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**Post-Earthquake challenges to access to Water, Sanitation, and Hygiene (WASH) services in the daily life of people in rural Sindhuli, Nepal, and its impact on girls and women.**

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## Summary

This dissertation is an attempt to explore how the WASH services in Bitizor, a rural village located in the Sindhuli district of Nepal, were impacted by the devastating earthquake of 2015. The study also tries to see the adverse effect faced by girls due to the lack of WASH services in schools in the aftermath of the earthquake. Further, it also seeks to explore how the cultural taboos and stigmas associated with menstruation jeopardize the lives of girls and women residing in rural areas.

I have reviewed the previous literature on impacts of the earthquake on WASH, challenges faced by girls and women- menstrual taboos and practices, menstrual absorbents, Menstrual Hygiene Management (MHM) that act as a contributor to school-girls absenteeism in rural areas of low-income countries.

As a qualitative research, the data was gathered mainly via interviews in the mid-eastern part of the central Nepal- Sindhuli District (Two villages of Bitizor). I have done 15 semi-structured interviews, out of which 6 were school-going girls, 3 medical personals, 2 local politicians, and 4 villagers.

The finding of the research shows how a lack of WASH services impacts girls and women after the earthquake. The evidences suggest that the girls and women experienced additional difficulties due to socio-culturally constructed myth and taboos during their menstruation. They had to go through stigmatization, shame, embarrassment as menstruation is considered as “the topic of silence.” However, social perceptions have changed to some extent in the present situation- during the time I had an interview.

Keywords: Water, Sanitation and Hygiene; Gender; Menstrual Hygiene Management; Stigmatization; School-going girls; absenteeism; Menstruation; absorbents.

## **List of abbreviation**

WASH	Water, Sanitation and Hygiene
NGO	National Governmental Organization
INGO	International Governmental Organization
MHM	Menstrual Hygiene Management
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization
JMP	Joint Monitoring Program
ACAPS	The Assessment Capacities Project

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# **1. The Earthquake in Nepal and the aftermath's impact on Water, Sanitation, and Hygiene Services**

## **Introduction**

Clean and fresh drinking water and water for all the hygienic practices and sanitation work for all the individual is the essential part that everyone wants. However, lack of infrastructure, unfavorable climate conditions, varying landscapes, and poor economics in the developing world, millions of people die every year from the disease associated with insufficient access to Water, Sanitation, and Hygiene Services (WASH) (Benyus, 1997). National and international agencies are worried about the impacts of insufficiency of access to WASH services and thus, collectively working for improvement by training the volunteers for an awareness campaign and mobilizing them to aware people residing in a rural area about the importance of hygienic practices and sanitation (Cairncross & Feachem, 2018).

Lack of access to Water, Sanitation, and Hygiene has been one of the significant issues in most of the rural areas of developing and underdeveloped countries. Though there are various advances in all the technologies, medicines, and sciences, the majority of the South Asian people still lack access to improved water supply and proper sanitation, which is one of the world's major issues. The estimation of the joint monitoring program for Water, Sanitation, and Hygiene show that more than 1.1 billion of the world population are deprived of the improved water sources. Over half of the population, i.e., 2.6 billion world population from the developing world lacks access to improved sanitation (WHO, 2004).

The majority of the population in Nepal is still deprived of access to improved (clean) water, sanitation, and hygiene. After the devastating earthquake of 2015, access to Water, Sanitation, and Hygiene was even worse, i.e., some water sources dried up, and there was the formation of other new water sources in different parts of Nepal. Though various governmental, as well as non-governmental organizations, are actively participating in improving WASH services at the community level and in eradicating the WASH problems and WASH borne disease, the progression is still to the minimal level due to the geographical, political or social barriers. The same problem is there in parts of Bitizor, which is going to be the area for my research study.

There were some places where challenges arise on people after the earthquake due to lack of access to WASH services, and the girls were more to suffer.

## **Motivation for the study**

After the powerful earthquake and its frequently occurring aftershocks, I, with my family, neighbors, and my friends, had been displaced from homes. It was on Saturday daytime when I was trying to sleep and unexpectedly felt the shaking of the entire house. I ran out of the house, and suddenly a strong force pushed me down to the kitchen garden. Our homes were collapsed, and we took a temporary shelter nearby open field. As I was residing in the village, we could manage the local materials to make a tent for us as well as help others to build theirs. I saw my town were partially or entirely ruined, which created havoc among us. And the very same day, from the local government agencies, there was the distribution of a variety of materials ranging from food, blankets, tents, and medicines.

Later, as the national and international news started to cover the story, people were given additional materials focusing on the unmet needs of children, girls, and women. Various programs were implemented by governmental and non-governmental bodies prioritizing the unmet needs of water, sanitation, and hygiene (this includes lack of sanitary pads, toilets, and care during the pregnancy). All the challenges that I faced during and after the earthquake led me to question the way girls and women's needs were not addressed. Soon after, I got an opportunity to work on the program related to "Lack of access to Water, Sanitation and Hygiene" as a "Hygiene Facilitator." There I could see the impact of WASH on girls and women as I had to study the village and explore their experience after the earthquake.

Thus, I decided to conduct the interviews focusing on identifying the potential vulnerability of girls and community people and the factors associated with it after the earthquake.

## **Research Questions**

My research is based on qualitative semi-structured open-ended interviews, providing some level of flexibility in the interview process, and allowing for open-ended and follow up questions

based on the types of responses produced from the informants. This method allows for an explorative approach. In my research study, I seek to explore the following research questions:

1. What WASH challenges do girls and women of Bitizor experience after the earthquake of 2015?
2. How does the cultural practices of menstruation impact the lives of girls and women, and how did these cultural practices fare in the aftermath of the earthquake?
3. How does menstruation affect schoolgirls' absenteeism, and how did WASH facilities influence school attendance after the earthquake?

## **Background**

### **The 2015 earthquake in Nepal**

According to the data collected by Cook, Shrestha, and Htet (2016), a devastating earthquake on 25th April 2015 with a magnitude of 7.8 hit upon central Nepal with the epicenter around Barpak, Gorkha district. The powerful shock and aftershocks had considerable effects in over 30 districts of Nepal, including the Sindhuli district. Official data shows that the total loss of lives was 8,969, with 22,321 injured and 602,592 houses fully devastated. It also estimated that aftershock leftover 60,000 people displaced, followed by economic losses of over 9 billion USD.

The damages also encompassed water supply, hygiene, and sanitation services that resulted in the people to have unhealthy behaviors and attitudes. The disruption and dysfunction of the water supply and wastewater treatment adversely affected not only the health standards for women who take on the responsibility of 75 percent of all the household water management but also impacted the economic activities (Government of Nepal, 2015).

The earthquake had damaged approximately 46 percent (i.e., total 11,288) of all the reliable water supply systems in the severely affected districts of Nepal (Hall et al., 2017), which includes Dhading, Dolakah, Gorkha, Sindhuli, Kathmandu, Lamjung, Nuwakot, Rasuwa, Sindhupalchowk districts. Correspondingly, around 220,000 (1.1 million people) households were affected by the earthquake. Since there was availability of small spring sources in some of the affected districts, it was comparatively more accessible for the people to have access to primary drinking water supply (Hall et al., 2017). On the other hand, the area without access to drinking water sources

and destroyed latrines along with the destruction of houses had made people suffer a lot. Also, without the access of water, there was no hygiene possible, which had various consequences on lives after the earthquake.

### **Earthquake and the effect on Water, Sanitation and Hygiene (WASH)**

Earthquake associated with frequently occurring small and strong aftershocks has disrupted water supplies, sanitation facilities, and hygienic practices of individuals, revealing the affected people to substantial health risks. Various water points have been damaged or destroyed due to the earthquakes and aftershock in the affected districts with the risk of contamination of some of the water sources precisely where the water safety has poorly been obstructed. Also, disturbance on WASH was for several reasons, ranging from discontinued electricity supply- for pumping- to the damaged reservoirs. In this, the access for improved WASH services has haphazardly affected the people, especially residing in the rural area. Much reparations were done to WASH facilities and the water sources throughout the affected areas. There was a negative impact on the well-being of individuals and a community due to a lack of access to clean water combined with poor living conditions and hygiene practices (Zou, Shrestha, & Shrestha, 2017).

During emergencies or disaster conditions, the provision of access to adequate safe drinking water and water for maintaining hygiene and sanitation plays a central part in crisis response. Access to WASH intervention, such as the availability of toilets, handwashing before food and after toilet, water purification (chlorination, and filtration), menstrual waste management, and piped line water is one of the major issues people are struggling for after the earthquake in many rural villages. Some water sources were dried up, some were damaged, and some were contaminated, and sanitation and hygiene materials were lacking. As Water, Sanitation, and Hygiene were interrelated, lack of one factor adversely affected another. Despite different I/NGOs and governmental bodies were actively working for the people to have access to clean drinking water, improvement was less. The people in the rural and less developed areas were the principal victim of the earthquake; also, they were the ones to lack the facilities provided. There was inequality of services offered because of the most prominent mountains, no proper roads/airways, heavily rainy monsoons.

## **Impacts of WASH on Menstrual Hygiene**

Access to WASH services is an essential component of healthy communities and has a vital and positive impact on Menstruation. And the term WASH represents all the entire sets of interventions, including handwashing with soap, water quality and quantity, proper sanitation, and personal and environmental hygiene. In developing countries like Nepal, by the existence of cultural interpretation and taboos, many girls and women are suffering and are excluded from equally or partly participating in community or family life. Girls need special care and love during menstruation and need to be aware of the consequences of it if not taken care of about hygiene during menstruation. But, after the earthquake on 2015, it was more challenging for girls to hygienically and confidently take care of themselves during menstruation as they have poor access to adequate WASH facilities, or they cannot get access to appropriate sanitary materials because of financial or supply issues on rural areas (Mahon & Fernandes, 2010).

Without adequate water and sanitation resources, girls are not able to manage their menstruation safely, hygienically, and with dignity and will be doubtful to use the facilities if the privacy is not guaranteed. Thus, to manage it efficiently, adolescent girls and women entails proper access to WASH services, inexpensive and appropriate menstrual hygiene materials with adequate disposal services. They also need to have a supportive environment where they can manage their menstrual hygiene without any awkwardness or humiliation. WASH-related issues, along with social problems, had made the majority of girls stay home during their menstruation instead of having to manage their periods at schools or actively participating in other activities. The girls do attend actively on other work and go to school on normal days, but worrying about the leakage, odor, and discomfort, and so on during menstruation, they try to keep it secret (Adams, Bartram, Chartier, & Sims, 2009). Along with inadequate facilities, inadequate waste facilities had made more challenging for girls in rural areas during their menstruation. So, to avoid absenteeism rates or the humiliation, information on good practices during menstruation needs to be focused.

## **Site Selection**

The study was conducted in a rural part of the Sindhuli district, i.e., two different villages of Bitizor, namely, Bhanjyang and Dharapani. These areas are located in the mid-eastern part of central Nepal. It is mountainous with deep valley separating the villages. Houses in these sites

were mainly constructed from wood, stones, and clay. The topography of the village had made the study site as a rural and underdeveloped even though being close to the Capital (Kathmandu). Almost all people residing in these villages are more or less reliant on agribusiness as their leading source of income.

As the river separates both the village, it is common that there is a flood event during rainy seasons, adding barriers for traveling to the cities. The flood lasts mainly from June/July till September. Going through two different villages in Bitizor, the access to water services is very high in one community and on the other community has drought as the impacts of the earthquake. Water supply in the village's changes for some people during the rainy seasons. And the types of toilets in their homes were a standard squat pan or water seal single pit without the flush.

