Introduction to Emergency Management

[Name of the Writer]

[Name of the Institution]

Introduction to Emergency Management

**Introduction**

Hazard is defined as something that can be a cause of “danger or if it could lead to some kind of disaster”. It is a common understanding that hazards are always accompanied by risks. Risk is termed as a connotation of emergency event that exhibits some negative condition or negative consequence that needs some external support so as to mitigate or reduce the danger or destruction associated with it. These emergency services or external support can be in different forms such as EMS, public service, health service or approach towards public healthcare centers. When the human potential is not sufficient to address the severity that is proposed by the threat or the emergency situation is out of human control by any means, it is called disaster (Perry, 2019).

Hazard identification is termed as one of the basic units that can support emergency management activities, taking into account that when a hazard reacts with any of the one, natural or human made environment, the occurrence of risk factors can be assessed. Research has highlighted that the risk posed by some well-known hazards has become one of the major basics of planning for assessing actions and the mitigation plans. There are different ties for hazards, taking into account that they can be both, artificial and natural. Artificial hazards are also called technological hazards (Perry, 2019).

**Natural hazards**

 Natural hazards are identified as those hazards that exist in a natural environment. Such hazards are the product of some geological, volcanic, hydrogeological, mass environmental and other natural processes that pose a serious kind of threat to the communities and the human population that is directly or indirectly related to it. There are different types of natural hazards such as floods, earthquakes, and hurricanes (Perry, 2019).

**Earthquakes**

 An Earthquake is defined as a sudden release of a kind of violent underground energy that has several causes. An earthquake is a situation that happens when the two blocks of Erath slip past one another. The place where a split occurs is also called fault or fault plane. According to the researchers, the location below the earth’s surface is called hypocenter and it is directly located above the epicenter. The epicenter is directly located below hypocenters. It is asserted that many of the earthquakes have foreshocks. Foreshocks are also called smaller earthquakes that occur in the same place where massive or huge earthquake occurs (Perry, 2019). The occurrence of earthquake is not predictable, a scientist cannot tell at what location or place of earth earthquake will occur or happen. However, a huge or massive earthquake is called main shock. It is termed to be accompanied by some aftershocks that is accompanied by some aftershocks that are smaller earthquakes which occur afterward. Taking into account the stance of awareness, it is highlighted that earthquake awareness should be accompanied by the description of some key points while understanding the implications of earthquake, an event of emergency should be created (Perry, 2019).

**Earthquake Hazards**

According to researchers, the knowledge about the behavior of the earth’s seismic zones and the behavior of the earth is related to the seismic improvements and monitoring. It is evident that every year, there are hundreds and thousands of people who die because of earthquake. As the strength of earthquake increases, there are more chances of the destructions that are to come. The strength and the effects of the earthquake were described by Richer and Modified Mercalli Intensity also called, (MMI scale). This scale was designed with an aim to quantify or record the strength and effect of the earthquake in the form of numeric values. The magnitudes are presented in the form of logarithms that do not adhere to any kind of upper limit. The MMI has the potential to measure the underlying strengths of the effect of the earthquake, rather than the application of signal value to a particular event. MMI is capable of allowing the site-specific evaluation that can help to observe a location (Perry, 2019). This intensity is expressed in the form of roman numbers raging from I to XII. There are different determinants that guide the action and functionality of MMI. Research has highlighted that earthquakes are the major source of posing direct and certain damage and danger to the people. It is asserted that the people can’t be shaken by earthquake to death but sometimes it is the intensity of the situation that can cause a serious psychological and physical impact (Perry, 2019).

**Ground Shaking**

 Ground Shaking is termed as one of the major earthquake hazards that is accompanied by the effect of ground shaking. It is asserted that as a result of this hazard, the ground will shake causing damage to the ground. As a result of this ground shaking, the building might get sunk into the ground or the soil because this situation is accompanied by soil liquefaction. Liquification is also defined as the mixing or assimilation of the groundwater with sand or soil that occur during the shaking of the ground as a result of earthquake (Usuda, 2019). As a result of this assimilation, a mixture is formed that would have a liquefied composition. When this liquefication occurs beneath a bookend, the building can sink, it will lean, or tip over. Liquification probably occurs in areas that pave a massive groundwater source near the sandy soil and surface. It is found that the building that has some strong ground can be affected as a result of this impact, because of the creation of some strong waves that can make the ground heave and lurch (Edrisi, 2019).

