us and that which was revealed to Abraham, and Ishmael, and Isaac, and Jacob, and the tribes, and that which Moses and Jesus received, and that which the prophets received from their Lord. We make no distinction between any of them, and to Him we must surrender" [Qur'an-Baqare; 2:136]
2. Submission to God should be based on cognition, belief and faith, which should result in "good deeds", vitality and happiness. Human deeds and behavior should be based on belief, and belief should be complemented with good deeds. Belief in God and good deeds is not sufficient, for "Whoever submits himself wholly to Allah, he is the doer of good...." [Qur'an-Luqman; 31:22]. Thus, believing in and accepting that earthquakes occur should be accompanied by appropriate good deeds.
3. Holy Qur'an: Allah's Book of Guidance is comprehensive, multi-functional and capable of multi-dimensional interpretations such that it is valid for all time and can be applied to all matters relating to the life of human beings: "We have revealed to you the book which clarifies every matter" [Qur'an-Nahl; 16:89]. In other words, the simple and literal text of the verses of the Qur'an, which are written at the level of common human cognizance, can unfold multiple meanings and can exemplify features that can be read by human beings with different levels of knowledge and used for the perfection of human life and behavior, both spiritually and physically.
4. The principles of Islam are based on cognition, wisdom, experience and revelation.
5. Leadership of wise, elite, intellect and experts (olel-amr and olel-albab). "Are those who know equal to those who do not?" [Qur'an-Zumar; 30:9]. "Oh you who believe! Obey Allah, and obey the Messenger, and those charged with authority among you" (olel-amr) [Qur'an-Nisa; 4:59]. Thus humans should live with knowledge and cognition. One of the objectives of Islam is to establish the rule of the wise and convert the domination of ignorance into wisdom and knowledge.
6. High value is attributed to group work, social activities, social responsibilities, co-operation and consultation in various aspects of life, including giving full consideration to others. "And their business is [conducted] through consultation among themselves." [Qur'an-Shora; 42:38]. God's help can be found within group work [Prophet Mohammad-PBUH]. Strong emphasis is given to group prayers as a symbolic act of group activity.
7. Human beings are born innocent, pure with full of ability to grow and achieve the success, well-being and completeness (saadat). Islam encourages humans to maintain their purity and improve their abilities.

(CXT 3)

8. God's will (taghdir va sonnat elahi) is based on human deeds and behavior. Without struggle, good, hard work and constant belief, one cannot expect to achieve perfection and earn Gods goodwill.
9. In all aspects of life, God has given human beings free will and the right to distinguish good from bad. He has also given them options about what to do and how to avoid determinism and being forced to do things. Taking the path of safety is a human choice and requires appropriate actions.
10. Human beings do not have any right to harm themselves or others. Causing harm or vulnerability to others is an unforgivable sin, unless the person who has been harmed forgives the action.
11. The highest importance is given to respecting and observing the "people's rights".
12. Regarding human activities, people must respect the rules of law and conduct, whether they pertain to this world or the next, and whether they are individualistic or collective.
13. Through the concept of "Amr-bil-Maruf" people are supervised and invited and encouraged to do good deeds. Conversely, "Nahye-anil-Munkar". forbids them to do wrong: "And from among you there should be a party who invites to good and enjoins what is right and forbids the wrong, and these it is that shall be successful". [Qur'an-Al-e-Imran, 3:104]
14. Sin means violating God's guidance by ignoring facts and knowledge, being negligent or failing to use knowledge.

Thus, it can easily be seen that many of the key concepts in Islam support the guiding principles of earthquake risk reduction and disaster prevention. In the next section, after looking at earthquake-related issues in the Qur'an, I will attempt to clarify misconceptions about disaster and its relation to sin and God's wrath.

4. THE QUR'ANIC VIEW OF EARTHQUAKES

The Holy Qur'an is the principal source of religious thought in Islam, and its multi-dimensional meanings are the principal source of guidance on all aspects of life. It is fully and comprehensively adaptable to all times and matters. The meaning of the Qur'anic verses can further be explained and clarified by the various statements of the Prophet, which are complementary to the Qur'an and have been declared to be as authoritative as the Qur'an itself.

In order better to understand this view and avoid misunderstandings and misconceptions in Islamic society, this section of the paper looks in depth at the verses of the Qur'an that relate to earthquakes and the principles described above and relates them to actions needed for earthquake risk reduction.