Though Dharapani had enough water sources, people still lack sanitation and hygienic practices. The access to Sanitation on both the villages were limited. And, on community schools, water and sanitation facilities on average were inadequate. The majority of people were still residing in temporary shelters, and some had just started to rebuild their shelters. And those had negative impacts on the lives of girls and women, especially during menstruation as there were several taboos and myths, and those were rarely discussed. Also, it was not uncommon that the toilets were going out of operation either due to water shortage or destruction made by earthquakes. Various governmental organizations, as well as non-governmental organizations, including the local NGOs, figured out the problems in Bitizor during the survey taken by local bodies to find out the adversely affected area during the earthquake. After which the organizations start to mobilize the projects focusing on the need for access to WASH services to the people, and thus numerous efforts were made at local, national, and international levels through formulating the plans and policies.

After the earthquake of 2015, I was in Bitizor as a hygiene facilitator with our other team for the reconstruction, rehabilitation, and for the awareness campaign on WASH services. There I saw how the lack of WASH services influenced their everyday lives. Houses and other resources needed to be rebuilt. There were lots and lots of reconstructions of homes, temples, schools, hospitals, toilets, offices, drinking water tap. And, this needs a lot of human resources and water sources. But, lack of skilled workforce is the main issue to carry out the developmental activities in that place as a male member of the family and youngsters were forced to leave their village

either in search of a good education or better life standard and job opportunities to cities and/ or migrating abroad. There are either old aged men or the newborn's boys who are dependent on their parents or someone for their living, and the majority are girls and women population on the village devoted to agriculture for their livelihoods.

According to the community leaders, there are mostly Dalit and back warded people residing in Bitizor, which adds another issue in the developmental activities. The people are back warded in the sense that they are financially unstable, and they have a lack of education and other infrastructure like proper roadways, electricity. And while talking about “Dalits,” they are at the bottom line of the Nepali caste system, and those communities are on the border to be excluded, neglected and discriminated in the society. These people are also called the untouchables or lower caste on the Nepali hierarchy, and these people are less developed from the other ones with less education and other basic needs. These communities are more susceptible to natural and human-made disasters because of their negligible societal position. According to the reports of ACAPS (2015), Dalit communities in Nepal are especially vulnerable to risk. They are victimized against in terms of choices of habitation and access to the services, which results in “Dalits living in extremely vulnerable places” and having been “analytically excluded from assistance and reintegration attempts following the environmental threat.”

Water, Sanitation, and Hygiene (WASH) poses significant challenges, and an effective and timely response is essential. The government needs to take into consideration the gender issue when providing support in the area such as prioritizing clean water, Private and safe latrines, and reserved bathing places and menstrual hygiene management materials for women and girls.

### **Bhanjyang**

Bhanjyang land is very barren during the dry season as it has high mountains, and people do not have access to water. The availability of water sources was diminished after the devastating earthquake in 2015, which left the people with no choice except walking down the hills even for a liter of water. Women and girls have to spend most of the time in fetching the water for their livelihood. Individuals of Bhanjyang had encountered intense challenges in getting access to improved WASH services, as water supply systems were damaged, and the spring sources were dried up living no choice for the people. The people have to walk for around 500 meters for a bucket of water. Water supply changes for people during the rainy seasons, i.e., they collect the



rainwater for basic household and agricultural use. As groundwater or the spring water was not available, it has to be pumped from the bottom of the valley to supply the community people. While my team and I were working on the community, we also tried this alternative, but then there was a debate going on regarding the water sources as the farmers in the lowest part of Bhanjyang have used the water sources for irrigation. Other people at the top of the hill want it to be used as a reservoir for drinking water. The water was not enough for both community and the people on the top of the village were not able to afford the physical maintenance as well as the cost for the pump system and so, we had to drop the idea.

### **Dharapani**

Dharapani has a broad landscape with cultivated land and a somewhat developed community than Bhanjyang. There were not any destructions on water sources except some fixable pipeline's damages during an earthquake. The water supply system was sufficient to cover the needs for house to house pipeline services, and thus the majority of people in the community had private pipeline facilities. Water supply in Dharapani also changes during rainy seasons, i.e., the water sometimes comes mixed with the mud in it.

Going back to the rural part (Bhanjyang and Dharapani) of Nepal, different I/NGOs, has carried out the awareness campaign through the home to home visit and conduction of meetings with Female Health Workers, politicians, and the group meetings and discussion with the people residing in the village. They had also used multimedia, i.e., posters, hoarding boards, and programs on radio or tv, to provide the knowledge of the impact of inadequate WASH, including techniques of handwashing, water purification, and maintaining self-hygiene during the disaster. Reduced availability of toilets due to destruction during the earthquake had particularly affected the girls and women.

### **Everyday challenges due to lack of access to WASH services in Bitizor**

As Nepal is a landlocked country, there were various challenges people faced during and after the earthquake due to complicated geology, unfavorable climate condition, and so on. In addition to this, lack of accountability, rise in corruption during disasters hinder in receiving and getting the services. "Rise in corruption rates during disasters" means tools that were supposed to be distributed among the real victims were distributed to the well-known wealthy individuals of the

community. The worst affected places were the high mountainous areas. Hilly regions are devoid of land transportation. The lack of availability of proper roadways adds another challenge to the internal transportation so, the local, governmental, as well as international bodies were not able to reach too many rural places during the crisis. Landscape of Bitizor- the most prominent mountains, the most extensive valleys, and the heaviest rainfall during monsoon has made it too much challenging for people to get access to clean and safe drinking water, and good hygiene and sanitation. Also, low prioritization of safe and clean water, sanitation, and hygiene inhibits both maintenance and expansion of services.

Dharapani landscape was broad, and there was access to transportation, which had made people get access to the reconstructions and rebuilding of toilets, houses, and water supply systems (Not to exclude the fact that transportation was impossible during monsoon due to lack of bridge on the river and improper roadways). Whereas Bhanjyang people had to face obstacles as there were high mountains, and people had to walk for approximately 1 to 2 hours to get access to roadways to bring the construction materials. And this had made people suffer a lot as some toilets were partially damaged, and some were entirely demolished, and thus people had to go to defecate openly. Also, the community people and the school going children prefer open defecation rather than to defecate on the toilet as there was no availability of water, so the toilets were full of flies and bad odors at Bhanjyang.

Issues with water have arisen on Bhanjyang as Bhanjyang water sources were dried up as the effect of the earthquake. So, as the alternatives, people used were to fetch water traveling longer distances, which is essential for both domestic use and agricultural use. The girls and women of the village have to struggle hard to make availability of water for everyone. As water, sanitation, and hygiene are interconnected to each other, and it is impossible to have proper sanitation and hygienic practices without water availability. Different governmental, as well as Non-governmental bodies, were worried about the sufferings of people so, they tried to fix the problem through the lift system. This did not work out as there was a lack of electricity, and using the generator cost high, and people from the village are not able to cover the cost.

Various NGOs and INGOs (including Caritas Nepal, World Vision, WaterAid, Concern worldwide, Newah, WASH committee, and some local NGOs) worked together as a cluster to improve safe drinking water access, personal hygiene, and household and community sanitation

after the earthquake. The needs for WASH that constitutes the provision of safe water, toilet, and hygiene promotion activities at the family level, community level, for health institutions and schools were identified. Thus, Hygiene Promotion at the community level was undertaken instantly as soon as possible to protect and promote health and to prevent the incidence of outbreak of disease, including water and vector-borne diseases. Safe water and food handling were also promoted, and hygienic items and kits were also provided centering on improving the sustainable decline in the risk of WASH borne consequences in the affected community.

Furthermore, Hygiene and Sanitation campaigns, water treatment procedures, distribution of hygiene kits (sanitary pads, soap, and other disinfectants) and sanitation and hygiene improvement had improved the situation to some extent. Households and the community people were trained, made aware of the consequences of Lack of access to WASH services, and mobilized in rebuilding the WASH services to make the whole village open defecation free, and easy access to water services in both the communities (Bhanjyang and Dharapani). Dharapani project was successful as there was availability of water sources and the needed raw materials for the construction of hygiene services. On the other hand, it was opposite, i.e., the lack of access to roadways added barrier on getting the materials for construction and dried water sources poses another barrier on access to drinking water. This made the people live more challenging as they were left with no options without suffering from the consequences of WASH.

## **2. Previous research**

This chapter gives a review of existing literature related to Impacts of lack of access to Water, Sanitation, and Hygiene, in particular the unique experiences of women to disaster preparedness, disaster period, and post-disaster response. Here, the literature explores the ways women are vulnerable to disasters. This may include the gendered role in the household, their physical differences with men (needs during menstruation). Additionally, while discussing humanitarian relief materials, the literature shows a great need for gender sensitivity.

Furthermore, this section looks at the issues of girls and women during and after a disaster and how confronting the issue of menstrual hygiene is necessary when dealing with Water, Sanitation, and Hygiene Services. To properly address the problems, we need knowledge and understanding of cultural beliefs and taboos, as well as an understanding of women's position in society. It is very crucial to carry out all the past and current evidence, particularly in rural and low economic settings, to contemplate the project within the broader research field. Moreover, the overview of the literature below is broken down thematically, and the selection of studies is based on search in databases such as Google Scholar, Research Gate, and Medline.

### **Cultural belief and taboos related to menstruation**

Menstruation, which is the most fundamental change that every girl in the world experience during the transition phase to womanhood, is still linked with delusions and taboos practices that adversely influence the well-being of the girl or woman. A variety of myths and taboos related to menstruation has surrounded mainly across the South- Asian world, which has caused unpleasant and painful experiences upon millions of women and girls. And the experiences are more during the time of disasters. These taboos not only violate women's rights but also cause awkwardness, disgrace, and lower self-esteem among the girl during the transition into adulthood, ultimately affecting the academic attendances, performance, and social interactions (Kaiser, n.d.).

In Nepal, menstruation is mainly referred to colloquially as “mahinabari,” “Parasareko” (monthly occurrence), “Nachuni bhako” (no touching). In some parts, it is also referred to as “Kapal nuhauni” (hair bathing). People think menstruation is shameful and disgusting to share, so they mainly deal in silence- i.e., the girl is expected not to discuss with anyone and cope up in silence,

even if she is encountering pain or some problems during menstruation. And this silence can sometimes also result in total negligence about the growth and changes in the body of a girl brought by menstruation to the girl entering puberty (Boosey & Wilson-Smith, 2014). While menstruation and problems related to it are not widely discussed, it may cause disgrace encompassing the personal health and hygiene of an individual. These issues can ultimately create a significant barrier for safeguarding the assistance for positively practicing of Menstrual Hygiene Management at the community level. Furthermore, the practice of isolating the girl and women in the stable or the hut of an animal throughout their menstrual period which are not appropriate to their poise, well-being and special need during menstruation is still witnessed in different rural Nepali community (Dhingra, Kumar, & Kour, 2009). There is even a misconception in Nepali society that if the women perform a ritual called “Rishi Panchami” annually in August and purify themselves with water, prayers, and fasting in the riverside, then they will be freed from the “sins” they committed while menstruating (Hodal, 2016).

The links to religious philosophies are strong and are differently followed in each religion. In Muslim society, they believe that menstruating women should not go to the mosque, touch the Qu’ran or fast during Ramadan (Fetohy, 2007). On the other hand, prohibition from attending the religious functions, touching family members (especially men who have endured the holy rites of “Bratabandha”), as well as entering the kitchen and touching kitchen items, livestock, certain plants, drinking water resources is seen in Hindu society. Menstruating women are considered “impure” or “polluting” holding negative views and thus are not permitted to cook (Robinson, 2015). In addition to the cultural restrictions and practices associated with menstruation, there is a practical challenge to those women living in areas where there is lack of access to Water, Sanitation and Hygiene, access to sanitary pads as well as privacy and safety to change and dispose of the pads (Alperstein, 2017).