**Ground Displacement**

 Another earthquake hazard is termed as ground displacement. It is also termed as a movement of ground along the fault. According to research, if a building is built near the fault, then the occurrence of an earthquake can bring serious damage. As a result of displacement of earth near to the fault, it can rip a building apart, and can even break a road (Tabata, 2019).

**Flooding**

Flooding is another main hazard associated with an earthquake. It is asserted that earthquake has the potential to rupture the rivers or the dams that are built along the coasts or the banks of rivers. Taking into account the intensity of the earthquake, it is highlighted that the water from river or from the reservoir can even cause flood in the areas. This flood can be equally damaging as that of a flood that is caused due to the excessive rains. This flood has the potential to damage the building, drown people or sweep everything along with it. According to the researchers, flood and tsunamis can also cause a great deal of destruction. In common connotation, tsunamis are defined as a tidal wave but in reality, it is not at all associated with tides on the oceans, in fact, a tsunami is a huge wave that is caused by an earthquake under the ocean. As the height of tsunami ranges from area to area where it helps to predict the intensity of the earthquake. A tsunami can be about the height of upto 30 feet when they would hit the shores and that can do massive damage to the coastlines (Amato, 2019).

Screeches are the smaller version of tsunamis. They usually occur in different lakes when an earthquake occurs beneath a lake. It is asserted that the earthquakes occurring in lakes are not too heightened, they grew a few feet’s height having the potential to jock down a small building or it can break a tree or tip over it (Amato, 2019).

**Fires**

 Another major hazard that is associated with the earthquake is fire. There are several overgeneralized views that are associated with the occurrence of fire but actually, it is one of the hazards that are associated with an earthquake. Fire initiates when there is any kind of broken lane or pipe of gas or it is somewhere tipped over by the wood or some coal staves. In numerous cases, if the water lines that are fed in hydrants are broken, it can also cause a fire. Although it seems ambiguous, still there are several examples showing that fire is one of the natural hazards that is associated with earthquake. A common and well-known example is of the earthquake in Great San Francisco that happened in 1906 and the fire continued for three days, burning the city. Under this fire, many of the cities were completely destroyed and about 250,000 were left homeless (Amato, 2019).

**Human Actions**

 Research has highlighted that there are a number of earthquake hazards that are entirely the product of manmade structure and they are the result of manmade efforts. Usually, people don’t think critically while laying down the foundation of fine huge bridges and in such cases, minor earthquakes are enough to trip the building apart (Mili, et al. 2018).

**Emergency Management**

Although earthquake is a natural phenomenon and man doesn’t have complete power over natural phenomena, still, there are some plans and frameworks that are designed to address the emergency situation that is caused because of the earthquake. There are several management plans and strategies that are supposed with an index to reduce the destruction that is caused because of the earthquakes (Mili, et al. 2018).

**Preparedness**

 In accordance with the research and the approach to analyze the control measure that can help to stop, overcome or reduce the massive danger caused by an earthquake, preparedness to some primary dangers is essential. While working at a place, it is assumed that the primary dangers to the workers may result from either being struck somewhere within a furnishing, any of the structural components and the stored material that are inadequately placed. Moreover, serious threats can occur when there is any kind of gas leakage so some measures should be taken. Following are the preventive measures that are proposed (Yu, et al. 2018).

**Choice of a safe place**

It asserted that effort should be made to define and design or sometimes locate safe place that can be used as a home during an earthquake. This place can be under any sturdy take, beneath a desk or against some interior wall that is at some distance from the window. According to the injury status, the people who move at least 10 feet from the pace of earthquake shaking are at great risk of getting injured (Yu, et al. 2018).

**Practicing drop, covering and then hold on**

It is asserted that people should follow three steps, drop, and cover and then hold in safe places. When some entity drops under the sturdy desk or lean on with some table or desk, eyes should be protected by keeping them down. It will be one of the automatic response that can save a life (Yu, et al. 2018).