The term 'earthquake' is mentioned directly in Chapter 99 of the Qur'an and indirectly in various verses, such as nos. 7:78, 7:91, 7:155, 7:171, 16:26, 17:37, 17:68, 29:37, 34:9, 67:16 and 69:5. These can be used to describe concepts of the end of this world and the judgment day, as well being applicable to natural earthquake phenomena. The meaning of such concepts can be used to address the objective of this paper.

4.1 Direct Reference to Earthquakes

The verses with the direct reference to earth and earthquakes are as follows:-

- A. **وَفِي الْأَرْضِ قِطْعٌ مُتَّجَاوِرَاتٌ** "And in the Earth are neighboring piece" [Qur'an-Raad; 13:4]. This verse shows that the concepts of earth's plate tectonics and the evolution of earth which has been identified by the earth scientist in recent centuries were mentioned in the Qur'an more than 1400 years ago.
- B. **فَأَخَذَتْهُمُ الرَّجْفَةُ فَأَصْبَحُوا فِي دَارِهِمْ جَاثِمِينَ** "So the earthquake took them unawares, and they lay prostrate in their homes in [before] the morning! So they became motionless bodies in their abode"

(CXT 3)

[Qur'an-A'araf; 7:78 and 91]. This verse can be related to the concept of the sudden occurrence of disasters and in particular earthquakes.

C. Qur'an-Earthquake; Chapter 99:

In the name of Allah, the Beneficent, the Merciful.

1. When Earth is shaken with her (final) earthquake.
2. And Earth yield up her burdens from within.
3. And the earth brings forth her burdens.
4. And man says: What has befallen her?
5. On that Day will she declare her news?
6. For that thy Lord will have given her inspiration.
7. On that Day will men proceed in companies sorted out, to be shown the deeds that they had done
8. So, anyone who has done an atom's weight of good, see it!
9. And anyone who has done an atom's weight of badness, shall see it.

Most Islamic scholars relate this chapter to the Day of Judgment, or the earthquake that will mark the end of the world. However, based on the simple and straightforward meaning of the first verse of this chapter, it can be considered as the description of an earthquake event. With this view, Verse 7 can refer to the time when humans see the results of their deeds on what they have done in terms of building works. People who have constructed well shall see its safe results and those who have violated the principles of safe building will in sorrow see collapse and other unhappy results. This verse is followed by Verses 8 and 9, which can be interpreted as signifying that even a very small good deed in respect of earthquake safety and safe construction and development would lead to positive results. On the other hand, even a very small violation or attempt to ignore safety will produce manifest results. Interpreting Verse 8, the construction of even one safe building will lead to a lower dependency of the community on the emergency response system. Similarly any seismically unsafe construction or wrong acts will increase dependency on the emergency system and consequently require greater post-earthquake recovery efforts.

D. The same concept has been described in Qur'an Chapter Qesas (the Stories) as:-

مَنْ جَاءَ بِالْحَسَنَةِ فَلَهُ خَيْرٌ مِنْهَا وَمَنْ جَاءَ بِالسَّيِّئَةِ فَلَا يُجْزَى الَّذِينَ عَمِلُوا السَّيِّئَاتِ إِلَّا مَا كَانُوا عَمَلُونَ

“Whoever does good, the reward to him is better than his deed, and whoever do bad shall not be rewarded, or shall be punished [to the extent] of their deeds. [Qur'an-Qesas; 28:84]

It is clear that, in order to see the positive results after an earthquake, the Qur'an has guided us through the concept of plate tectonics, the sudden occurrence of disasters, and the necessity of doing good and making a correct action and avoiding a mistakes, even a small one.

4.2 Belief and Good Deeds in the Qur'an

A key concept in risk reduction is safe and compatible design of structures with respect to the expected level of hazard, along with construction of good quality. This concept can be achieved by believing and accepting the existence of earthquakes and by respecting and implemented codes and doing good deeds, as an action required for safe design and construction. This issue has been addressed in the Qur'an through the two complementary concepts of “belief” and “doing good” as one of the key principles of Islam and, in fact, of virtually all religions; and as key guiding principle of disaster risk reduction. Some relevant chapters and verses in the Qur'an are as follows:-

A. In Chapter 101, “Asr” (The Age or The Time), multi-layered meanings can be applied to the reduction of losses from natural events such as earthquakes. The verses of this chapter read as follows:

In the name of Allah, the Beneficent, the Merciful.