The myth and taboos about menstruation are present all over the world. And, in those societies where men are considered superior, these taboos and cultural restrictions only propagate inequality (Garg, Sharma, & Sahay, 2001). Below are the examples of menstrual restrictions and taboos placed on girls and women in different countries :



Figure 1 : Varying degree of Mensural Restrictions (Sarah House, Mahon, & Cavill, 2013)

## People's understanding about menstruation

Lack of knowledge and awareness is the main issues the existence of cultural beliefs and taboos about menstruation. Every So Often, when health education is delivered, menstruation and MHM are neglected, and all the focus is on either reproductive issues or family planning (Sommer, 2011). The literature shows mothers and the elderly women are the primary source to transfer the cultural practice of menstruation to their offspring, whether in Asia or the middle east (Fetohy, 2007; Mahon & Fernandes, 2010).

In the rural part of the developing world, there is a culture of maintaining silence about the menstruation and its issues Dhingra et al. (2009), which leads to insufficient and inappropriate information regarding puberty and hygiene to be followed during menstruation to the adolescent girl. This may ultimately lead to faulty and unhealthy behavior during their menstrual period. Girls with poor personal hygiene and unsafe sanitary condition results in many girls to suffer from many gynecological complications (Shanbhag et al., 2012). Schools are an essential source

to get the detailed information about menstruation for both girls and boys. However, girls feel shy, guilty, and uncomfortable to talk about the menstruation openly and the majority of girls even held false conception about it as they were taught to believe the cultural practice about menstruation in a rural part of Nepal (Adhikari, Kadel, Dhungel, & Mandal, 2006). Adolescent girls who are poorly informed, less experienced, and uncomfortable in accessing reproductive health information and services may lead to inferiority complex and intense mental stress (M. M. Singh, Devi, & Gupta, 1999). As our traditional society discourages open discussion about the topic, this may sometimes result in adverse health outcomes (Allah & Elsabagh, 2011; Shanbhag et al., 2012).

Some researchers even advised information, including MHM, should be developed as a compulsory school program (Dasgupta & Sarkar, 2008; Nemade, Anjenaya, & Gujar, 2009). In addition to this, it is recommended that the teachers should be suitably qualified in delivering the session (El-Gilany, Badawi, & El-Fedawy, 2005; Porter, 1975). Sommer (2010) and Pillitteri (2011) proposed an intervention of educators migrating between schools to deliver a session separately for boys and girls, which would address the issues of embarrassment and guilt that could arise if the session conducted include both.

### **Absorbent used by menstruating women**

Most of the girls in the developing world use usable, reused, dry, and old pieces of cloth or sari, cotton cloth, or even a piece of mattress (S House, Mahon, & Cavill, 2012; Wilson, Reeve, Pitt, Sully, & Julious). But, for the western world, it is not the case due to easily accessible to a variety of products at a reasonable price (Sommer, 2010). Reusing of same cloth is not only unhygienic but can also cause embarrassment, along with the issue of blood leakage (El-Gilany et al., 2005), leading to feelings of shame and guilt. Crofts and Fisher (2012) noted that the increase in absenteeism rate is due to the unavailability of the appropriate product, including WASH services.

The women and girl in the rural setting are less aware on hygienic practices and has culturally lack of appropriate material for proper MHM material (Arumugam, Nagalingam, Varman, Ravi, & Ganesan, 2014; Sumpter & Torondel, 2013). In the low economic setting of Nepal, the

material used as absorbent may vary from reusable towel (a torn piece of dress of women and cotton fabric) to variety of MHM available under various commercial disposable product (Khanna, Goyal, & Bhawsar, 2005; Sebastian, Hoffmann, & Adelman, 2013; Ten, 2007). As discussed above, types of MHM material, absorbent used and cultural taboos during menstruation are accompanied by negative psychological and clinical results such as social isolation, increase in absenteeism rate, and even reproductive and urinary tract infection (Biran et al., 2012; Dasgupta & Sarkar, 2008; Davidson, 2012; Khanna et al., 2005; Ten, 2007). During the time of the disaster, the preexisting social taboos and restrictions and the materials used to manage the menstruation possess a greater challenge. The vulnerable group confronted with the disaster could worsen their physical and psychological well-being with additional stress.

Girls from a more privileged background often use the disposable pads (Umeora & Egwuatu, 2008). And since the disposable sanitary pads are suitable to use and absorb the blood flow effectively, many girls prefer to use (Crofts & Fisher, 2012; Sommer, 2010). However, the use of disposable pads is not convenient to many girls residing in the rural areas where there is universal access to it following the higher relative cost (Averbach, Sahin-Hodoglugil, Musara, Chipato, & van der Straten, 2009; El-Gilany et al., 2005; Mahon & Fernandes, 2010). The increasing number of NGOs and donors after the earthquake in Nepal distributed free or subsidized pads focusing rural girls but, it was only for short term remedy. Girl from the rural part went back to using the cloth as an absorbent once done with the subsidized pads. Therefore, generating the local business has numerous advantages, such as creating employment, reduce pad rates, economic growth, and is usually environmentally friendly (Crofts & Fisher, 2012).

## **Water, Sanitation, and Hygiene (WASH)**

Though there is an awareness that the MHM issues exist, it is always neglected within the WASH sector, and very few have attempted to address it (Mahon & Fernandes, 2010). Poor access to WASH always has negative impacts on girls' learning opportunities (Devnarain & Matthias, 2011). In schools in rural areas, there are often no separate toilets or gender-friendly toilets (AusAID, 2011; Wendland, 2012), which results in girls having shame on urination, defecation, and managing their menstruation in common (Wendland, 2012). In case if separate toilets are available, they often have bad order, unclean, no proper water supply, or even can lack proper



door lock (Mudey, Kesharwani, Mudey, & Goyal, 2010). As discussed previously, the majority of girls in rural areas use cloth as their menstrual management material. However, these absorbent needs to be cleaned appropriately hygienically, but many schools lack adequate water and private space to clean and hang dry (Montgomery, Ryus, Dolan, Dopson, & Scott, 2012). Consequently, increasing in the absenteeism rate and falling behind the academic performance (Montgomery et al., 2012; Sommer, 2010).

Another neglected area in the WASH sector is the menstrual disposal area. There were several schemes for providing the girls with disposable sanitary products without thinking about the waste disposal management (Crofts & Fisher, 2012; Ten, 2007). As there was no proper disposal unit available, they simply dispose of the absorbent into the toilets (Crofts & Fisher, 2012; Umeora & Egwuatu, 2008), resulting in blockage of pipes and unhygienic condition (Wendland, 2012).

Socio-culturally, it is unacceptable to wash and dry the reusable absorbent in public and thus are dried in an isolated area, increasing the chance for bacterial growth (Crofts & Fisher, 2012). It is also common for people to use soggy, moldy and not adequately cleaned cloth (Crofts & Fisher, 2012; Seymour, 2008) and thus evidence of an increase in the risk of infection is seen with such practice (Aniebue, Aniebue, & Nwankwo, 2009; Seymour, 2008; WaterAid, 2009).

Older women and mothers are usually in charge of providing information and educating their children for hygienically handling their menstrual period. However, their viewpoints and concern are barely addressed (S House et al., 2012), and thus MHM is not factored into the development and design of facilities (Mahon & Fernandes, 2010; Sommer, 2010). Though health awareness and proper education regarding MHM plays a vital role, this would of no use if appropriate infrastructures and materials are not available to support them (Bharadwaj & Patkar, 2004). Finally, the issues regarding the discomfort of frequently using poor absorbent hygiene needs to be addressed (Crofts & Fisher, 2012).

### **The need for gender-sensitive in-response materials**

Many researchers have addressed the vulnerable nature of disasters in terms of gender. Still, there exists a gap in the study that centers on the necessity of gender sensitivity in disaster response.

While conducting research, Alam and Collins (2010) and Rahman (2013) noticed that majority of people affected by disasters received eatable, but other forms of subsidizing may vary. Some issues pinpointed by Dimitrijevics (2007) are the distribution of relief material (food) centered on the head of the household, which is presumed to be men. Another issue she identified was excluding the households headed by women.

Furthermore, she identified the necessities for clothing may vary from an adolescent girl and a young girl within different cultures. She also noted that there was an absence of undergarments for women in the relief material kits. Moreover, there may occur the risk of relief materials being exploited or traded in the informal market (Marshall, 1995). Also, the study of the case of 2004 at Tamil Nadu Tsunami shows that there is a vulnerability of group (elderly men and women) not receiving the relief materials. People's perception that aged people often need little food for their survival had resulted in the elderly population exempted from receiving the relief materials (Pincha, 2007). An additional and major requirement of absorbents during menstruation for girls and women was noted. Dimitrijevics (2007) stated that there might be a failure of agencies to provide menstrual absorbents and might occur due to the perception that community women use it traditionally. Because of their unique condition, it is crucial to consider their unique and fundamental necessities like adequate WASH facilities, nutrition, care, and support.

Parkinson (2011) recognizes the importance of the community's perception of gender for post-disaster response. Some researches noticed the occurrence of various challenges for women and young girls, such as due to gender insensitive relief like lack of gender-friendly toilets, inadequate food supply, and unjust relief distribution (Alam & Collins, 2010; Rahman, 2013). According to Ahmad (2012), the significance of gender sensitivity relief in disaster preparedness and response can save lives, facilitates the unjust distribution of subsidizing, and safeguard the well-being of women that might arise in shelter areas. He noticed that women group - mostly the adolescent girls were vulnerable to physical and sexual assaults in the relief camps. The assaults were transpired particularly during the use of toilets, bathrooms, and maintaining hygiene during menstruation. Thus, this literature shows the challenges that women might go through maintaining fundamental hygiene practices such as bathing, urination, and menstruation management.

In research carried by Oxfam (2005), women were mainly concerned about their safety in the tents that lack gender segregation, no proper locks, and insufficient lighting systems (Pincha, 2007). Fisher (2005), in his study, stated that those people who were responsible for safeguarding the people during disasters became the assaulters. For example, In the case of the Indian tsunami of 2004, a mentally disabled patient was physically assaulted by two officers. Likewise, there was a case reported that a police officer in Sri Lanka raped a woman. There was the increase of domestic violence in Sri Lanka after the tsunami when husbands encountered wife's hesitancy to have sex in the closeness of neighbor and children due to lack of privacy (Fisher, 2005). Thus, to minimize such incidents, Dimitrijevic (2007) highlights on the inclusion of women as a service provider. Furthermore, the recovery process of men was found to be more than women due to the limited approachability of relief materials (Khondker, 1996). Neumayer and Plümper (2007) stated that there is always a "gender blinding" in disaster due to the unwillingness of women to talk about sensitive issues such as violence, menstruation, physical and sexual assaults.

Aryal (2014) identifies a cause of women vulnerabilities is mainly due to factors such as a gendered role in households, socio-cultural norms, and gender discrimination. It is necessary to study the disaster vulnerability from gendered lenses to enhance the disaster response events (Williams, 1993). Moreover, it is very crucial to focus on the socio-culturally constructed gendered norms for the betterment of the disaster response attempts (Enarson & Fordham, 2000). To conclude this, it is pronounced that these vulnerabilities bringing disasters are gendered. And my own opinion makes a parallel with the above statement that women are more vulnerable and were particularly impacted by numerous aftershocks that occurred in the earthquake of 2015 in Nepal.

### **Menstruation as a contributor to schoolgirls' absenteeism**

As discussed before in various chapters, the menstruation and MHM issues were neglected, resulting in the lack of school attendance and discontinuing school enrollment that is negatively affecting the learning outcomes of a girl child. Public discourse for example (Chatterjee, 2010; Jones, 2010; Kristof & WuDunn, 2009) has identified that the factors affecting the absenteeism rates and dropout rates of girl child is due to the issues such as lack of toilet accessibility and availability to feminine hygiene supplies. Consequently, Sommer (2010) identifies the

consequences of MHM on adolescent girls and the advancement of their individuality during the transition phase to adulthood. Though the literature has delivered the shreds of evidence that menstruation might have negative impacts on girls' quality of life, particularly in the socio-cultural environment, none of them has delivered the evidence of a relation between menstruation and schools' outcomes for girls.

