

Surges of Earthquake displaced Population and Dynamics of Emergency Shelter Facilities: Learning from Nepal Earthquake 2015

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Abstract

Emergency shelters are a key player in any big disaster. Hazards destroy houses and make them unusable and unsafe, causing a high number of population homeless. According to Maslow's hierarchy of needs, shelter is one of the basic human needs. Since it is a basic human need, providing shelter for disaster victims must be one of the highest priorities during any emergencies. For the better management of emergency shelter it is vital to understand the needs and demands of disaster-displaced people. The main objective of the research was to understand surge of displaced people and needs & demands of emergency shelter for the earthquake affected communities. This research thoroughly investigated the main public shelter facilities in and around Kathmandu valley from 29 April to 17 May 2015. The research methodology mainly followed empirical method to understand factors which may be responsible for shelter surge dynamics and collected numerical data from the shelter management authority and spent time with the earthquake victims got shelter in that facility. The current research found that surge of displaced people to the shelter facility is very dynamic and controlled by many social, ethical and knowledge based issues. Disaster panic was the primary factor for peak surge of displaced people in the emergency shelter followed by potential risk from aftershocks. Other socio-economic and demographic factors also controlled relocation of disaster-displaced peoples in public shelters. The research also perceived that rural-urban migration and urban slum could be challenging issue for long-term shelter management. Normally shelter management follows the susceptible–infective–removal model but this group of people may have no removal. Findings from the current research will help planning for disaster emergency shelter and ensure the environment and services for the valid disaster victims.

INTRODUCTION

Hazards can destroy houses and make them unusable and unsafe, causing a high number of population homeless. According to IDMC's 2014 Global Estimates report, natural hazards have displaced 165 million people between 2008 and 2013, an average of 27 million a year. The Haiti Earthquake on January 12, 2010 resulted in an estimated 1.5 million

internally displaced persons (IDPs) in Port-au-Prince and surrounding regions (Sherwood et al., 2014).

Shelters are one of the key players in any big disaster. The shelter facility plays an important role in the psychological and economic recovery of disaster-affected communities (El-Anwar and Chen, 2013). Shelter facility can be of many types based on their design architectures and service capabilities. Quarantelli (1995) makes a distinction between sheltering and housing. While sheltering refers to a place to stay during the immediate aftermath of the disaster suspending daily activities (Quarantelli, 1995), housing denotes the return to household responsibilities and daily routine (Johnson, 2002). Emergency shelter may be a public shelter, refuge at friend's house, a shelter under a plastic tent or any other prefabricated enclosure (Abulnour, 2014).

According to Maslow's hierarchy of needs (Maslow, 1970), shelter is one of the basic human needs. Since it is the basic human need, providing shelter for disaster victims must be one of the highest priorities during any emergencies. Proper planning and management of emergency shelter can help in quick bounce back of affected communities and bring normalcy in the society. Several researchers (Bolin and Stanford, 1991 & 1993; Greene and Schulz, 1993; Phillips, 1993; Lee, 2000; and Hosseini et al., 2008) have studied on the features of temporary shelters since early 90s. These research covered shelter needs related to socioeconomic, cultural, and individual demands and types of different shelter facility, their management, and future improvement. Most of the research covered temporary shelter or temporary housing. However, the planning for emergency shelter management is much more dynamic and vital for emergency response.

Emergency shelter management significantly depends on shelter need assessment (UNHCR, 2014). Emergency shelter planning and management in urban context could be more challenging than any other circumstances. This is due to, urban is a very complex social system; and it is highly prone to disasters for high concentration of population and resources (Gencer, 2013).

According to the United Nations, between 2007 and 2008 the world's population first became more in urban than rural– with more than 50% of the world's people now living in urban areas (O'Donnell et al., 2009). The continuing urbanization and overall growth of the world's population will add 2.5 billion people to the urban population by 2050 (United Nations, 2014). Surprisingly, all-urban population growth is taking place and will take place in the poor countries and consequently a large proportion of them will live in conditions of poverty (United Nations, 2011 and Angelet et al., 2005).