1. I swear by the time.
2. Most surely humans are in state of loss.
3. Except those who “believe” or have “faith” and do “good deeds”; and join together in the mutual teaching of “truth” or “justice” and of “patience and constancy”.

The key teachings in this chapter are:-

(CXT 3)

- In terms of faith, it is essential to recognize and believe in God and his wisdom and guidance in all aspects of life and for all things that exist, including the facts of nature and the existence of earthquakes as natural phenomena, and to trust in God's mercy as a fundamental motivation for carrying out acts for safety and vitality.
 - Good Deeds or acts which are based on knowledge, wisdom and recognition are encouraged and are pre-requisites for success and for avoiding losses.
 - With its positive meaning in the Qur'an, patience causes motivation and incentive for doing acts that prevent losses. Patience and hope are key factors in risk mitigation and loss reduction.
- B. وَالَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ سَنُدْخِلُهُمْ جَنَّاتٍ
"And those who believe and do good deeds, shall be rewarded by entering into heaven..." [Qur'an-Nisa; 4:122]
- C. إِنَّ الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ لَهُمْ جَنَّاتُ النَّعِيمِ
"Surely those who believe and do good, will be rewarded by heaven [gardens of bliss]." [Qur'an-Luqman; 31:8]
- D. إِنَّ هَذَا الْقُرْآنَ يَهْدِي لِلَّتِي هِيَ أَقْوَمُ وَيُبَشِّرُ الْمُؤْمِنِينَ الَّذِينَ يَعْمَلُونَ الصَّالِحَاتِ أَنَّ لَهُمْ أَجْرًا كَبِيرًا
"Surely the Qur'an guides one to that which is most upright and gives good news to the believers who do good so that they shall have a great reward." [Qur'an-Israa;17:9]
- E. إِنَّ الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ إِنَّا لَا نُضِيعُ أَجْرَ مَنْ أَحْسَنَ عَمَلًا
"Surely those who believe and do good, We do not waste the reward of him who does good work." [Qur'an-Kahf; 18:30]
- F. وَأَنْفِقُوا فِي سَبِيلِ اللَّهِ وَلَا تُلْقُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ وَأَحْسِنُوا إِنَّ اللَّهَ يُحِبُّ الْمُحْسِنِينَ
"And spend of your substance in the cause of Allah, and make not your own hands contribute to destruction; but do good; for Allah loves those who do good and are beneficent. [Qur'an-Baqare; 2:195]

It can be seen that the Qur'an considers belief to be a requirement for doing a good deed if people desire to reach success and be rewarded by being safe during natural events. Thus, their actions should consist of good deeds and high quality work. It can therefore be concluded that:-

- Believing that our creator's guidance is towards the best human performance and better living. Human are encouraged with their free will, awareness and knowledge to follow that guidance, which is comprehensive and covers all aspects of life.
- Believing in wisdom, facts and expertise; as well as accepting, respecting and following the spiritual, individual, social and technical laws, rules and regulations.
- Doing our best acts when circumstances demand it: acts that are based on appropriate belief and knowledge.
- Ensuring the correct use of God's bounty and nature through applying knowledge and wisdom.
- Good deeds in relation to earthquakes means following expert leadership, ensuring that planning and development are compatible with hazards, constructing according to building codes and regulations; and constructing buildings in a seismically safe manner.

If human beings as individuals or societies follow these principles in all aspects of their daily life, natural events will not turn into disasters and safety will become an integral part of the development process of each nation.

4.3 Public Supervision (Amr-bil-Maruf)

Good management and governance are necessary for the effective implementation of risk reduction and the implementation of "zero tolerance" in respect of code violations. This requires comprehensive supervision, both by the authorities and especially by the people, who can play an important role in developing countries without imposing a high cost. To encourage public and community participation in the implementation of supervision, the concept of "Amr-bil-maruf" and "Nahye-anil-Munkar" can be used. These mean "inviting people and encouraging them to do good deeds and forbidding harm". They are key concepts in Islam and can be used toward the process of effective implementation of risk reduction programs and to ensure that

(CXT 3)

codes and regulations are not violated. As an example, verses 104 and 110 of Chapter "Al-e-Imran" of the Qur'an, which address this concept are as follows:-

A. "And from among you there should be a party which invites one to do to good and enjoins what is right and forbids the wrong, and this it is that shall be successful [Al-e-Imran; 3:104].