A study held at Malawi (Grant, 2012; Munthali, 2006; Poulin, 2007) illustrates that "menarche" was generally inferred as a signal for readiness for sex (meaning she is ready for marriage) and that she is no longer a child. And since young women were motivated to get married soon after the menarche, there was evidence of increasing rates of female child dropouts (Kalipeni, 1997). The perception of parents about the onset of menarche may result in the reluctance of parents to investing in schooling to girl children. Further, parents might become less committed to maintaining the girl child school enrollment and attendance as compared to the boy child, which means the onset of menarche might have an indirect influence on girls' attainment of schooling (Grant, 2012).

A set of challenges (physical, socio-cultural, and economic) during menstruation might intrude on the young girl's ability to attain school or perform any sort of activities (Kirk & Sommer, 2006). A study conducted for seventh and eighth-grade girls in rural Chitwan valley, Nepal, to qualify the effect of menstruation illustrates that the absenteeism rates were high during the menstruation compared to other normal school days. However, overall the influence on attendance rates was very less (Oster & Thornton, 2011). Inaccessibility or inadequacy of sanitary materials may also be the contributor to an increase in absenteeism rate. In the rural areas, there may not be availability of commercial sanitary pads, or if in case available, it may not be affordable for socio-economically unstable people due to its high cost (Abioye-Kuteyi, 2000). Girls using the cotton cloth or reusable pads may restrict their physical mobility fearing about the leakage. The fabric used to stop the menstrual flow must be clean frequently in a hygienic way, and the time required to wash the cloth may decline the time devoted to homework or study (Kirk & Sommer, 2006). In China, the school dropouts were seen more in the girls from households that have less access to water compared to the girls from households with adequate accessibility to water due to the hygiene challenges during the menstrual period (Maimaiti & Siebert, 2009).

Distinct programs have been implemented targeting the challenges of MHM faced by rural girls through supplying the menstrual hygiene materials. The school amenities may also interfere in the absenteeism rates of girl child during menstruation. For example, a lack of sense of privacy or security may lead the girl to worry that their condition might be discovered by other fellow students (Sommer, 2010). Moreover, lack of access to adequate water supplies may hinder their ability to maintain hygiene, prevent odors, and rinse out the menstrual blood from the toilet (Mahon & Fernandes, 2010). In some cases, though they have water and toilet accessibility, the male teacher may be insensible to the necessities of frequent toilet breaks of a girl and may not allow her the permission to go to the toilet. Issues in class participation may also arise due to reluctance to stand up in the class, worrying about the possible leakage of menstrual blood (Kirk & Sommer, 2006). Addressing such challenges, some international agencies, including UNICEF, have endeavored through organizing campaigns to build or improve the sanitation facilities in many developing countries (Birdthistle, Dickson, Freeman, & Javidi, 2011).

Other challenges among female students may be a lack of knowledge about menstruation resulting in poor dealing with physical issues during menstruation. The reason behind the increase in absenteeism rates among the school going girls during menstruation may be due to them being less determined or those who receive low inspiration from their parents to attend school. However, absenteeism itself may be inferred as a component of behavioral disengagement from the school, the study conducted in the US identifies the evidence of correlation of measures between student academic motivation and parental commitment (Finn, 1989; Fredericks, Blumenfeld, & Alison).

### **Relevance of Menstrual Hygiene Materials (MHM)**

A healthy, safe, and proper way of managing menstruation necessitates the accessibility to adequate knowledge, information, and tools (Sommer & Caruso, 2015). This comprises women having; a) awareness, adequate information and self-assurance in managing their menstruation; b) safe, sanitary absorbent; c) safe and appropriate facilities to change and dispose of the absorbents confidentially as frequently as required; d) adequate accessibility to water, soap, and space for washing and bathing (Supply, Programme, & Organization, 2015). The challenges for MHM magnificently draw the attention of Human Right Perspectives.

George (2013) states that stigma associated with menstrual hygiene is a violation of several Human Rights, not only of the right to human dignity but also the right to non-discrimination, equality, bodily integrity, health, privacy and the right to freedom from inhumane and degrading treatment from abuse and violence.

Poor accessibility of Menstrual Hygiene Management (MHM) facilities or materials can create issues in both public and private domains of women's life. It can interfere in self-confidence, physical ease, and a peaceful mind to devote entirely to everyday activities (Hennegan & Montgomery, 2016). The information about MHM is comparably very little due to the set of issues such as persistent taboos, avoiding discussion about adolescent or physical changes during the transition phase (Sommer & Caruso, 2015).

The Joint Monitoring Programme (JMP) for WASH by WHO and UNICEF has demarcated the MHM as:

*“Women and adolescent girls using a clean menstrual management material to collect or absorb menstrual blood that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing body as required, and having access to safe and convenient facilities to dispose of used menstrual management material. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear”.* (WHO, 2004)

The material can be the regular usable cotton cloth or can also be available under varieties of product names around the universe. Girls in the rural areas are mostly dependent on homemade fabric and the underwear to soak up their menstrual blood flow whereas, the girls residing in urban areas use the sanitary pads. And that I, too, had to experience using the cotton cloth during the earthquake and when I was at Bitizor for my field visit during the project. The reason behind using the cloth is that there was no availability of sanitary pads at Bitizor. While talking to the girl in the field, they gave several reasons such as it is very shameful to buy pads in the shop, no availability, and high cost of sanitary pads. As I was working under the “Impacts on Lack of access to Water, Sanitation and Hygiene services in Bitizor,” after the earthquake, my main aim on that project was focused on school-going girls and women.



Figure 2: Homemade absorbent (Bushak, 2016)



Figure 3: Commercial Sanitary Pads (Deccanherald, 2016)

### **Justification of the study**

Women and girls are socially marginalized groups in developing countries, which makes them more vulnerable to disasters. The vulnerabilities are even more in rural parts of the country. They

face many challenges due to the gender differences and school going girls often struggle to manage their menstrual hygiene in the school due to inadequate access to WASH facilities. Moreover, girls also experience shame, embarrassment, and some even lack adequate information and knowledge. For example- after the earthquake in 2015 in Nepal, I was working in the field of WASH services and its impacts in Bitizor, Sindhuli. There I could see the challenges faced by girls and women that had been even more worsen after the earthquake. Menstruation and its issues were never discussed openly either by community people or by the school going girls. Since WASH service was the major issue in this village after the earthquake, it was knowledgeable to explore different activities done to overcome the challenges faced in the WASH sector in these villages with similar living standards and socio-economic conditions but different WASH coverage. The circumstances, as mentioned above, made me work on the research that focuses on the lack of WASH facilities and its impacts on women and girls. Government of Nepal Kept the WASH in their top priority, but many places were devoid of these services after the earthquake. Further, this study is much needed, so the Menstrual Hygiene Management as neglected issues can be highlighted by the government. Also, this study could change the perspective of community people towards menstruation.



### **3. Research Methodology**

In this chapter, I am going to the tools, research design, sampling size, procedure that I used for data collection, and analysis of the collected data. I have chosen a qualitative method, particularly semi-structured interview for my study to explore the experience of the people and the coping strategies to deal with the lack of WASH services. Also, through the qualitative method, I can get closer to the viewpoints of the participants through detailed interviewing and observation (Seale & Kelly, 2004).

Semi-structured interviews help the researcher to develop ideas and theories through open-ended questionnaires to the participants. The guideline was carefully made, which includes the reasoning for the invitation, the primary purpose of the study, the introduction of the topics, and the principal theme that I wanted to discuss. The interview was done to have people's opinions, beliefs, and experiences. With the consent of the respondent, the interview session was recorded, keeping in mind for maintaining their confidentiality and anonymity. The respondent was also made aware of the possibility to leave or terminate the session at any time without any explanation. I also keep in mind that sensible issues will not interfere, and if it arises, I will be sensitive and responsive to participants' feelings (Bryman, 2012).

#### **Selection of study area**

I am from the central development region of Nepal, and my home is in kamalamai-4, Sindhuli District. Capital of Nepal- Kathmandu also lies in the central development region, so it is the center of attraction for the government and other people. Besides this, people were still suffering from scarcity of Water, Sanitation, and hygiene, and that made me choose this region, especially the rural part of the Sindhuli district (Bitizor) for my thesis.

#### **Interviewing during fieldwork**

The interview was conducted in the Bitizor metropolitan of Sindhuli district and interviewee were selected with the help of local Non- governmental employee, and my contact. During data collection, I met the president of Bitizor village- Mr. Daulat Karki. As we know each other before I had proposed the thesis to him, I contacted him through the phone calls. He had all the

information regarding the condition of WASH in both villages, which made it much easier to discuss the issues. I also explained to him that I am interested in conducting a study on that village as I have already worked at the same place after the earthquake and had experienced challenges in daily life in that village. With his help, I was able to select the people for my interview in which most of the interview was in the home of the respondent according to their convenience. Bitizor was far from my house, so I, with my dad, traveled on the motorbike for the interview. With regard to the information about the WASH situation of both the village, I know some as I was working there as a hygiene facilitator after the earthquake for a year. I, as a researcher, has all the basic knowledge about the subjects as I talked to many people and had lived in the community to observe the scene of the problem faced by the community people. Also, a qualitative research study focuses on words rather than the numbers (Bryman, 2015). I also talked to some other organization people who worked for the betterment of WASH services in both villages.

## **Recruitment Procedure**

The participant was recruited through simple random sampling with the help of the president of the village and health worker who is also the key informants in the community. The initial contact was made through personal connections, phone calls, and appointment of meeting dates, time, and location fixed. Before the interview, all participants were oriented about the study, and the consent letter was provided. The letter contains details on the purpose of the study, the area of the study, and the potential advantages and disadvantages of the study. Ultimately, the participants were asked to sign the consent form. I also requested them for an audio recording of the conversation before the initiation of the interview.

The participant was requested to meet either in the comfort of their homes in the private rooms or in a quiet place considering the sensitive scenario of the study. The research topic and the interview guide, which was developed in English, was translated to Nepali, and the interview is conducted in Native fluency in Nepali or other looking forward to the comfort zone of the informants.

## **Reflexivity**

After the earthquake and its devastating impacts, there were many sleepless nights. Seeing and knowing half of my district, including my village, was destroyed with no homes standing, is not a situation anyone would like to be. Things improved, and everyone was able to cope with the emotional distress after few weeks but to know that some families lost their beloved ones and families that were and are struggling for their fundamental necessities were my topic of concern. What drew to me to choose this topic was (1) The difference in the experience of girls compared to a boy during and after the time of the earthquake, and (2) The challenges faced by people due to lack of access to WASH services in some regions. As I have mentioned earlier, I was working as a hygiene facilitator after the earthquake, and I had to travel to a different village. There I could see the lack of proper toilet facilities and the destruction of water sources. Life in the rural community of Nepal has its kind of challenges, especially to girls and women due to preexisting cultures and taboos. In addition to this, the devastation of natural and man-made resources (Like houses, toilets, water sources, etc.) has added more challenges to the people of Nepal.

Backdrop and position of a researcher manipulates the entire research study. It also influences what the researcher prefers to explore and how they do it, the methodologies used, and that are presumed to be more applicable along with appropriate outcomes and mounting of supposition (Malterud, 2001).

My identity as a Nepali girl born in the village area, I am familiar with the cultural environment at my place and have the same language as all participants do. That gave me an insider position during the interview process. Dwyer and Buckle (2009) proposes that an insider ought to gather information with being very attentive but faking that he or she has no idea about the research being studied. During the interview, many participants replied that you know our conditions very well, or you have seen us tackling the situation. Nevertheless, I questioned them to explain their own experiences and viewpoints. I was also aware of the predetermined thought that may have a bias in my study, and thus I tactfully avoided it. I was sensible regarding the possibility that I could be observed as judgmental during the interview and will try my best to handle it (Bryman, 2016).