Peoples from rural areas move to urban areas as they seek to improve their living conditions and livelihood opportunities (Tacoli et al., 2015). Migration from rural to urban areas has historically played a key role in the rapid growth of cities (United Nations, 2009). Most cities in developing countries have only been able to absorb their rapidly growing populations through the expansion of informal settlements and slums (UN-Habitat, 2014). Such development increased number and proportion of city residents living without improved water and/or sanitation, and in houses without sufficient living space and adequate structure.

Again, most of the residents in urban slums are living under poverty line with an international threshold of one dollar or two dollars a day (United Nations, 2011). For foods and other supplies, urban system depends on supplies from outsides. Hence, food stocks are not always available for urban poor (Kelly, 2003) and they need to live a life with scarcity (O'Donnell et al., 2009).

To ensure the better shelter service for the displaced people in emergency response, it is not enough to assess only disaster damages. The current research assumed that not only disaster damage but also other factors could influence the surges of disaster-displaced people in the urban disaster facilities. Surge could also change with time. The current research was aimed to understand dynamic population surge in urban emergency shelter facilities. The outcomes from this current research can help to understand shelter surge dynamics, their management, and residual challenges for better emergency shelter management in future.

METHODOLOGY

The current research mainly followed the empirical method to enhance observation and see more of the dynamic structures in urban emergency shelter management during Nepal Earthquake 2015. This research thoroughly investigated the main public shelter facilities in and around Kathmandu valley from 29 April to 27 May 2015. The research methodology followed collection of numerical data from the shelter management authority, observe management practices, follow and spent time with the earthquake victims got shelter at those facilities. The current research mainly covered observations and data from Ratna Park, the main earthquake displaced camp in Kathmandu. The research also followed daily newspapers, situation reports from different international organization, reports of government and non-government organizations and scientific articles for this study.

In a sequence, the research followed review of published documents to understand the study area and its environment, collection of numerical data to assess the surge of disaster-displaced population in the Ratna Park shelter facility, and communicate and observe life of disaster displaced population in shelter facility.

OBSERVATIONS AND RESULTS

Nepal lies between 80°4' and 88°12' East longitude, and from 26°22' to 30°27' North latitude, covering a territory of approximately 147,181 km² that extends roughly 885 km from east to west. It is a landlocked country, surrounded by India to the east, west and south, and China to the north. Kathmandu is the capital.

For the most part, Nepal is a rural country. Although the growth rate of the urban population (5.3 per cent) is four times higher than that of the rural population, 84 per cent of the national population continues to live in rural areas (GAR, 2009). With a population of 2.5 million people, the Kathmandu Valley is growing at 4 percent per year, one of the fastest-growing

metropolitan areas in South Asia (WB, 2016). The poverty rate is increasing in urban areas, whilst it is declining in rural areas (ADB, 2013 and UNDP, 2014).

In 2012, Nepal’s Human Development Index rank is 157th in the world – the lowest in South Asia (ADB, 2013). Around 31 per cent of the Nepali population lives below the national poverty line (Bhatta and Sharma, 2006 and CBS, 2005).

Earthquakes in Nepal

Nepal is the 11th most earthquake-prone country in the world (UNDP, 2009). The last great earthquake (of magnitude 8.4) in 1934 AD killed more than 10,000 in the Kathmandu Valley. Most of the infrastructure and major heritage sites had rebuilt. Since 1900, there have been four great earthquakes in Nepal causing severe human and physical loss in 1934, 1980, 1988, and 2011 (Bilham, 2004; Bilham, 2009; Bilham et al., 2001; and NPC, 2015).

On 25 April 2015, at 11:56 local time, a massive 7.8 magnitude earthquake struck Nepal, with the epicenter in Gorkha District north-west of Kathmandu and south of the China boarder. Thousands of aftershocks followed that catastrophic earthquake. When people were trying to get back to their normal life, another powerful earthquake of magnitude 7.3, hit the country again on 12 May 2015.