كُنْتُمْ خَيْرَ أُمَّةٍ أُخْرِجَتْ لِلنَّاسِ تَأْمُرُونَ بِالْمَعْرُوفِ وَتَنْهَوْنَ عَنِ الْمُنْكَرِ وَتُؤْمِنُونَ بِاللَّهِ وَلَوْ آمَنَ أَهْلُ الْكِتَابِ لَكَانَ خَيْرًا لَهُمْ مِّنْهُمُ الْمُؤْمِنُونَ وَأَكْثَرُهُمُ الْفَاسِقُونَ

B. "Ye are the best of peoples, evolved for mankind, enjoining what is right, forbidding what is wrong, and believing in Allah. If only the People of the Book had faith, it would be best for them: among them are some who have faith, but most of them are perverted transgressors. [Al-e-Imran; 3:110]

وَلَتَكُنَّ مِّنْكُمْ أُمَّةٌ يَدْعُونَ إِلَى الْخَيْرِ وَيَأْمُرُونَ بِالْمَعْرُوفِ وَيَنْهَوْنَ عَنِ الْمُنْكَرِ وَأُولَئِكَ هُمُ الْمُفْلِحُونَ

Considering that the violation of codes and improper use of land are common issues in developing countries and are key obstacles to the success of earthquake risk reduction programs, the use of this key concept in Islamic societies can enhance community participation and supervision, which would be very useful as a means of stopping violations, especially by illegal developers.

4.4 Sin

Another key concept that has been addressed in all religions and beliefs is the concept of sin. In the past in many traditional societies, disasters were viewed as the result of people's sins. This view can be further clarified by a detailed look at the meaning and description of sin in Islam; and by attempting to see how sin can result from disaster. In Islam, sin is a violation of God's guidance due to ignorance, lack of belief in the facts and performing acts against the self-consciousness. In more detail it can be outlined as follows:-

- Misusing the most important of God's bounties, which are the human ability, wisdom and free will; or using human ability in an incorrect way towards an action that causes damage or disaster.
- Refusing to use the knowledge and wisdom that God has given us along with our free will and, instead, doing a bad deed or one that causes damage and loss to oneself or others.
- Misusing Nature, for example by promoting development and construction which cause damage to the environment.
- Causing damage, harm or vulnerability to oneself. Harm can be related to human health, safety and assets, as well as to the environment.
- Violating the people's rights and social laws.
- Carrying out acts that cause mistrust and corruption among people and in society.

In the chapter of the Qur'an entitled Ankaboot (Spider), verse 40, and in the Nisa (women) chapter, verses 78 and 79, and in relation to human actions and responses, sin and bad deeds emphasize that "good and evil, blessings and punishment, are from Allah, but no distress afflicts a man unless he earns it by his own mistakes or blunders. In other words, all of the bad or unpleasant things or disasters caused by sin are from the doer of bad acts and God never does harm or wants bad things to happen to human beings. With this meaning, the process of sinning can result in disaster. Most disasters and human losses in earthquakes are due to failure to use available engineering principles and bad construction. These verses read as follows:-

A. "So We took each one in his sin; of them was he on whom We sent a strong storm, and of them was he who was overtaken by the Cry, and of them was he whom We caused the earth to swallow, and of them was he whom We drowned. **It was not for Allah to wrong them, but they wronged themselves.**" [Qur'an-Ankaboot; 29:40]

فَكُلًّا أَخَذْنَا بِذَنْبِهِ فَمِنْهُمْ مَنْ أَرْسَلْنَا عَلَيْهِ حَاصِبًا وَمِنْهُمْ مَنْ أَخَذَتْهُ الصَّيْحَةُ وَمِنْهُمْ مَنْ خَسَفْنَا بِهِ الْأَرْضَ وَمِنْهُمْ مَنْ أَغْرَقْنَا وَمَا كَانَ اللَّهُ لِيُظْلِمَهُمْ وَلَكِنْ كَانُوا أَنفُسَهُمْ يَظْلِمُونَ