Acker (2000) discusses researchers' positions during the study. He states that it is sometimes complicated to differentiate whether the position of the researcher is insider or outsider or neutral. I also agree with his statements, as sometimes I feel an outsider as I was not restricted during my menstruation, and did not go through the WASH crisis. I did not experience much as the people of Bitizor do. And, as a graduate student studying abroad, it may create the differences between the study participants, which ultimately may put me on outsider position and me.

Furthermore, while conducting this research, I play the role of an outsider within which Collins (1986) explains as a position within an individual concurrently occupies two positions that are exclusive to one another. Thus, even if I am an outsider, I am still an insider. And my ability to talk and hold the conversation in Nepali adds more advantages to have productive interviews and discussions.

### **My position as a researcher**

While working in the reconstruction and rehabilitation of the WASH services project, I was responsible for conducting awareness campaigns regarding the impacts of the lack of access to WASH services in Bitizor village. I was counseling them about the hygienic behavior and sanitation focusing on the girls and women. And as I was conducting programs with the help of health workers and other local people, that made me easily accessible to the participants. But too much familiarity could create an illusion of friendship and ultimately leads the participant to say more than they were expected. On the other hand, a high degree of distance between the researcher and the participants may lead to a disparity of power, where it becomes challenging for participants to talk about their things. Thus, to overcome this, I also shared some information and background about myself to the participants, and equilibrium was maintained (Brinkmann & Kvale, 2015). Though we have a similar background to some extent, our certain circumstances were different. Familiarity helped in developing the affinity with the participant, while my position as a researcher enabled me to maintain personal distance.

### **Comparing the role of Hygiene Facilitator (Nurse) to the role of a researcher**

While working with the Lack of access to WASH services project after the 2015 earthquake in Bitizor (Dharapani and Bhanjyang) village, I was responsible for finding out the WASH-related

problems, conducting and assisting the hygiene campaign smoothly, and supervising the level of hygiene and sanitation of the community people. Authoritatively, I was responsible for making the people aware of the impacts of lack of hygiene and sanitation and its impacts on the health of an individual focusing on girls and women, particularly about menstrual hygiene management.

By the experience of both a Hygiene Facilitator and a researcher, I would like to point out the difference between these two positions. The overall aim of being a Hygiene Facilitator was to make the community people socially inclusive by counseling and conducting awareness campaigns. Additionally, going for fieldwork and living in the same village trying to observe the daily life experience of the people with and without the WASH services. And to make sure that every family is aware of the impacts of lack of WASH services in their everyday life.

Furthermore, conducting a survey and meeting to know the life experiences before and after the earthquake and the destruction made by the earthquake. My project was also working for the construction of toilets, fixing the water problems, and managing the menstrual hygiene. My coworkers and I were working on short-term and long-term goals, and we implemented them as a part of our project that benefited the community people.

In contrast, as a researcher, I have a different role. I was interviewing to know their life experiences following proper guidelines, and their viewpoints towards the situation play a vital role. I was also interpreting their experiences in an appropriate and specific way. I took an in-depth interview, which was recorded with the respondent's permission. Later, I analyzed, interpreted, and came to the conclusions based on the research questions and respondents' viewpoints.

Throughout the fieldwork study, I avoided to mix my profession in the research. Though, I somehow know more or less of the life experience of the people residing there, I pretend I had no idea of the respondent's view or anything related to my study. Meanwhile, it was a bit difficult with the known respondent to get their experiences about the condition as most of the things were familiar; some were even hesitant to explain, and some responded like "You are familiar with our situation and still want to know how it feels?"

However, I managed to get the needed information from them by convincing them about my study, which may help them in the future while formulating policies.

## **Sampling size**

In a research study, several experts from diverse academic backgrounds have reflected the same on “How many interviews are enough.” The broad understanding among experts has been that this should depend on both internal, i.e., methodological and epistemological perspectives along with the external one, i.e., time and scope for the thesis, institutional demands, among others (Baker & Edwards, 2012).

Generally, interviews in qualitative studies are taken with few people, so I have gathered data from 15 people for my research. I choose people residing in Bitizor (on both villages where we are conducting the study), the FCHVs, local political leaders, and school-going girls living with both the scarcity of one community and access to WASH services to another village of Bitizor formed the selection criteria for the study. While talking to people in different positions, they represent a variety of views. As my home is in Sindhuli, and I had also been to Bitizor during my job, the respondent can be easily accessible to me. I also suppose this might provide me some advantages in gaining their trust.

## **The participant of the study**

This research has 15 diverse participants. Among them, five were between 10 to 20 years old; three were between the age of 20 to 35; four were between the age of 36 to 50, and three were 51 years old and above. The majority of the participants (9) were Dalits, followed by 3 Janajati and 3 upper caste. Six of them were students; Three were medical personal; Two political leaders and four were villagers. It was important to note these characteristics since the difference in the individual’s position will represent a variety of experiences and views to my study.

## **Interview process**

Interviews were held with the help of semi-structured open-ended questionnaires (please see the appendix). As my mother tongue is Nepali, all interviews were taken in the Nepali language and transcribed to English later. Most of the interview took around 60-90 minutes. The interviewees were requested to be alone during the interview process to ensure privacy and comfort. Many of the interviews did not go as per plan, but I tried to get all the needed information from them

because it provided the first-hand response and lived experiences of the people. And doing this validates my research study. Most of the interviews were recorded with the consent of the interviewee, whereas some hesitate to record. The notes were taken along with the interview, and later both were transcribed. I have frequently gone through the field notes and audio recordings that help me in better understanding the data. During the interview process, I try to ensure that every participant was taking part in an interview by their own will, and the information they have provided was genuine.

### **Strength and Limitation of the study**

Although the study is based on the people (particularly girls) experience due to lack of improved access to WASH services in 2 rural communities of Nepal (one community completely lacks access whereas another has access to WASH to some extent), there were more similarities in Hygiene and Sanitation. However, the study was carried out in a specific region of Nepal; thus, findings might differ in another area of Nepal. Also, as we all know that Nepal is rich in cultural diversity, the experience of one community might be distinct from another. In this research, I play the role of both insider and outsider. I, being from and having grown up in rural Nepal, I am familiar with the cultural environment, and taboos about the menstruation back home. However, I did not have to experience all the challenges as I went to cities for my further studies. It generates a contrast between the participant and me, which put me in an outsider position. Because of the exclusive positioning, I am in a while performing the study; I play an outsider's role in which Collins (1986) illustrates as a condition within which an individual simultaneously dominates two positions that are exclusive to one another. Talking about the fact that I am the outsider, women (particularly girls) might not have felt comfortable to disclose their issues with me. Nevertheless, throughout the interview, I guaranteed the participant is comfortable and ensure them that their responses will be confidential and that they could feel free to express their thoughts and experience with me.

Furthermore, studying two groups with contrasting backgrounds was a bit complicated; however, it can be considered as the strength of the study. Both the village people had unique experiences and challenges after the earthquake. Thus, on concluding note, this thesis has helped me to explore and replicate the opportunities for further research in the area of challenges faced by

women and girls during menstruation and the perceptions of cultural and societal context, making it more complicated for women and girls.

## **Ethical Consideration**

Ethical values are highly considered during the research study to manage a proper way of citing and quoting the research. Thus, some steps were taken to warrant a comfortable experience meeting the ethical norms of the participants. Firstly, the study was done beneath the rules and regulations of NSD- Norwegian Centre of Research Data. Subsequently, the invitation letter and consent forms were given to the participant before the interview, where I had clearly explained the purpose of the study, the process of research, the reason behind doing the research, and their free will participation. I had also taken consent regarding the audio recording during the interview. I also make them clear about the right to withdraw from the interview, i.e., they have the right to escape the questions or withdraw from the research at any point without any justification (Bryman, 2012). Also, any act that was likely to harm or can have bad potential consequences, such as decreasing their self-respect, making them worry or uncomfortable were avoided (Diener & Crandall, 1978).

The management and protection of the data are incredibly vital to maintain confidentiality. Thus, the identification was strictly hidden, and code names were given to the participants. The information retained from them has proceeded without names or other recognizable details. The data of the study is safely stored in an external drive with password protected and is accessible to my professor only and me and will be deleted once the research is finished. I was very aware of the delicate issues about their experiences during and after the earthquake (Bryman, 2012).

The invitation letter, consent form, and questionnaires were translated into local languages. They are attached below as an appendix.

## **Trustworthiness, Confirmability and Transferability/ Relevance**

The primary quality of the research is that it should be valid and reliable. As a researcher, I should avoid constructing my assumptions and should be aware of the biases and prejudices. Also, the research process should be made transparent for reviewing and reinterpretation



(Bryman, 2012). Before the conduction of any kind of study, the researchers need to be sure that he/she can maintain the trust among the researchers and the participants. They are only possible once the researcher can make the participant understand the aim and objectives of the study. He/she also needs to be confident enough to explain the reliability of the research topic.

## **4. Theoretical framework for the study**

This chapter takes a look at the concepts and framework to understand the social phenomena and infer the findings of my study (Bryman, 2015). These will be summed up as Feminist Standpoint Theory, Gender and Sexualization, Stigmatization, and Identity and Taboos. The reason behind choosing these theories is the relevance to locate the women and girls as a marginalized group and highlight unique gendered challenges during disasters. These theories will be both a starting point for the analysis, as well as help the reader understand the study. A short introduction to these concepts will therefore contribute towards transferability (external validity), subject to the circumstantial factors (Shenton, 2004).

### **Standpoint Theory**

Dorothy Smith and Patricia Hill Collins- the feminist standpoint philosopher, explains that the women who have been occupying the socio-political position can become a significant source of information to those who are socially deprived in many aspects as well as to those who are honored to dominate oppressor position (Smith, 1974). According to S. Harding (2004), it creates a different perspective in understanding the tough challenges and generates new knowledge. It also facilitates to assemble the knowledge and understanding of women systematically following the research discipline. Collins (2002) states, it is the way of consigning the power on socially deprived groups, recognizing their distinctive experiences.

Feminist standpoint theory started along with Hegel's dialectic relation between a slave and a master, intensified by Marx and more exclusively Lukacs' interpretation of the concept of the standpoint. They contended that the struggle of a repressed slave would sooner or later result in the advancement and reach of mindfulness independence. Hegel's theory thus provides insight into the fact that prejudice and suppression can be explored, and clear interpretation can be made of it is perceived from the masters' viewpoint (S. G. Harding, 2004). As women occupy the underprivileged position in the society, their experiences are constrained to understanding by those on the privileged group of the social pyramid. In contrast, the way about the social power functioning can be better understood if it is studied from the women's perspectives. Further, Harding clarifies that arranging the understanding that is central to the leading group will

facilitate to understand the positioning of either group if the information is contemplated to be socially positioned.

Smith (2009) explores the rationale behind the diverse perspectives that men and women have on social and political issues.

Finally, based on the Feminist standpoint theory, this study attempts to locate the insight of the women who underwent the impacts of the devastating earthquake of 2015 of Nepal. Harding (1992) further demonstrate that emphasizing the experience of women as an underprivileged group is advantageous to reviewing their lived experiences and challenges which will facilitate to develop new knowledge.

### **Stigmatization- Social stigma**

Managing menstruation hygienically and shamelessly has been considered to be crucial, so the girls and women can participate in society with dignity and comfort (Hennegan & Montgomery, 2016; Ivens, 2008). The encyclopedia of applied Psychology defines Social stigma as:

Stigma refers to undesirable or discrediting socially constructed attributes that individuals possess, and that affects their quality of life as well as their social standing. Stigma is a powerful source that often causes prejudicial thoughts, behaviors, and actions by individuals, groups, communities, and institutions. (Spielberger, 2004, p. 174).

According to Giles, Reid, & Harwood, they link stigma as an unwanted attribute by society through their definition- “negative attitudes held about individuals who are perceived to possess a trait deemed negative by the community at large (2010, p. 44)”.

