

# Status of Water, Sanitation and Hygiene Practices (Wash) in Government School of Butwal Municipality, Western Nepal

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**Abstract:** WASH (Water, sanitation and hygiene promotion) in schools, plays an important role to provide a safe, healthy and comfortable environment where children grow, learn and thrive. This study was carried out to find the status of water, sanitation and hygiene practices in government school of Butwal municipality, Western Nepal. The study was done using random sampling method during June 2013 and September 2013. Eighty percent of the sampled schools had adequate water supply but only 10% of the sampled schools had adequate number of water tap with respect to students (1: 50). Forty percent of the sampled schools drinking water exceeds nitrate level than NDWQS- 2062. Fifty percent of the sampled schools drinking water was unfit due to the presence of coliforms. Only 20% of the sampled schools filtered the water before storing into tank. Only 20% of the sampled schools tested the quality of water once a year. Forty percent of the sampled schools had adequate number of toilet for boys and only 10% of schools had adequate number of toilet for girls (40:1 for boys and 20:1 for girls). Only 20% of schools were child friendly in terms of toilet. Only 20% of schools had effective handwashing practices. All schools had no dental hygiene program. Eighty percent of schools had menstrual hygiene facilities. Only 20% of schools used incinerator for solid waste management. All schools had no effective liquid waste management practices. In Majority of school operation, maintenance and repairing was problem on WASH facilities. The result obtained from the study showed that the hardware components of WASH are not adequate to meet the WASH standard and the software component (hygiene promotion) in school was not effectively implemented. The study also found the coliform contamination to be the key problem with drinking water.

**Keywords:** WASH; Hardware component; Software component; Coliform

## 1. Introduction

Schools, after the family, have a vital role to play for the cognitive and creative development of children. School is a socializing institution and stimulates learning environment and positive changes. They are equally important places to address the health issues of children provided that necessary infrastructure is available. Improved health and quality learning are not possible in schools as long as basic hygiene is lacking or sanitary facilities and water supply are missing. And if children do not have the basic knowledge, attitude and habit of good hygiene or cannot practice them, education is neither complete nor effective. Even worse, an unsafe school environment may damage their health especially girl children, who are more vulnerable to malnutrition in most of the cases leading to low enrolment and high dropout incidences.

Children have rights to basic facilities such as school toilets, safe drinking water, clean surrounding and information on hygiene, and other life skills. If these conditions are created, they come to school, enjoy learning and learn better and take back the learning to their families. Provision of water and sanitation with health and hygiene service are necessary for child survival, protection and development. Investing in children is the basis for positive change in the world.

The 'WHO/UNICEF Guideline on Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings' describes the standard for WASH in Schools as follows:

"A school with adequate WASH has a functional and reliable water system that provides sufficient water for all the school's needs, especially for handwashing and drinking.

The school must also have a sufficient number of toilet facilities for students and teachers that are private, safe, and clean and gender segregated. The school should have several handwashing facilities, including some that are close to toilets to facilitate handwashing after defecation. Facilities should cater to the needs of the entire student body, including small children, girls of menstruation age and children with disabilities. Hygiene education should be included in the school curriculum to instill good hygiene, sanitation and water-handling practices, and students should be encouraged to transmit hygiene knowledge to their families and communities." [1]

## 2. Literature Review

### 2.1 Access to WASH

Worldwide, 780 million people do not have access to an improved water source [2]. According to the United Nations and UNICEF, one in five girls of primary-school age are not in school, compared to one in six boys. One factor accounting for this difference is the lack of sanitation facilities for girls reaching puberty. Girls are also more likely to be responsible for collecting water for their family, making it difficult for them to attend school during school hours. The installation of toilets and latrines may enable school children, especially menstruating girls, to further their education by remaining in the school system. In 1990, the sanitation coverage of Nepal was only 6% of the population; however it reached 43% in 2010. The drinking water supply coverage was 42% in 1990 and reached 80% in 2010 [3]. In Nepal, 5.6 million Nepalese (around 20% of the population) do not have an access to safe drinking water [4], [5].