B. "... If some good befalls them, they say, "This is from Allah"; but if evil occurs, they say, "This is from yourself" [Qur'an-Nisa; 4:78]

(CXT 3)

- C. "O'man: Whatever benefit comes to you, it is from Allah, and whatever misfortune or distress befalls on you, it is from yourself, and We have sent the Prophet to mankind as a messenger; and Allah is sufficient as a witness. [Qur'an-Nisa; 4:79]

In a similar manner to sin, corruption or mischief in the development and building process will result in unsafe construction and will cause damage and disasters. In this case, in the Qur'an God says:-

"And do not seek to make mischief or corrupt in the land, surely Allah does not love the mischief-makers."
وَلَا تَبْغِ الْفُسَادَ فِي الْأَرْضِ إِنَّ اللَّهَ لَا يُحِبُّ الْمُفْسِدِينَ [Qur'an-Qesas; 28:77]

Thus, when humans as developers, engineers, builders, owners, rulers or policy makers lack faith in the common laws of nature and belief in scientific facts, and when they misuse existing know-how on safety and engineering principles, or violate building regulations with free will, this can be considered as committing a sin, which in turn results in vulnerability, disaster and destruction.

4.5 Related Statements from the Prophet (Hadith)

The statements and lectures (Hadith) of the Prophet Mohammad (PBUH) and his companion are a valuable source of information on Islamic teaching and are complementary to the Qur'an. Some of these statements can be related to the need to do good deeds and also to issues related to earthquakes, as follows:-

A. Statements of the Prophet Mohammad (PBUH):

- God loves those who do a deed or job correctly, perfectly and completely (perfectionism).
- People should have a strong desire to do good deeds.
- People's deeds or actions that have good intentions and produce good results are a means of worshipping God.
- A person is not a believer when neighbors are not safe from his misconduct and when he thus behaves in a manner that will increase vulnerability. Our building or neighborhood developments should not be constructed in a way that creates problems for neighbors or cause damage to a neighbor's property.
- Those who cheat and violate the law and people's rights are not true Muslims. This statement should be a moral and religious incentive toward the implementation of a "zero tolerance" policy for any type of violation of codes and regulations.
- Ignorance is the root of all problems and faults. This shows the responsibility of Muslims to learn about earthquakes and to be prepared and safe; as well as the need to use existing know-how in all aspects of their lives.
- Short-term actions do not last. Short-term solutions to disaster risk reduction are not effective, as this requires long-term efforts carried out with consistency and patience.

B. The statement of Imam Ali (AS):-

- Do not be part of those groups that, without using their knowledge and without doing good deeds, expect or hope for good and safe results.

These statements are among the best guidance for Muslims towards good quality and safe construction and developments and as a means of stopping negligence in order to avoid seismic losses and earthquake disasters.

5. CORRELATION BETWEEN ISLAMIC GUIDANCE AND RISK REDUCTION PRINCIPLES

Considering the multiple meanings of the Qur'an, UI have tried to show that Islamic teaching can be adapted to the principle of disaster risk reduction and that it can be used as a basis or incentive for enhancing risk reduction among religious societies, especially in Islamic countries. Given that the most important part of God's bounty to human beings is His guidance, ability, wisdom, and knowledge, given in order for people to do good deeds, and based on knowledge and cognition, the effects of "good deeds" and

(CXT 3)

“bad deeds” on construction, community and environment can be summarized in general form in the diagram shown in Fig. 2.



Fig. 2 The relationship between our acts and protection against disaster.

According to this view, the reward for “doing good deeds”, which are based on God’s guidance and have to be accompanied by “belief”, results in sustainable development, safety and vitality in human societies. Fig. 3 shows how, by following Islamic teaching and principles, people can realize themselves and in religious terms, as an ultimate goal, reach heaven. In this world 'heaven' means a productive, safe, healthy, happy and peaceful life. According to this, “belief” and “doing good deeds” can be interpreted as follows:-

- *Belief*: believing that our Creator’s guidance is for the best of human performance and better living. People are encouraged by being given free will, awareness and knowledge to follow God’s guidance, which is comprehensive and covers all aspects of life. Believing in wisdom, facts and expertise; as well as accepting, respecting and following spiritual, individual, social and technical laws, rules and regulations. Thus, Islam encourages people to believe in earthquakes as natural phenomena and facts of the Earth and, based on this belief, encourages them to do good deeds as follows:-
- *Doing good deeds*: doing the best acts possible, based on the most correct beliefs and best knowledge. In relation to earthquakes and safety, this means planning and development that are compatible with hazards; obedience to building codes and regulations; following the leadership of experts; using seismically safe construction; and, finally, using knowledge and wisdom to make the most correct use of God’s bounty and nature.