Scambler classifies stigma as ‘felt,’ ‘enacted,’ and ‘project’ stigma, and according to Newton (2012), these classifications are relevant to menstruation. Scambler clarifies ‘felt’ stigma as “internalized sense of shame and immobilizing anticipation of enacted stigma”; ‘Enacted’ stigma as an individual being victimized by other due to being imperfect; and “project” stigma consist the means of preventing or comforting the stigma (Scambler, 2009, p. 451). Newton relates the “felt” stigma to menstruation with the feeling of shame, which is associated with menstrual stains or other imperfections of menstruation (Newton, 2012, p. 394).

The definition mentioned above and theories of stigmatization can be applied to illustrate the negative attitudes towards an individual due to their perceived ownership of attributes shunned by their society. These types of attitudes are perceived to establish social interactions, behaviors, and practices that smear an individual or a group in their community (Kleinman & Hall-Clifford, 2009). Further, analyzing the outcomes associated with stigmatization can facilitate to identify the persistent feature of menstruation impacts the perception about themselves and act to avoid the stigma.

## **Gender and Sexualization**

Menstruation has become a matter of inequality and class, resulting in menstrual hygiene being neglected. In developing countries or even in some developed countries with a male-controlled system, they are beneath persistent oppression, and they are also being penalized for her natural bodily functions -like Menstruation (Fortier, 1975). Some feminist has clarified gender as a cultural system to classify male and female sexuality in a hierarchical relationship. They contend that man-controlled ideology control women's reproductive and sexual capability (Oyěwùmí, 2005). Murnen, Wright, and Kaluzny (2002) argue with Sheffield's study on sexual violence as support, in which man-controlled societies, women are molded to be sexually passive while men are being urged to be aggressive. The ultimate objective of this is to uphold the gender system of men being superior to women. Safeguarding the pride and dignity of women and their families have been achieved through confirming the virginity of women; control of her sexuality is prone to masculine societies (Amy, 2008). The explanation of the culture enveloping the female reproductive system reads- "the female body is the acknowledged site of male sexual pleasure" (Leclerc-Madlala, 2001).

## **Identity and Taboos**

Social stigmas immensely determine the collective identity of people, and taboos people live within everyday life. The conceptual discussion of taboos is relevant in my research here because the social practices of menstruation in Nepalese society is mostly regarded as a taboo that affects how Nepalese women conceptualize their identities and selves.

Adopting an identity suggests accepting the taboos and the social norms associated with this identity. The desire to maintain an identity and to perceive oneself as a moral person as defined by one's identity is a crucial consideration that determines the self-inflicted cost of thinking about violating a taboo (Haidt, Rozin, McCauley, & Imada, 1997).

There are numerous justifications of the origin of taboos in which the typical anthropological argument is a cultural experience. Moreover, psychoanalytical explanation highlights the strong intuitive restrictions that pass through generation (Freud, 1955). Taboos can be viewed as strong social norms that are encouraged by strict social restrictions. An Individual's behavior varies every time from a norm, and this act effects on another member of the society, who then penalize the deviant individual (Cole, Mailath, & Postlewaite, 1998). Sometimes taboos can also be stated as doing the "unthinkable." And thinking about the violation of taboos can be problematic. The restrictions associated are relevant not just to the behavior that contradicts the prohibitions but also simply thinking such a behavior. These explains that a taboo is a form of "thought police" that dominates not just one's behavior but also their thoughts (Tetlock, Kristel, Elson, Green, & Lerner, 2000).

Religious practice sometimes structured some taboos. There are commonly three types of incentives in the society that oversees the behavior of an individual- private rewards like monetary incentives, social incentives like norms and taboos; and legal incentives that impose a specific type of practice and punish deviations. There are some activities which are both taboos and illegal. The crucial question in social science thus is- What defines the precise combination of these types of incentives and why these incentives vary indifferent society.

## **5. From the girl and young women's standpoint. Has anything changed after the earthquake?**

As previous research has demonstrated, there is a tight connection between access to WASH services and how women handle cultural beliefs, taboos, and stigma around their menstruation. School girl's absenteeism has also been subscribed to their menses, lack of menstrual hygiene materials, as well as cultural taboos. Studies also highlight the need for special relief for women and girls by providing safe and clean menstrual hygiene materials.

In my interviews, I have asked a range of questions regarding the consequences of their everyday lives when WASH services are affected by the earthquake. The intention is to record the distinctive experiences of women in an attempt to make their voices more powerful in the aftermath of a natural disaster (Collins, 2002). In this analysis, I will assemble the distinctive experiences presented to me by 15 people, who have lived through the consequences of the earthquake, and see if this can generate some new knowledge about its aftermath (Harding, 2004).

The analysis will mainly encompass those vulnerabilities that the girl and women experience during menstruation due to lack of WASH services. Almost all the participants had mentioned their stay in temporary tents and cowshed during and after the earthquake. The average stay was 4-6 months. Before I enter into a discussion of what has changed after the earthquake, I will present the voices from my interviews, as they talk about the vulnerabilities related to the lack of hygienic absorbents and sanitary pads during menstruation and its cultural taboos and restrictions during and after the earthquake.

### **What WASH challenges do girls and women of Bitizor experience after the earthquake of 2015?**

In general terms, one could sum up the material problem after the earthquake as a lack of hygienic absorbent or sanitary pads. Proper hygienic practices such as using sanitary pads and washing the genital area satisfactorily are crucial during menstruation. Thus, women and girls need to have proper access to clean and soft absorbent (sanitary products) that protect their health (A. Singh, 2006). Girls from rural areas using commercial sanitary pads are very few- due to their

low socio-economic status, lack of accessibility of sanitary pads in rural areas, and lack of awareness. Many researchers, in their research, had reported that there are more than three third of the girls residing in rural areas who uses reusable cotton clothes and reuse them after washing them (Mudey et al., 2010).

The rural part of Nepal has only limited infrastructure, shops, health care services, etc. And it was the same in my research conduction site (Dharapani and Bhanjyang village). There was just a shop in between Dharapani and Bhanjyang with limited and fundamental items on that shop. Also, the health post had only the primary medicine. So, the people had to travel long-distance or to another village to buy sanitary pads. But during the earthquake, the shop was closed, and it was also challenging to find the shop that sells sanitary pads. So, as an alternative to holding the blood during menstruation, the participant said that they had to use the piece of cloth/ saree. One of the girls attending school mentioned:

*“When I got my periods, I needed pads, but the pads are expensive and not easily accessible. My mother asked me to use a piece of her sari as an alternative to sanitary pads. Cleaning and drying of those clothes were challenges. I used to hide my cloth pad under other clothes so that nobody sees, and I don’t need to be embarrassed.”*

*Participant 8 (school-going girl)*

Another participant also shares the same experience:

*“I use the old clothes as a menstrual pad as I can reuse the very same clothes after washing them with soap and water. I prefer to use the old cloth as it is economical, and once after using the cloth for a few months, I burn them while burning the routine waste. But the worst part of using the cloth is that I felt disgusted and uncomfortable if anyone sees that while washing or hanging them after cleaning to dry up”.*

*Participant 7 (village women)*

Girls and women in rural communities wash down and reuse the same cloth rather than using disposal pads. And since there was a lack of access to water and soaps during the time of

disasters, reusable materials were not properly sanitized. Apart from that, they were bounded with certain taboos and restrictions that forced them to clean dry their cloth indoors away from sunlight (Rizvi & Ali, 2016). It is imperative to have hygiene-related practice by women and girls during their menstruation as improper hygiene management is accountable for increasing vulnerability to Urinary Tract Infections (UTI) (Dasgupta & Sarkar, 2008). So, to make people aware of the impacts of MHM, some female health workers were working in the community. During the interview, the female health worker said:

*“My daughter used to use disposable sanitary pad before, but now she had to make use of my used old cotton sari cloth. I used to get sanitary pads when I travel to town, but shops were closed due to the destruction of houses. My daughter wasn’t willing to use cloth, but we had no option, and she has to agree.”*

*Participant 10 (Female health worker)*

One of the high schools going girl mentioned that she promised to return the pad to her friend. She mentioned:

*“I totally forget the necessity of sanitary pads during the earthquake. I came to realize when I had my periods after a week of earthquake. It was very tough for me, and I had to suffer a lot because the first day of my menstruation comes with heavy blood flow and dysmenorrhea. My mother was not around, and it was evening time when I had my periods. I got some pain killer and started waiting for my mum to come and call my close friend to borrow a pad from her. I began asking my close friends, and I got some disposable pad, promising to return it after a few days.”*

*Participant 3 (High school-going girl)*

The issues of water were prioritized to sanitation. Anderson (2011) describes this might be because it might be easy to spread and understand the message of water compared to sanitation and hygiene. It might be difficult for people to understand as they do not find themselves comfortable in discussing about the challenges in the field of hygiene and sanitation openly.



## **How does the cultural practices of menstruation impact the lives of girls and women, and how did these cultural practices fare in the aftermath of the earthquake?**

Superstition and illusion about the menstruation have long grown statistics in Nepal. The word Menstruation has been a taboo in past days and is still seen even to this date due to the cultural and social influences. People in rural Nepal still consider menstruation as something impure or dirty, confidentiality, and embarrassed of being disclosure of their menarche. And this seems to be an obstacle in the development of knowledge about menstruation (RAMA, 1963).

The devastating earthquake of 2015 had made the people stay in the tent for at least a month on an average. Most of the girls and women had shared the challenges of menstruation that they encountered during the stay after the earthquake. Many of them also stated that the significant challenges were changing the pads and maintaining hygiene during the menses. One of the participants said:

*“When the earthquake hit, I was menstruating for the first time... Not having an idea of how to change the pads and maintain hygiene made me in huge trouble”.*

*Participant 8 (School-going girl)*

Though menstruation is a natural fact and occurs monthly on girls, managing their monthly menstrual cycle in a healthy way has been challenging. This may be either due to cultural taboos, discriminatory social norms, or due to lack of essential services, the menstrual health and hygiene needs are unmet.

In Nepal, menstruation restrictions are often tied with socio-cultural and religious traditions and are rarely talked about. During their menstruation, girls are considered unclean and are isolated and restricted to perform several daily activities. Restrictions to attain any religious activities, enter inside the kitchen and no touching of water, and other eatables, and sleep separately either on the cowshed or separately from other family members are some challenges faced by girls during menstruation. And, when it is her first time of menstruation, she is not allowed to be in her house and taken away from the reach of the family members. I, myself being grown up in a village, had seen and experienced the isolation and restrictions during the menstruation. I was

told that during the menses, the girls become impure, and if she touches the water or enter the kitchen or touch plants the plants die, and then she will be cursed by the god. Though everything is changing, this practice was still prevalent in the village where my study was conducted. The isolation and restriction of things vary based on the location, caste, and adherence. And these include prohibiting the girls from entering in the religious places, and kitchen, cook food and sleep on the same room with the husband if she is married, eating separately, showering early in the morning when no one wakes up every day or on someplace on the forth/ seventh day, etc. Not limited to this, it is a prominent practice in the rural villages that women are forced to sleep in the cow sheds (Baruah, 1961).