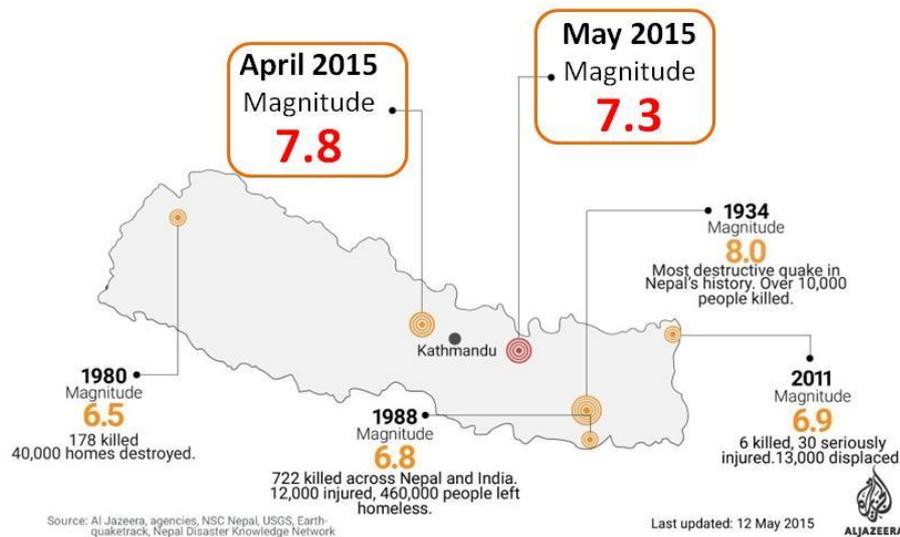


Figure 01: Major earthquake in Nepal (Modified from AlJazeera, 2015)

These two major earthquakes killed nearly 9,000 lives and destroyed over a half a million homes (NPC, 2015). Some 800,000 people displaced are struggling to survive in a context of persistent, widespread poverty, a severe lack of safe and adequate housing and disputes over land and property (Amnesty International, 2015).

Dynamic Surge

The current research found that surge of displaced people to the shelter facility is very dynamic. After both the shock, population surge in the shelter facility reached the highest, then reduced to a level with a sharp decline, and then continued as almost constant line. Population head count in the shelter facility also varied with daytime and nighttime. During daytime, population head count was higher than the nighttime. This trend was found dominant immediately after two big shocks on 25 April and 12 May. With time this trend vanished and daytime and nighttime population became almost equal (Figure 02).

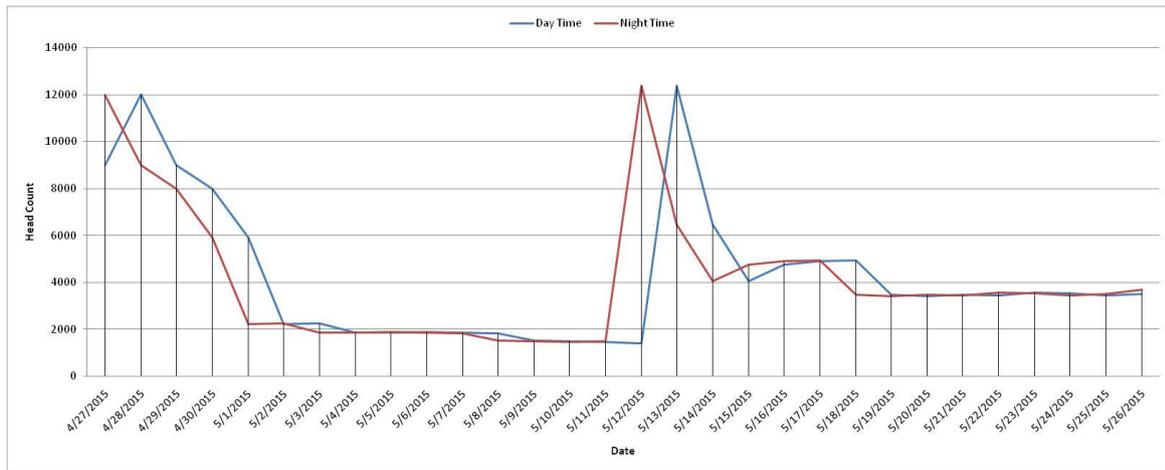


Figure 02: Dynamic changes in population with days and times

Head count of population in shelter facility also varies with demography. After the first shock, female head count was much higher than the male. After the second shock, male and female became almost same with a reduction in female and addition in male head count. The number of children showed the same surge in both the events. After the first shock, on 1 May, number of population reached a stable condition. After the second shock, another big surge came to the shelter. As usual, it started reducing from the next day but came to stable level that is much higher than the first one. Again, it is also evident in the graph that after one month of the first shock there is a slight upward trend in the graph.