In the case that people perform bad deeds and do not follow the path shown in Fig. 3, their punishment is destruction and loss of life, which will result in disaster, as is schematically shown in Fig. 4. In other words, bad deeds which are carried out on the basis of ignorance or negligence and without using appropriate logic, in theological language are called 'sin'. Thus, losses and disasters mainly result from people's bad, incorrect and inappropriate deeds. This is the simple explanation on the concepts and statements that disasters are resulted from sin. Hell, which is the result of sin, refers to a life with misery, destruction, lack of community development, and so on. Thus, disaster is not God’s wrath or his anger with regard to humanity; it is simply the result of people's bad deeds and failure to follow God’s guidance in all aspects of our lives.

6. NOAH’S ARK: A CLEAR EXAMPLE OF HOW TO BE SAFE IN DISASTER?

The story of Prophet Noah (PBUH) and his experience with disaster is one of the best examples for teaching reported in any religion. In this respect, the Qur'an says:-

فَأَوْحَيْنَا إِلَيْهِ أَنْ اصْنَعِ الْفُلَكَ بِأَعْيُنِنَا وَوَحَيْنَا فَإِذَا جَاءَ أَمْرُنَا وَ... (مومنون:27)

"So We revealed to him, saying: "Construct the Ark within Our sight and under Our guidance"; then when comes Our command, and the fountains of the earth gush forth...; and address Me not in favor of the wrong-doers; for they shall be drowned" [Qur’an-Al-Mumunoon (The Believers); 23:27]

The lessons that should be learned from the story of “Noah’s Ark” are:

- God instructed his prophet Noah to build the Ark in order to be safe in a disastrous typhoon and storm;
- safety can only be achieved when one is prepared, even in the case of most dangerous disaster;

(CXT 3)

- God's protection of his prophets is also achieved through respecting the laws of nature, which are based on wisdom, knowledge and human ability.

There are many more reported stories and examples in Islam which offer similar teaching on dealing with disasters or doing a perfect job that prevents destruction or loss of life.



Fig. 3 The process of achieving safety, development, vitality and finally 'heaven' by following the Islamic form of God's guidance.

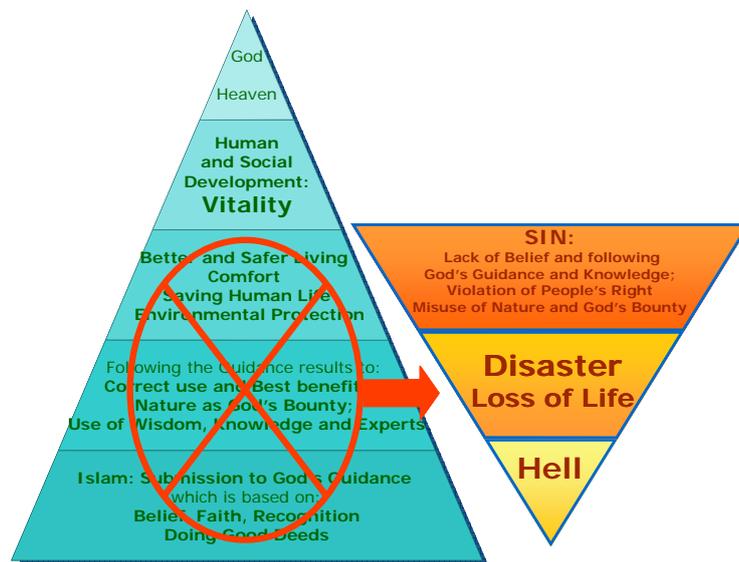


Fig. 4 The process of causing disaster, loss of life and 'hell' by not following the Islamic approach to God's guidance and by doing 'bad deeds'.

