

Monitoring Tool for User Friendliness of Emergency Pit Latrine: A Case study of Tudikhel Camp after 2015 Gorkha Earthquake

Anjil Adhikari ¹, Nagendra Raj Sitaula ²

^{1,2} Department of Civil Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal

*Corresponding Email: adhikanjil69@gmail.com

Abstract

Soon after the Gorkha Earthquake of 2015, many people living in the vicinity of the affected area got detached from the basic needs. Very few people left their house to live in the camp while many people preferred living in front of their house. Wherever they lived, there was serious lack of basic needs. However, the responsible government agency, many NGOs, INGOs, CSOs, and philanthropists approached for quick response. Among many supports, latrine installation was one of them. It was seen that there were some important factors that affected people in Tudikhel to use the emergency pit latrine. For few days after earthquake, people do not consider these factors as refraining factors, but as time pass by, they get reluctant to use these emergency latrines.[1] There are different choices among people of different age/sex/tribe etc. and to consider all the factors in case of emergency may not be feasible. This study is focused on giving a prioritize rating to the factors that affected the people's acceptance to the installed emergency latrine and develop a monitoring tool for emergency pit latrine installed during disaster in Tudikhel camp. Out of 5000 people living in Tudikhel camp, 165 People were taken for a sample survey. The original population of the area was hard to identify as the there was a huge floating population. Out of 165 samples taken, the populations to be surveyed were randomly selected giving each camp a number and selected randomly. Through Focal Group Discussion, five major indicators each with five different sub-indicators were identified and questionnaire was developed based on the indicator. Security, Gender Friendliness, WASH access, Material used, Latrine Condition, and Social Structure were the major indicators that affected people willingness to use the latrine. Along with the monitoring questionnaire this research develops a monitoring tool which is measured from the weightage of the indicator calculated after ranking them in ascending order as per the score obtained. The main output of the research is that it develops weightage for each indicator through the Likert Scale. A tool is generated which gives a quantified value of user-friendliness of the latrine. The value between 0 to 0.54 is regarded as unacceptable quality; value between 0.54-0.68 is regarded as the average quality and the latrine with the score more than 0.68 is acceptable by the user. With the tool, one can easily quantify the user friendliness of the latrine and inform when the emergency pit latrine during emergency needs maintenance or replacement.

Keywords

Emergency Pit Latrine –Latrine Monitoring Tool – Gorkha Earthquake 2015

1. Introduction

The Gorkha Earthquake of April 25,2015 (11:56 am local time) of magnitude M7.8 from depth of 15 km with epicenter located at about 80 km west of Kathmandu, succeeded by another earthquake (M 6.8) of May 12, rattled the entire nation killing nearly 9,000 people, injuring 22,203 and destroying 893,509 houses.[2]

The Ministry of Home Affairs reported that at least 35 of the 75 districts of Nepal have been affected while they prioritized 14 of those districts as particularly affected. The most affected districts were Gorkha, Dhading, Rasuwa, Nuwakot, Kathmandu, Lalitpur, Bhaktapur, Kavrepalanchowk, Dolakha, Sindhupalchowk, Sindhuli, Makawanpur, Ramechhap and Okhaldhunga and other 31 districts affected to varying extents[2]. Along with the disaster and its impact, the substantial lifelines were affected likewise.

The important basic needs like shelter, food, water, sanitation, hygiene, security were impacted severely. Roughly, 70 percent of damaged houses had its latrine destroyed. Poorly built latrines had collapsed and those built inside the houses were not in operation as people feared to use it. Many numbers of water supply schemes were impacted increasing the degree of vulnerability to extremely high. Every dimension of basic needs was affected.

Government had allocated 83 open spaces[3] in the vicinity of Kathmandu Valley to establish camp in case of disaster. Against the assumptions, none of the open spaces, except Tudikhel, was in operation as people preferred living in front of their own house rather than going to camp few hundred meters from their house. Many different cluster groups, NGOs, INGOs, CSOs, government stakeholders responded with different support. This was one of the biggest disasters to respond for every stakeholder in Nepal. Among different supports made, sanitation support was one of the important supports. The cases were different in different location, but this research is primarily focused on the people living in the Tudikhel camp.