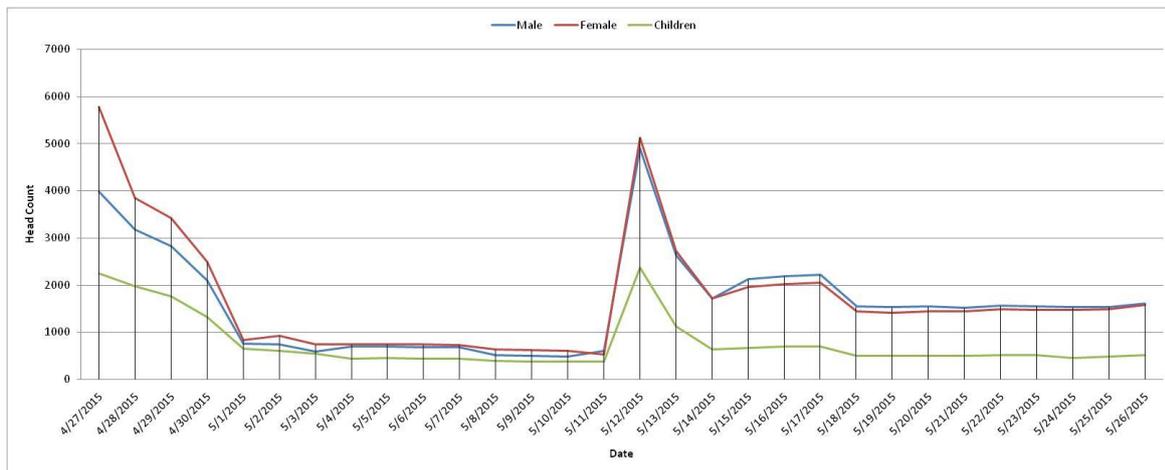


Figure 03: Dynamic changes in population with days and demography

Governing Factors of Surge

From the observation and communication with people in shelter facility, the research come to know that in addition with disaster damage many other social, demographic, economic, and available services from the shelter facility can considerably control the surge of displaced population in public shelter facilities.

After the first big shock, most of the people returned their home from shelter facility. The situation changed a lot after the second big shock. The proportion of going back home reduced. It could be due to increased awareness and fear about more aftershocks and potential risk.

Nepal as one of the poor countries with rapid urbanization trend, its capital Kathmandu also housed many slums. Slums environment can be characterized by poverty, lack of urban facility such as water, sanitation, food, health care, and so on. Urban emergency shelter facility can provide them better life standard than as usual. Emergency shelter facilities were providing prepared food, pure drinking water, international healthcare, and shelter (Figure 04). Such services in shelter facility attracted many from the urban informal settlements even though they were not true victims of Nepal Earthquake 2015.



Figure 04: Ratna Park Earthquake Displaced Camp in Kathmandu

Day-night variation of headcount in shelter facility is the reason of security. During nighttime, male members were used to go back home to secure belongings in their partially damaged house. After the earthquake, few attempts of robbery were recorded in the city; and it was not possible by the city police force to ensure security for all. Such situation forced the displaced people to secure their property by themselves.

The phenomenon of rural-urban migration was also noticed in figure 03. After the first surge, the number of people in shelter facility started going down as normal. After the second surge, the graph followed as the first for some days and showed a slight increasing trend. The numbers of male increased first then the female reach it. From the communication, the research found that this slight increasing trend might be the influence of rural-urban migration. Nepal Earthquake 2015 not only affected urban people but also rural areas. Many people in the peripheral rural areas lost their houses and livelihood. In such situation, the male member from the affected family came to urban area for shelter, food, and work. After ensuring the shelter and food in the shelter facility, they bring their female members.

Privacy and security for women and girls are another big issue in public shelter management. Disaster displaced people are not used to live in a very public conditions. From the figure 03, it is clear that even though number of male increased in the second big surge, but number of female reduced noticeably. From the observation and communication, the current research found that one of the prime causes of such phenomenon could be lack of privacy for girls and women in public facilities (Figure 05). The research also noticed that lack of security and available separate facility could promote gender-based violence in public shelter facilities.