Socio-cultural prohibition and the negative approach towards menstruation have made it more challenging for all the girls to maintain hygiene during menstruation. Specifically, practical challenges of menstrual hygiene are made more problematic by numerous socio-cultural factors. The study participant also mentioned the difficulties in following these traditions during the earthquake. One of my respondent shares about the issues in following the rules:

*“When I was on my periods, we have certain rules to follow. As we all were living in the tents together, I was asked to stay on the cowshed because having periods create impurity to everything. I was so scared to stay and could not sleep the whole night. I even discussed with my mum, but she consoles me, saying that this is our culture, and we can do nothing about this. I had to wake up at 3 in the morning and go to the river to take a bath and wash clothes during those times as there was no access to tap water sources nearby.”*

*Participant 1 (school-going girl)*

Many socio-cultural restrictions can make their everyday activities more challenging, and the girls are forced to limit their freedom. There are numerous limitations practiced by girls, probably either due to distinct rituals in their communities; or the same performed by their senior females in the family; or due to the phony perception about the menstruation. A girl shares her experience as:

*“First menstruation was terrifying, discomfort and disgust, but after that, I was used to all the restrictions. My family believes that if I don’t follow the rules*

*made by our older people, then there will be a misfortune, and tragic consequences may happen to our family as the god will be disappointed by my act and may curse our family. I still follow all the rules and rituals during the menstruation, but it has been challenging after the earthquake. Our house was destroyed, and my parents sleep in a tent. Before the earthquake, the house and cowshed were near, so I was not much scared to sleep on the cowshed alone. But after the earthquake, I call my best friend to sleep with me at night, and in the morning, as per the rituals, I go to the river to shower before the sunrise, and my best friend goes to her house.”*

*Participant 5 (school-going girl)*

While talking to another respondent, she shares different experiences with her daughter’s periods:

*“When my daughter was on her periods, she was touching everything, and we could not restrict her because we were in a small tent. All our houses and property were damaged, so we had to keep our daughter together during her periods. Some of our neighbors did not have anything from our house, saying that all the stuffs were impure.”*

*Participant 2 (female health worker)*

Participants shared similar experiences in both the villages. Having restrictions on things throughout their periods during and after the earthquake was very challenging for the women in these villages. One of the women elaborated as:

*“I am a health assistance by profession but, I too follow some of the myth and taboos about menstruation like not attaining the religious ceremonies. As I have been following it from before and I cannot simply stop believing it. I sometimes think of ignoring the restrictions and living all the days as a normal day, but I am scared if any misfortune happens to my family. As I am a medical person, I know the impacts of unhygienic practices, so I am particularly concerned about hygiene during menstruation. Though I cannot stop myself from following certain restrictions, I strictly follow the hygienic practices during menstruation”.*

*Participant 15 (Health worker)*

Another lady explained:

*“When girls from our house menstruate, they keep on touching everything, and we couldn’t restrict. We have no men in our house, so we do not follow all the rules strictly except attaining the religious functions. We also do not go to the room that we worship our God and perform religious ceremonies. Once we are on our fifth day, we take a shower early in the morning and clean the entire house. And then we are no more restricted to go anywhere or any rooms.”*

*Participant 12 (Female local leaders)*

Women also find difficulty in bathing after the earthquake

*“Bathing is a problem after the earthquake. Before we used to have enough water and a bathroom where we can bath properly. But I need to go to the river and shower. It is hard to fetch water from long distances to shower, so we go to the river. Yes, it is in the public area, and now I do not feel the same anymore. It has been like a regular thing to me. I used to feel awkward before, but we do not have any choice left. I am still sensible when people walk behind me.”*

*Participant 13 (village women)*

From the above quotes, we can see that social and cultural restrictions during menstruation has made the well-being of women’s life in difficulties even during menstruations. Following all the cultural implications about menstruation during the disaster with some unique conditions (e.g., bathing early in the morning, sleeping far from their house, being isolated, etc.) might force their life into more risks. Further, the lack of proper knowledge about menstrual hygiene is prevalent in the community where education is limited, often resulting in poor hygiene practice during menstruation (Boosey & Wilson-Smith, 2014).

## **How does menstruation affect schoolgirls' absenteeism, and what is the role of WASH facilities in attendance after the earthquake?**

This part explores the different challenges being faced by girls due to a lack of availability of WASH services in the school premises. Further, it explores how the lack of these services acts as a contributor to schoolgirl absenteeism during menstruation.

### **Toilet and Hygiene Problems**

To reduce the need for unhygienic practices and reproductive tract infection, Water and sanitation at school or homes need to be addressed. As menstruation is considered as a topic of shame and not to talk about, many adolescent girls are neither taught nor informed about it. This may also be the reason women in rural areas often lack the knowledge regarding menstruation and hygienic practices. The participant had several complaints and difficulties in toilet use because of numerous reasons. Lack of hygiene, no proper door or roof of the toilet, bad odors, and no water in the toilets were some of the complaints of the participants. Girls in the study said that the lack of a gender-differentiated toilet was challenging. They also said that boys could urinate outside easily, but it is challenging for them to pee outside, and real challenges encounter during the menstruation. There were more chances of not coming to schools during menstruation. Girls also face social stigma, exclusion, and limiting participation in school life and compromise their safety during menstruation. For instance, one of the schools going girl said:

*“There were just two toilets in our school. Though it was told 1 for boys and 1 for girls, there were no restrictions. That was not the main issue, but there was no lock for the toilet, and we had to hold the door by one hand or ask a friend to stay outside, not to let other enter inside. There was no water available, and there was no privacy, so during my periods, I often skip my classes.”*

*Participant 6 (school-going girl)*

Girls need somewhere private to change the sanitary clothes or pad and clean water for washing the used clothes and maintain hygiene. They also need a proper provision for securely discarding

the used materials or place to dry their clothes if they are reusable. Another respondent also explains the same sentiments:

*“There was just a toilet to use as another was totally destroyed and septic tanks leakage had made bad odors everywhere. The odors were even in the classroom. A limited amount of water was available as there was a water reservoir in the school. I, with my friends, somehow manage to urinate outside as the toilet had bad odors. We go in bulk; some will look for the people, and some will urinate, and if they saw people, they make noise and vice versa. It was manageable during normal days, but I felt so embarrassed during my periods.”*

*Participant 1 (School-going girl)*

Some researchers noted that inadequate WASH infrastructures, including Menstrual Hygiene Management, made it more challenging for school-going girls to manage their menstruation at school (Sommer, Kjellén, & Pensulo, 2013). Another respondent shared her frustration:

*“Having to go to the toilet was a huge issue. Apart from that, I was always worried about the hygiene. As I was reusing the same piece of sari to block the blood flow for 8 to 9 hours during my periods, I was feeling uncomfortable. I had to wait for evening or early morning to change and wash my pads, so nobody sees. As we were staying in tents, it was not possible to hide pads and wash later. I was told to wash and hide it under other clothes because they say it was shameful if somebody sees our pads. I was not allowed to dry the cloth under direct sunlight.”*

*Participant 4 (school-going girl)*

One of the respondents further elaborated:

*“We used reusable cloth before, and I used to find it easy than using a sanitary pad. My daughter and I found it quite difficult to manage with a cloth during the earthquake. As the toilet was destroyed, it was hard to locate private space to change the pad. We used the backspace of the cowshed to change, but people*

*were everywhere. We had to look for the opportunity of being alone. It was the same condition at my daughter school as well.”*

*Participant 9 (Village women)*

She further continued,

*“handwashing with soap before and after changing pads was not always possible in school. Sometimes my daughter denied going to school because she said it was challenging to maintain menstrual hygiene there.”*

Another girl from Bhanjyang school expressed her challenges managing menstruation in school as

*“In the school, there are no water facilities in the toilet. There is a small tank outside the toilet and a small bucket to carry water if necessary. As the school staff has to fetch the water, she is very much conscious about the amount of water used. Sometimes she even asks us not to use water as it is tough for her to carry water from down the hills”.*

*Participant 4 (School going girl)*

Most girls reflect that the lack of proper toilets created a barrier for them. After the earthquake, it is much more challenging to get access to clean and safe drinking water, sanitation, and hygiene as all the facilities and infrastructures are damaged or destroyed. One of the respondents added:

*“We live in a place where every single drop of water is important for us as we must keep all the work behind to go to fetch water. We must travel for half an hour or 45 minutes to go to the water sources. I tried to come early, but if I go late, I need to wait in a queue and wait for my turn to come. We must think twice about using water for washing the eatables, who cares about personal hygiene? If we want to clean yourself, we do it when we go to the river to graze our cows and buffaloes.”*

*Participant 14 (Villager)*

During our interview, I was also talking to one of the political members of the society about the infrastructures that the local ruling party has done to facilitate the WASH problems, and he elaborated as:

*“WASH services have been one of the major problems that need to be considered mainly after the earthquake. All the WASH services were destroyed, but we prioritized water first. All other service was possible only if we had enough water sources. Unfortunately, pipeline water access was not possible at Bhanjyang and thus delayed on other services. We talked to our higher authority regarding our problems, and they agreed to help us. Different organization came, and they made it possible for the door to door water pipeline on Dharapani. They also tried on Bhanjyang, but it was not affordable for the village people. And thus, Bhanjyang had to struggle not only with the water but also with the hygiene and sanitation problems”.*

*Participant 11 (Local Politician)*

He further added,

*“Bhanjyang’s school also lacks WASH facilities after the earthquake, toilets are often not clean, and no proper disposal unit had made girls more challenging during their menstruation. Menstruation is always a topic of secrecy in our community, so girls are not open to their problems with others. Rather, they stay home during their menstrual days, missing 3 to 4 days of their school days.”*

*Participant 11 (Local Leader)*

Lack of access or limited access to WASH facilities contribute to the challenges a girl should be facing during managing their menstruation hygienically and confidently manner at school (Mahon & Fernandes, 2010). School is the better source to get accurate information and knowledge about menstruation- physical and psychological changes that occur during puberty. However, if the school doesn’t meet the needs of WASH services, the girls are reluctant to attain or actively participate in the school participation (Sommer, Ackatia-Armah, Connolly, & Smiles, 2015; Tegegne & Sisay, 2014).



## **Shame, fear, and embarrassment**

One of the central elements brought by girls was fear and embarrassment during menstruation. Girls were explaining how accidental blood staining in cloth or bench put them in a state of shame and embarrassment. One of the participants in the interview revealed that:

*“I wish to be at home while menstruating. I also have severe cramps during menstruation with heavy blood flow. I use a piece of mom’s old sari as an absorbent. As there is no adequate water supply and proper toilet facilities, I cannot concentrate in my class with the discomforts with one pad for the whole day. Once, I tried to change the pad and wrapped in a plastic bag and took home, but I was so much concerned about the odor coming out from it. That embarrassing situation made me skip 2-3 days of my school days every month.”*

*Participant 5 (School-going girl)*

Girls explain the difficulties in concentrating or participating in school activities due to stigma. Further, their absenteeism as per their interview was linked to the fear of being found out as menstruating. According to them, managing menstruation was challenging and done in secrecy. Another girl expresses her challenges during menstruation as.

*“I am the happiest person to go to school. But the feeling of lack of hygiene and not feeling safe to change or manage my menstruation made me reluctant to go to school. After the earthquake, they had no shield or door to keep privacy somehow. I cannot ask for permission very often, and the boys may wonder what is she going to the toilet frequently? Asking permission to go out when there is a female teacher is very easy as I can share my problem with her. But I feel uncomfortable asking permission with male teachers so, I sometimes even skip my class. I usually try to avoid the first 2 or 3 days of my cycle due to fear in managing my menstruation.”*

*Participant 3 (School-going girl)*

Embarrassment to talk about menstruation was predominant during the interview through their giggling and shy nature. Keeping that in mind, I spoke indirectly, making them feel comfortable.

During the interview, menstruation was commonly perceived as a “problem” or “bad thing” to suffer through. Many girls also express the reluctance to speak about the menstruation to men (example; male family member, teacher, or friend). They also express the feeling of shame and embarrassment. During the continuation of the interview, one participant added.