Only 41% of public and community schools in Nepal have toilet facilities. Of those, only one in four has separate toilets for girl students [6].

16 million Nepali people (57%) openly defecate every day due to the lack of latrines in their homes [4] [5], [6].

## 2.2 Diseases and Death

Approximately 80% of the communicable diseases in Nepal are due to contaminated water and poor sanitation. It has been estimated that 10,500 children die every year in Nepal as a result of water and sanitation –related diseases [7].

## 2.3 Prevention

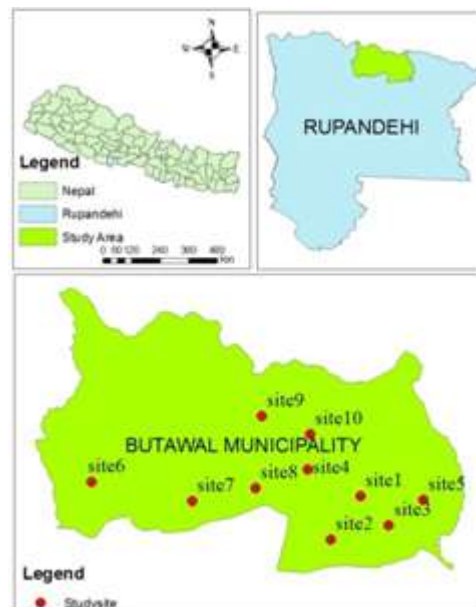
Improved water sources reduce diarrhea morbidity by 21%; improved sanitation reduces diarrhea morbidity by 37.5%; and the simple act of washing hands at critical times can reduce the number of diarrhea cases by as much as 35%. Improvement of drinking-water quality, such as point-of-use disinfection, would lead to a 45% reduction of diarrhea episodes [8]. Devkota (2007) suggested that 92% of piped water supplies and 25% of tube wells are either out of operation or in need of repairs [5], [6]. In Nepal, an estimated 14 million Nepalese (around 37% of the population) wash their hands with water after defecation. Of these, only about 12% (3.4 million) wash with soap [9].

## 2.4 Benefits of Improved Water and Sanitation

The economics benefits of WASH are immense as investment of Rs 1 in sanitation will give back return of Rs. 9 [9]. 10, 500 children die unwanted deaths each year due to water and sanitation related diseases in Nepal which can be presented by providing access to sanitation, drinking water and hygiene [7]. The UK DFID study has shown that the enrollment of girl students goes up by 11% when gender-friendly toilet facilities are available at schools. Educating people about hygiene and promoting the practice of hand-washing with soap are simple and cost effective measures that can help prevent diarrhea by 45% [7]. Hygiene promotion is the most cost effective health intervention according to the World Bank [10].

## 3. Study Area

This study was done in government school of Butwal municipality, Western Nepal using random sampling method during June 2013 and September 2013. Out of 15 government schools, 10 schools were selected as study site.



## 4. Method Description

In order to achieve the objectives and obtain the major outcomes of the study the methodology given below has been used for data collection.

- a) Direct Observations of School Facilities
- b) Semi-Structured Interview with Head teacher, Hygiene/Health Teacher
- c) Focus Group Discussion (FGD) with Students
- d) Water Quality Test using ENPHO kit

## 5. Discussion

The study found that all the sampled schools had water supply within school compound. This is good development because lack of water can affect student's school attendance as they go a long distance to look for water [11]. Only 20% of schools had inadequate water supply. But student and tap ratio was high. This showed that inadequate tap affect student's school attendance as they had to queue for a long time if they have to use the tap for drinking water. This may result in water borne diseases.

The study found that 40% of schools water sample exceeds nitrate content higher than WHO recommendation. This may be due to the runoff from fertilizer use; leaking from septic tanks, sewage; and erosion of natural deposits. This may cause death in infants by cyanosis (Methemoglobinemia) also known as blue baby syndrome. The nitrate content higher than 200mg/l will increase the risk of stomach cancer. Fifty percent of schools water sample wasn't fit for drinking due to the presence of coliforms. This may cause water borne diseases [12]. Thus, the water must be treated before drinking. But it was found that only 20% of schools used the filter for the purification of water.