Soon after disaster at least 15,000 people were in the camp site, but by the time the research started, on June, 5000 people were in the camp site. There were 137 camps that were facilitated with 47 latrines and 69 hand washing units. Fourteen thousand liters/day of water was being supported through trucking and many unrecorded volume of jar water were supported by different organizations. The numbers kept fluctuating. There are two major cases in case of Tudikhel camp that made supporting an emergency latrine quite a trouble. The first major issue was all the people who were residing in the Tudikhel area were from different regions of earthquake affected area. They seem to have less feeling of ownership. They had less feeling of intimacy and co-operation. The second issue was lack of pre-study on basic user acceptance of the emergency support. This opinion was shared by one of the army personnel who often found it difficult to find a sense of co-operation during a lag time of emergency. Although people who were living near to their house had an option while those who were living in Tudikhel, far from their home, had no other choice then using the emergency latrine installed there. Despite several flaws in the emergency latrine, people used it for a while but

later tend to have several complains over it. There are several hidden factors that motivated or de-motivated to make the use of Emergency Pit latrine. Until and unless the entire beneficiary do not find it easy to use the latrine support, installing of latrine may not be a supportive act. If there is a basic understanding of which factors seem to be more important and which is less, if compared, can be a robust guideline to introduce user-friendly emergency sanitation support in Nepal in case of earthquake.

Installing less user-preferred latrine cannot stop Open defecation. Open defecation also increases the probability of another major outbreak of disease in camp developing extra pressure on health camps. People living in the camps do not have alternatives than open defecation. The condition of latrine is not questioned at early stage, but as the days' pass, the IDPs are very much concerned about the quality of the sanitation unit[1]. If the local beneficiaries do not accept the installed latrine, it will not be effective enough to demote people to open defecation [1]. Thus, this research will try to figure out the core main factors that can stop user from using latrine. However, the result of the research does not mean that the low-scored factors can be ignored. The low-scored factors only mean that the population may not disagree use of latrine reluctantly if the particular factor is of less quality. Furthermore, the findings of this research will help in making a better monitoring plan in sanitation support in case of any other disaster. Learning from Tudikhel camp on this earthquake can help the response team as well as government in understanding the basic things that this year response lacked and prioritize it for better response in camps in case of a disaster in future.

This research was conducted during the emergency period and had some limitations.

1. The research is limited to the urban sector in an open camp, but the factors might still be relatable to those in rural areas to people living close to their house.
2. It is not clear about the location of the beneficiaries — whether they are from city or rural area.
3. Only people living in camp are chosen
4. All responders have not answered all the questions.

- All responses are contextual. The lacks in the Tudikhel area is quoted as higher problem while the factors important which are well managed are rated less even though if they are important in some cases

2. Methodology

Different Primary as well as secondary data was collected. Primary data were collected from FGDs, Field Observation, KI, Questionnaire Survey, and Telephone conversation while secondary data were collected from articles, documents and reports. For the research, the Tudikhel area was taken when the population was 5000. The camps were numbered from starting from 1 to 165; repeating the camp after no. 137. A random person selection was done through lottery of camp number. Number of males and females were selected ensuring that at least 33 percent of female representation was available in the survey.

For determining the sample size, the following formula was used.

n = required a sample size

$c^2 = 3.84145882$ = Chi-square at 1 D.O.F

$N = 5,000$ = Population size

$ME = 7.5$ percent = Desired Marginal error (expressed as a proportion)

$P = 0.5$ percent = Population Proportion

By calculating from formula, we have

$n = 165$

$$\text{Sample Size}(n) = \frac{X^2 \cdot N \cdot (1 - P)}{ME^2(N - 1) + (X^2 \cdot P \cdot (1 - P))} \quad [4]$$

Through FGD, problems were identified to link those problems with the indicator mentioned in the Sphere. As per those indicators and sub-indicators, questionnaire was developed which was then used to do survey among sample population. All the indicators are sub-divided into five more sub-indicators according to which questions are formatted. The survey was done and each participants were asked to rate the factors on the basis of priority. Every sub-indicator can earn at maximum “5” marks and at minimum “1” marks

through five point Likert scale. After this, each indicator will be ranked as 1, 2, 3... depending on their weight corresponding to the highest weight value.