**Incorporating safe earthquake procedures**

Safe earthquake procedures cannot be placed or incorporated until or unless those procedures are practiced. It is asserted that special attentions should be given to the safe practice, exercise should be repeated two times each weak, where the repetition of the procedure is the only way that can help people to apply or use to safety techniques in the need of the hour. Usually, people hesitate so reinforcing training will encourage people to act on it when required (Yu, et al. 2018).

**Formulating plans for the workers**

It refers to the idea that special attention should be given to the training of workers so as to deal with earthquake condition. A worker should be taught to stop work during an earthquake and stay at a safe place unless shaking is completely stopped. They should be trained to look out to fires as it is one of the common threats that is associated with earthquake hazard. (Ray, et al. 2017)

When workers are leaving the workplace during the earthquake, workers should use stairs rather than elevators. Usually, when an earthquake happens, the free alarm goes off and it can make an individual get stuck in an elevator that may cause a threat to life. In accordance with the framework followed by the Hazardous Waste Operation and Emergency Response, it is asserted that the basic standards and political framework would be equally applicable to all the employees during an earthquake no matter what the job descriptions are and what an employee is supposed to do. However, the US Environmental Protection Agency has formulated a standard that applies OSHA’s HAZWOPER standard to the state and other workers in the local government (Ray, et al. 2017).

**Equipping**

Equipping is termed as another section that can help to address the emergency conditions that are proposed and caused as a result of the earthquake. It is highlighted that the employees and workers should be provided with emergency supply kits and those kits should be placed in shelter locations so that employees can use them in the need of the hour. These kits are as follows

**Basic Disaster Supplies Kit**

This kit refers to the facilities and the accessibilities that are supplied to the one who is facing an emergency situation. The provider of this kit is the Federal Emergency Management Agency (Wu & H, 2019)

**Workplace Plan’s**

Workplace plans are also one of the types of equipping kit, taking into account that this kit is provided by Federal Emergent Management Agency. It acts as a tool that provides some basic information that is required for the development of some emergency management plans meant for the workplace (Wu & H, 2019).

**Emergency Supplies for the Earthquake Preparedness**

This kit is supplied by the Centre for Disease Control and Prevention that supplies all the requirements of a situation having an earthquake or suffering from the earthquake (Wu & H, 2019).

**Exercises and Training**

 Along with the other practical approaches that are guided by the state and government authorities or the people who serve as stakeholders, there are some major responsibilities that are shouldered on every manager. These responsibilities are in the form of training sessions and exercise that can help people overcome the situation of an earthquake. It includes ensuring that all the employees who are working in a particular environment should be well aware of the idea and action that they have to do in case of an earthquake (Hall, et al., 2016). It directs stakeholders to help employees know the evacuation plans in the hours of need and the practicing of such plans on some regular basis so that hesitation or confusions can be mitigated. It is also asserted that the plans and procedures that are meant for overcoming the earthquakes should be updated with the passage of time because with an increased technology there are a number of gaps and imperfections in the structures that are covered and hidden under the name of innovation and technology (Hall, et al., 2016).

 An analysis of training and exercise session highlights that the OSHA Disaster Site Works Outreach Training Program is one of the major support systems that is acting to provide support in the form of skilled services to the people and employees (Hall, et al., 2016). There are different forms of support services such as debris removal, utility, heavy equipment operation, and demolition along with site cleanup services that can help to overcome the severity of the condition. This program also intended to highlight the differences that exist between some construction sets and the sites along with an evaluation of the measure of threats that are fore coming. It will also help in analyzing the needs of employers and workers to get some pre-incident raining (Hall, et al., 2016).

**Shakeout**

It is one of the global earthquake drills that is sponsored and supported by FEMA. This drill is promoted by US Geological Society along with National Science Foundation that can help different organizations to get themselves registered and participate for large training sessions and other informative tasks that can earn safety during an earthquake (Ur Rahman, et al. 2016).