Figure 05: Life of disaster displaced people at public shelter facility in Ratna Park

Residual challenges

Figure 06 illustrated the dynamics and challenges in urban emergency shelter management. Urbanization is an irreversible process (*Guterres, 2010*). Once people from rural systems enter into urban systems, they will never go back. People from rural areas migrate to urban areas for better life and livelihood. Rural-urban migration process can be fueled by disasters and ineffective disaster response in the rural areas. Inadequate supply of shelter materials, food, medicine and other basic needs in the affected areas increased the rate of movement of people from rural to urban. Initially they came to the city for food, shelter, and medicine. With time, they will spread in the urban system mainly in the informal settlements. It will add an extra pressure in the already overburdened urban systems in Kathmandu.

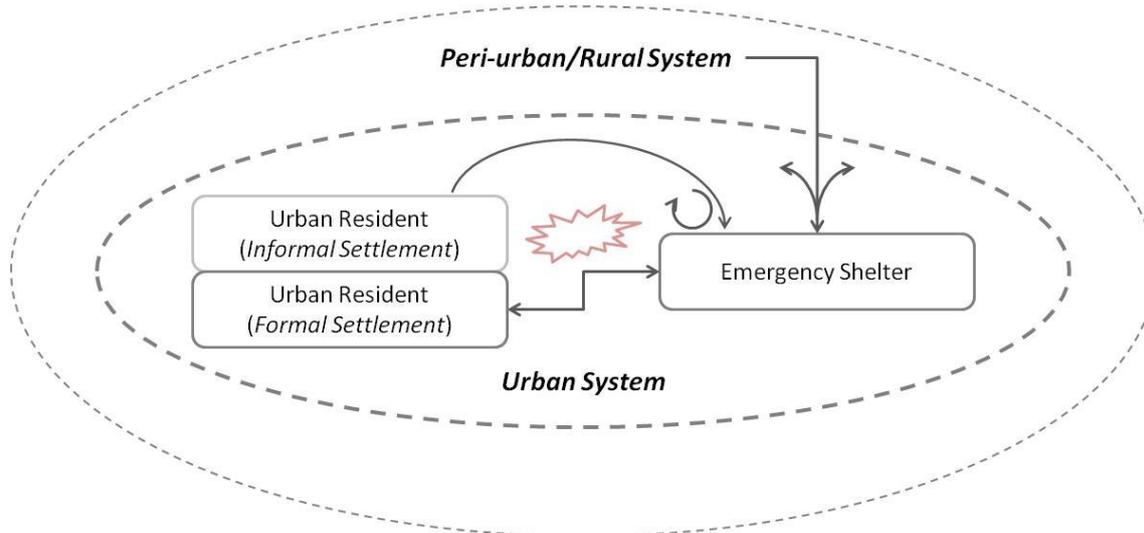


Figure 06: People surge model for urban emergency public shelter

Another big challenge in urban shelter management was its existing slums in Kathmandu city. Even though the earthquake did not damage slums directly, many people were staying in that shelter facility. Moreover, for the people from slums, services in public facility are not that bad in comparison with their daily practices. In addition, in the shelter facility all the services were free of cost. Such situation made the shelter facility more comfortable for secondary shelter seekers than the real victims.

CONCLUSION

Disaster triggered by earthquake is different in nature from other disasters triggered by flood or cyclone. Disasters from flood or cyclone mainly affect marginal community. On the other hand, earthquake disasters mainly affect the mainstream of a society the most. Hence, effective shelter management also needs to be aware about the needs and demands disaster displaced people. Traditional shelter management approaches are designed for irrespective of disaster dynamics and socioeconomic differences between urban and rural context. Moreover, shelter in the rural areas need to be given special care for food and medicine. Effective shelter management may reduce rural-urban migration after any big disasters. Shelter in urban areas mainly deserve security and privacy. Unlike rural areas, people in urban areas are mostly stranger for each other. People/families with conservative minds may not like to stay in shelter facilities not providing separate and reliable facilities for girls and women; the ultimate result may come out with more casualties and mortalities. Urban shelter management system needs to have some mechanism to support real victims. It could be possible if shelter facility is managed by the administrative authority having proper knowledge and documentations regarding its citizens and responsible for post disaster rehabilitation of disaster victims.

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