3. Findings and Discussion

Table 1: Rank and corresponding weightage of the indicators

S.N	Factors	Weightage: $(1+n-r)/(sum)$
1	Presence of Bucket/Mug	0.0645
2	Foul Smell	0.0624
3	Need of Disable Friendly Latrine	0.0602
4	Water Quality for Sanitation(Turbid)	0.0581
5	Characteristic of location of latrine (ex: bushy area or wet area)	0.0559
6	Presence of flies and mosquitoes in huge amount around latrine	0.0538
7	Separate Hand Washing unit	0.0516
8	Presence of Door Locker	0.0495
9	Gender Separated Latrine	0.0473
10	WASH committee Status	0.0452
11	User Sharing Latrine	0.0430
12	Layer of Tarpaulin (Single/ Double)	0.0409
3	Condition of Tarpaulin	0.0387
14	Material used in Slab	0.0366
15	Presence of Light	0.0344
16	Distance from latrine to water access point	0.0323
17	Material used in Door Lock	0.0301
18	Drainage System in Toilet	0.0280
19	Door Opener in Appropriate Height	0.0258
20	Direction of Latrine location	0.0237
21	Soap Sharing Case	0.0215
22	Distance from the camp	0.0194
23	Material used in Super-Structure	0.0172
24	Tribe/Ethnicity to share	0.0151
25	Material User in making Door	0.0129
26	Condition of Pit	0.0108
27	Social status	0.0086
28	Distance between Male/Female Latrine	0.0065
29	Amount of water available to use for sanitation	0.0043
30	Framing Structure	0.0022

As from Focal group discussion, the prime indicator/factors that were affecting the user in Tudikhel were Security, Gender Friendly, WASH access, Material Used, Latrine Condition, and Social Structure.

Out of 165 people, 33.33 percent of population represented young people of age group 16-30 years. Also, 45.45 percent of people represented people of age 31-50 years. Similarly, 21.21 percent of people represented the one with age more than 50. It was found that out of total population, 72.12 percent of people are married and only 20 percent of populations are unmarried. Around, 5.45 percent of people are widowed and 2.42 percent are divorced. Out of the total population, at least 25 of the married people were of age 16-30 while 30 of them were unmarried. Out of 75 people who were of age 31-50, 68 people were married, one of them was unmarried with 4 of them divorced and one remained as widowed. While out of total population of age 50 and above, 26 were married, 2 unmarried, 5 widowed, and 2 divorced. On doing survey over them, a brief statistical data was obtained which was then compared.

Along with the following weightage received from the survey and research, a tool is developed to generate the user-friendliness of latrine

Table 2: Score of Indicators in field

Indicator	Score of Indicators in Specific location		
	low= 1	Med=0.5	High=0

The finalized indicators from the research will be used as the indicator and they will be given score 0, 0.5 and 1 as per their status in the field.

The final user friendliness of a particular latrine will be calculated with the formula:

User Friendliness of the latrine (U) = Sum of
(Weightage of indicator × Score of Indicator for that factor)

4. Conclusion

All the thirty indicators play important role to ensure the acceptance of the emergency pit latrine. However, all

the indicators do not impose same level of priority. Among five major indicators, Condition of the latrine plays the most significant role in driving the user from using it. WASH access is the second most important indicator that can cause user to retract from latrine use. The third important indicator is the security and then the gender concerns being the fourth important indicator. The fifth important indicator is the material used in the latrine. The weightage of the indicator simply is the guidance to the priority in which intervention should be made, but doesn't mean ignorance of any indicator. The value between 0 to 0.54 is categorized as Red (unacceptable), 0.54 to 0.68 can be categorized as Yellow (average-acceptable) and if the value is above 0.68, it is categorized as Green (highly acceptable). As the value of U reaches nearer to 0, the latrine needs to be maintained or replaced.

Table 3: Criteria for latrine acceptance

Score	Status	Color
0-0.54	Unacceptable	Red
0.54-0.68	Average	Yellow
0.68	Acceptable	Green

References

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