*“Someday, I bleed heavily and feel like changing the cloth during the school hours. There is no proper place to change or manage our menstruation. I sometimes wear the same cloth for the whole day, but that makes me very uncomfortable. Feeling if I started smelling makes me anxious. So, I just bunk classes whenever I have to change my cloth or sometimes even skip my school”.*

*Participant 6 (School-going girl)*

Another participant shares her similar experience

*“I use cloth as an absorbent during my periods, and I am very comfortable with it during winter days; however, managing it during summer is very challenging. One reason is we do not have adequate water facility, and another is the increase in temperature makes me sweat, and the cloth rub against my skin makes me feel that I am sitting in the thorn. I can perceive that I started smelling with the cloth, and that is such an embarrassing situation, and so to avoid the feeling I prefer being home to school.”*

*Participant 8 (school-going girl)*

She further added,

*“Sometimes, we even have to suffer. The feeling if blood leaks on our uniform is the topic to worry about. She mentioned that she, including her friend, had devised to check each other uniform for stains before going out or standing in front of the class.”*

Going through all the above analysis, this could be argued to be an internalized shame and embarrassment girls are worried about; influencing the prevailing circumstance make them point prejudice to themselves and other with same condition as them which is relevant to the “enacted”

stigma, as judgement by others for being “flawed” (Scambler, 2009). Further, the sensation of “staining,” as mentioned by the respondent during the interview, could be the social method of exclusion associated with discrimination leading to embarrassment, shame, and teasing (Scambler, 2009).

## **6. What have we learned from this study?**

Through this study, I have highlighted some relevant issues or challenges faced by girls and women after the earthquake- mainly due to inadequate WASH services.

### **The importance of WASH services for girls and women in particular**

Firstly, the role of WASH in the field of development and public health has been very significant. This is why the issues of menstruation and MHM is also becoming progressively relevant issues at some point in the life of girls and women. It is also obvious that having adequate awareness and knowledge about menstruation and its impacts on health are very important. MHM is an issue that needs to be addressed by individuals for the betterment of the nation. There are various barriers for girls and women, which include lack of access to adequate access to WASH facilities and inappropriate absorbent for menstruation.

### **A need for awareness about the taboos and stigma following menstruation**

This study also highlights the post-disaster challenges faced by girls and women during menstruation. Absenteeism rates of school-going girls were increasing due to a lack of WASH services. Girls were not able to maintain their menstruation in hygienic and confidential manners- adding psychological disturbances (Shame and embarrassment) to adolescent girls. Further, stigmatization of menstruation has been susceptible to the research site leading the girls to being deprived of their capabilities to go to schools.

Some organizations identified the needs for WASH services in the community after the earthquake and worked in an attempt to meet those needs. In fact, women and girls were the vulnerable groups, and thus those organizations had focused them before implementing plans. The need for sanitary absorbents and hygiene needs to be focused.

This study also shows that women were in vulnerable situations because of their gender. During the interview, it was also evident that social stigma and taboos enhanced vulnerabilities during menstruation. Nepal follows unique restrictions and taboos during menstruation, which added

more challenges to girls and women during disasters. Menstruating girls are disrespected as being impure and forced to follow the restrictions.

### **The need to listen to women's own experiences**

This study mainly focuses on the challenges experienced by Nepali women during and after the earthquake due to a lack of access to WASH services- what factors made them vulnerable; what kind of challenges they had to face during menstruation; what gendered problems they faced and if their needs were met or unmet. However, this study suggests the social perceptions have changed to some extent in the present situation. One of the participants explains:

*“There were various organizations distributing things as a relief material that includes tents, foods, blankets, and towels. Some organizations distributed sanitary absorbents as well and conducted campaigns about the hygienic practices during menstruation. As there was no proper pad disposal unit, it was hard for us to manage the waste. Also, I was used to cotton reusable cloth, so I gave the absorbent to my daughter.”*

*Participant 14 (Villager)*

She further added,

*“ We never used to talk about menstruation openly, but after the earthquake, we had several campaigns that focus on girls and women health. We got to know how unhygienic practices and taboos can affect the health of an individual”.*

Since earthquake demolishes all the infrastructures but yet it has failed to destroy the cultural taboos and stigmas pertaining to socio-cultural practices of menstruation. Despite the presence of various I/NGOs which claim to work for the empowerment of girls and women, my participants revealed that they had felt very insignificant contributions in their real life.

Going through the study, we can conclude that several organizations recognize gendered needs for WASH services- MHM and implemented some programs to meet their needs. However, the Health campaign, to some extent, has been effective in lowering school absenteeism, though it has not lessened stigma but created an evasive mechanism for it.

## **Girls are still a vulnerable group**

This paper strongly shows the girls and women groups as a vulnerable group during disasters. Further, the role of WASH services during menstruation and its management at home and schools, mainly safe and convenient facilities to change or dispose of MHM materials with privacy and dignity.

In the developing country like Nepal, men are considered as the breadwinners of the family, and women end up being a housewife, and it is still the same in most of the rural site. Women are accountable for all the household chores. As there are high rates of gender discrimination, the girls or the women are most susceptible to various disasters (whether human-made or natural hazards). A considerable number of girls and women might have to face gender-based violence during and after the disasters. There arises an excessive burden on a woman and girl who usually does all the household works like providing care to children and older people, safe handling of food, and clean and safe water for everyday use. They are the group that have special needs for WASH services, but it is common in rural parts that their needs remain unmet. And, when their needs are not fulfilled, the whole community suffers (Hayes 2013). Thus, this can hinder their secrecy, health, and self-respect.

According to Cannon (1994), people are vulnerable in disaster due to various characteristics- socio-economic and cultural standing. Enarson (2000) asserts that disasters intensify a society strength and weakness. During disasters, the impacts on particular gender depends on the level of inequalities in a society. So, varying degrees of gender inequality in the social hierarchy will manifest individuals vulnerable to disasters in different levels.

Destructions of houses, water sources, and toilets have added much more strain to carry out the households. On the other hand, the natural hazards (i.e., earthquake) had also provided the opportunity for the women to participate in the disaster response programs. For example, when I was working on the affected village with the motive to build awareness about the impact of lack of access to WASH services, I had included both men and women. I formed a group where they can participate equally in decision making related to WASH facilities in the community. Doing this had encouraged them to keep their words during the discussions freely.

During and after the disasters, women and girls of school-going age were prioritized on maintaining safe food handling, water treatments, hygienic practices, proper disposal of the wastes, and menstrual hygiene management. This does not mean that men were not made aware; there was an awareness campaign conducted to make the people aware about the hygienic practices. And, as it was especially women and girls suffering due to lack of access to WASH services, I, with my team, had to focus on the women mainly. For example, women had to travel long distances to fetch water, and while talking about the school going girls, they had to skip schools mostly during their menstruation as the destructed toilets and lack of water adds them strains.

### **How can we use these results?**

The result of this study can be of use to various organizations that are interested in serving vulnerable groups during the time of disasters. It can further be helpful for those who are interested in helping women impacted by disasters- providing general support and trying to minimize their problem.

I hope my study helps create awareness about the unique challenges faced by women during disasters and their gender-sensitive needs during those times. This study could also be helpful for those who are planning to find out the post-earthquake impacts on WASH services and rural women and girls in Nepal. This study can further be used by researchers and organizations in exploring specific themes causing vulnerabilities and bringing about the policies better to serve vulnerable groups during the time of disasters.

## Appendix 1- Interview guide

S.N.	Questions/ Point of discussion	Operationalization
1.	Can you tell me about yourselves? <ul style="list-style-type: none"> <li>• How old are you?</li> <li>• Where were you born?</li> </ul>	
2.	How do you think your experience differs from others in the community?	Can you tell me in the form of story
3.	What age did you have your first period? Does your life changes after you start to have periods?	What kind of changes? Good or bad? How did you notice the differences?
4.	What are the words you used to talk about periods? <ul style="list-style-type: none"> <li>• What word do you use with your friends?</li> <li>• Are secret words used to talk about it, so nobody will know what you are discussing?</li> <li>• Is it necessary to keep it as a topic of secrecy?</li> </ul>	Can you please tell the code word you used to term menstruation?
5.	Have you ever skipped your school because of menstruation?	Why? Are you scared of menstrual blood appearing on the cloth?
6.	Has anyone asked you not to participate in any activities in the school when you are on your periods?	<ul style="list-style-type: none"> <li>• Parents, Teachers, or friends. If yes, Why?</li> <li>• Do you agree with them? Why? Why not?</li> </ul>
7.	How was your daily life with or without access to WASH services? What is the situation of WASH before and after the earthquake? <ul style="list-style-type: none"> <li>• Is access to tap water available?</li> </ul>	Can you please elaborate on the challenges faced?
8.	How did you manage your menstrual hygiene? <ul style="list-style-type: none"> <li>• What kind of absorbent was used?</li> <li>• Where there any changes in the people behavior regarding taboos of menstruation after the earthquake?</li> </ul>	Can you narrate the story?
9.	Were there any measures done to facilitate women and girls from vulnerabilities?	If yes, What?
10.	Do you think because you are women, you were impacted more by the earthquake?	If yes, How?
11.	Are there any activities you can do or not while you are menstruating? (Are there any restrictions placed on you?) If restrictions:	What restrictions? <ul style="list-style-type: none"> <li>• Religious?</li> </ul>



	<ul style="list-style-type: none"> <li>• Who place restrictions on you?</li> <li>• How does it make you feel?</li> <li>• Why do you think these restrictions are placed on you?</li> </ul>	<ul style="list-style-type: none"> <li>• Touching of water or entering in particular places (kitchen, or temples)</li> </ul>
12.	What were the benefits you got from the international and governmental organizations who were there to help cover the lack of access to WASH during and after the earthquake?	Did it help you to ease during the crisis?

## **Appendix 2- Invitation letter to participate in the research study**

We are conducting the research study on “Post-earthquake challenges to Access to improved Water, Sanitation and Hygiene (WASH) services in the daily life of people in rural Sindhuli, Nepal, and its impacts on girls and women.” And this research covers the rural part of Nepal, i.e., two different villages of Bitizor in Sindhuli district. The primary purpose of the research project is to identify the challenges faced by girls and women after the earthquake. More specifically, we focus on how the availability and accessibility of WASH services pose challenges to everyday life for girls and women in Bhanjyang and Dharapani.

I need to talk to you as an expert on what goes on in your area. Along with interviews from other leaders, village heads, FCHVs, community health workers, and school-going girls from both villages. We hope to form a complete picture of the situation in this district. We will also bring the efforts of the local governmental and non-governmental bodies as a framework to understand how the everyday challenges are met.

The research study will be conducted by Isha Pokharel, a student in a master’s in social science at Oslo Metropolitan University. She would like to talk to the people of both Dharapani and Bhanjyang villages. The interview will last for 60 to 90 minutes, but in case you want to add something, you are always welcome to contact us again.

Isha Pokharel will conduct the interviews and will take notes during the interview. The recordings will be deleted after the transcription. We hope that you will permit us to record the interview to ensure the richness of your story. The interview will be conducted according to your comfort, preferences, and convenience. Participation is voluntary, and you may withdraw from

the study without any consequences at any time. In which case, all the data from you will be deleted. You can also request to remove parts of the interview.

We guarantee confidentiality and anonymity, and the data will be used only for study. The signed consent form, written notes, and the recordings will be stored in the locked file cabinet until they are destroyed.

Professor Randi Wærdahl (randwa@oslomet.no), Department of Social Work, Child Welfare, and Social Policy, Oslo Metropolitan University, is the supervisor for the project. If you want any information or the questions regarding the project, please do not hesitate to contact Isha Pokharel at ishapokharel92@gmail.com.

I have received the information about the project and agree to participate in the study.

.....

.....

Signature of participant

Date

### **Appendix 3- Consent form**

I ..... agree to participate in the research “Post-earthquake challenges to access to WASH services in daily life of people in rural Sindhuli, Nepal and its impacts on girls and women.”

I have been informed about the motivation and nature of the study both verbally and in writing, and I am taking part in this study by my own will. I also permit my interview to be audio recorded. I understand I can withdraw my interview anytime without any justification.

I also understand that I can withdraw permission to use my data at any time, and I have the right to ask them to delete my data (Except for which data is not already published).

I understand that extracts from my interview can be quoted in publications, but my identity will be masked to ensure confidentiality and anonymity.

I understand that if I find any manipulation in my data, I can complain to the Data Protection Officer for the data controller or The Norwegian Data Protection Authority.

Consent of the participant

.....

(Signature, date and place).

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