7. WHY DO ISLAMIC COUNTRIES FACES SUCH A HIGH RISK OF DISASTER?

It is important to ask why, despite their rich Islamic guidance and indigenous knowledge of dealing with disasters; Islamic countries have a unsatisfactory record of earthquake risk reduction and face such high vulnerability? The simplest answer is that unfortunately most Muslims do not completely follow Islam and Islamic teaching. Seyed Jamal Asadabadi, an Islamic scholar of the early 20th century, after visiting some western countries stated that: “In the West, I have seen Islam but no Muslims; in Islamic countries, I have seen Muslims, but no Islam”. He meant that the Western countries follow Islamic teaching by doing good deeds, respecting laws, using know-how and working hard to achieve development. Unfortunately, at that time most of the Islamic countries were governed by corrupt rulers and dominated by bad management (see Equation 1), and the were thus ignoring the development process and failing to use the knowledge whose development they once pioneered.

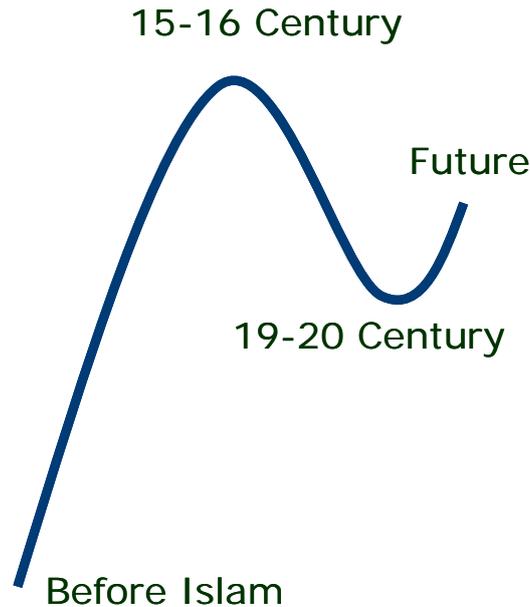


Fig. 5 Schematic process of development in the Islamic countries

The answer to the question can also be found by going through the history of Islamic countries from before Islam to the present as shown in Fig. 5 and briefly explained as follows:-

Before Islam: in this era ignorance or lack of know-how prevailed in some of the present Islamic countries. Only a few countries such as Iran benefited from advanced knowledge and were more developed.

After the start of Islam: Progressive development and expansion of knowledge based on Islamic guidance began and continued until the 15th-16th centuries, when the peak of “Islamic-Iranian civilization” occurred. From the 16th to the mid-20th centuries people were proud of their high achievement, but this led to negligence and the deformation of true Islamic guidance by mixing Islam with superstitious cultures. Under this situation, disaster became “God’s wrath” and safety became “God’s will”. Thus people became unable to cope with natural events and 20th century development became incompatible with the level of natural hazards, and the risk of disaster increased greatly with rural and urban development.

Today: Recent decades have seen the revitalization of Islam by returning to its true teaching. This period can be considered as an Islamic Renaissance.

8. CONCLUSION

In this paper I have attempted to show the true view of Islam on disaster and how it creates a religious incentive among Muslims to take disaster risks seriously and, by understanding and using existing know-how, do good deeds and move more effectively towards earthquake risk reduction policies and actions. The discussion can be summarized as follows:-

(CXT 3)

- Risk communication and knowledge dissemination should be compatible with people's beliefs and cultures. I believe that the use of Islamic teaching and knowledge of disaster and development can be an effective way of promoting safety in Islamic countries.
- “Vitality” and sustainable development can be achieved through faith, knowledge and the conduct of good deeds. If we reject wisdom and refuse to use the know-how that God has given us as his bounty, we will face “disaster”.

References:

Holy Qur'an: English translation by A. Yusuf-Ali, M. Pickthal and M.H. Shakir; www.Qur'an.al-Shia.com

Tafseer Al-Mizan (Interpretation of Holy Qur'an): Allameh Amini; www.almizan.org/tafseer

“Our Belief: A brief description of Islam”; Ayatollah Naser Makarem Shirazi; www.makaremshirazi.org.

“Islam: A comprehensive school”; Ayatollah Morteza Mottahari; www.al-shia.com

“The value of Qur'an in the eyes of the Muslims”, www.al-Islam.org

Acknowledgment:

The author expresses his deep appreciation to Dr. Hassan Ahmadi of IIEES Risk Management Research Center for his valuable input, guidance and ideas for improving this paper.