**Emergency Action Plan**

 Taking into account the severity of earthquakes that occur at a particular place, it is asserted that due significance should be given to emergency action plans. These plans are a systematic tool of information that would help to define, when to evacuate, how to evacuate and what are the major elements of an evacuation plan (Ur Rahman, et al. 2016). The justification of an evacuation plan can be associated back to the idea that disorganized or impractical evacuation can do more harm than good. It can not only cause threats but it can even take the lives of people because it may occur in some type of property damage, confusion or some serious injury. In such a case, evacuation plan act as a code of guidelines that can help authorities to know, what to do, when to do and how to do (Ur Rahman, et al. 2016). Moreover, it also includes some condition that is termed as a necessity to save the lives of people. It specifies the conditions under which evacuation would be necessary, in which cases sheltering and designation of shelter places would be beneficial. It infers different evacuation procedures along with an analysis of the tasks that workers should be taught and trained to do. These evacuation plans are also a practical guide to the identification of some special equipment that can help the workers know about personal protective equipment and respiratory protection procedures such as escape respirators, when needed (Ur Rahman, et al. 2016).

**Conclusion**

Earthquake is termed as a natural disaster that refers to the shaking of the earth. It is a disaster that can cause serious threats to human life caused by both natural and artificial factors. Here artificial aspects are relevant to the manmade, or human actions. After an exegetical analysis of the facts and figures that are associated with earthquakes, their occurrence, and the preventive measures, there are some major considerations to address. It is asserted that special attention should be given to the analysis of earthquakes in terms of preventive measures. These preventive measures can prove effective in the long run, adhering to the need of the hour. It would not be wrong to say that the formation of an emergency plan is not just sufficient, there is a dire need of initiatives that can incorporate those plans into practice. Taking into account the scenarios in which there could be life-threatening situations, it is highlighted that there would be no use of emergency plans if the subject or the population are not educated about how to act in that situation. Moreover, although there is no set paradigm or setting that can act as a complete guideline and safeguard the loss that can be created as a result of an earthquake, there are several options that can be adopted to reduce the intensity of loss. In a nutshell, it is asserted that there is a dire need to bring those plans into practice that can help to save people along with the incorporation of a practical approach.

References

Amato, A., Gabrielli, F., Spinozzi, F., Galluzzi, L. M., Balducci, S., & Beolchini, F. (2019). Strategies of disaster waste management after an earthquake: A sustainability assessment. *Resources, Conservation and Recycling*, *146*, 590-597.

Edrisi, A., & Askari, M. (2019). Earthquake Disaster Management with Considering the Importance of Recovery. *Civil Engineering Infrastructures Journal*, *52*(1), 115-135.

Hall, C. M., Malinen, S., Vosslamber, R., & Wordsworth, R. (Eds.). (2016). *Business and post-disaster management: Business, organizational and consumer resilience and the Christchurch earthquakes*. Routledge.

Mili, R. R., Hosseini, K. A., & Izadkhah, Y. O. (2018). Developing a holistic model for earthquake risk assessment and disaster management interventions in urban fabrics. *International journal of disaster risk reduction*, *27*, 355-365.

Perry, M., & Management, I. (2019). *9780471772606: Introduction to Emergency Management - AbeBooks - Michael K. Lindell; Carla Prater; Ronald W. Perry: 0471772607*. *Abebooks.com*. Retrieved 20 September 2019, from https://www.abebooks.com/9780471772606/Introduction-Emergency-Management-Michael-Lindell-0471772607/plp

Ray, P. P., Mukherjee, M., & Shu, L. (2017). Internet of things for disaster management: State-of-the-art and prospects. *IEEE Access*, *5*, 18818-18835.

Tabata, T., Onishi, A., Saeki, T., & Tsai, P. (2019). Earthquake disaster waste management reviews: Prediction, treatment, recycling, and prevention. *International Journal of Disaster Risk Reduction*, 101119.

ur Rahman, M., Rahman, S., Mansoor, S., Deep, V., & Aashkaar, M. (2016). Implementation of ICT and wireless sensor networks for earthquake alert and disaster management in earthquake-prone areas. *Procedia Computer Science*, *85*, 92-99.

Usuda, Y., Matsui, T., Deguchi, H., Hori, T., & Suzuki, S. (2019). The Shared Information Platform for Disaster Management–The Research and Development Regarding Technologies for Utilization of Disaster Information–. *Journal of Disaster Research*, *14*(2), 279-291.

Wu, H. (2019). 11 Advancing resilience post-disaster. *Risk Communication and Community Resilience*.

Yu, E. J., & Shim, H. S. (2018). A Study on Information Linkage Service for Disaster Situation Management: Focusing on Earthquake. *Journal of Digital Contents Society*, *19*(1), 67-73.