Forty percent of the schools that were sampled indicate unhygienic conditions at the water points. Accumulation of stagnant water due to lack of proper water drainage is one of the causes of such problems. Stagnant water encourage bleeding of insect vectors that causes diseases [13].

Sixty percent of the sampled schools had inadequate number of toilet for boys and 90% of schools had inadequate number of toilet for girls. This showed that inadequate toilets affect student's school attendance as they had to queue for a long time if they had to use the toilets. Eighty percent of school sanitary condition was found to be poor as toilet of wall and floor were dirty (some presence of urine or fecal matter), improper use of urinals, highly intolerable odor and no cleansing material. This showed that students don't prefer to use school toilet as toilet becomes the place of microorganisms that can cause water related diseases like schistosomiasis which is transmitted through snails. Snails like to live in moist conditions like water and wet grass. All sampled schools showed the presence of separate toilets for boys and girls. This is good for girl's privacy especially during menstruation period. But 20% of schools had no effective menstrual hygiene management facilities so that absenteeism results high in case of girls. Thus, learning process was affected.

Twenty percent of the sampled schools had effective hand washing facilities due to the evidence that soap and water were available with wash basin within toilet unit and 50% of schools had no soap for handwashing. This situation was a health risk because food stuffs are being sold in some schools implying that students after visiting toilets buy and eat the food without washing their hands. Hand washing at critical times-including before eating or preparing food and after using the toilet – can reduce diarrhea rates among children under 5 by almost 50% [14]. Therefore, it is important to have hand washing facilities.

Eighty percent of school had no hygiene promotion activities due to the fact that no poster, wall writing, painting etc related to hygiene were observed in school. Thus, students may be victim of water borne diseases. Educating people about hygiene and promoting the practice of hand-washing with soap are simple and cost effective measures that can help prevent diarrhea by 45% [15].

Eighty percent of schools burned the waste in an open area and there was no management for ash which may result in air borne diseases. Forty percent of schools had no wastewater management facilities which were collected within school compound. Thus becomes shelter for mosquitoes, flies etc.

The parent teacher association was not so active in operation and maintenance of WASH facilities due to absence of parents in meeting and financial problem. Due to lack of hygiene promotion activities, students club were not so active in WASH activities.

## 6. Conclusion and Recommendation

Inadequate water supply, poor sanitation and hygiene practices and inadequate sanitary conditions/facilities play crucial roles in the increased burden of communicable diseases among school going children. This baseline study constitutes an overview of the water, sanitation and hygiene conditions in the 10 surveyed schools of Butwal municipality. An overall output of the WASH in Schools Programme is to ensure that all schools are brought up to 'standard of water, sanitation & hygiene in schools'. The

analysis has been outlined throughout this report and one thing is clear: There is still need of developing adequate, child-friendly, gender & disabled friendly WASH facilities in schools. It is a matter of urgency. The study has found that no schools currently up to standard of WASH programme. Majority of schools lack facilities, quality of water was poor, no hygiene promotion activities, with no governance of Water, Sanitation and Hygiene in schools. Majority of schools also lack effective waste management practices. It is necessary to develop a comprehensive campaign for schools which can improve condition of schools. So, there is a huge gap between the current status and the envisioned outcomes of the WASH.

### 6.1 Recommendations

The following are the main recommendations based on the above result:

- a) Improve water quality
- b) Increase the number of sanitation facilities
- c) Ensure cleanness of WASH facilities
- d) Ensuring availability of supplies for hygiene practices
- e) Promote knowledge
- f) Promote good hygiene practices
- g) Effective operation and maintenance facilities
- h) All infrastructures should be gender, child & disabled friendly. There should be installation of incinerators and construction of drainage for effective waste management.

## References

- [1] WHO and UNICEF. (2009). *Water, Sanitation and Hygiene Standards for Schools in Low-Cost Settings* Retrieved february 25, 2014, from [http://www.who.int/water\\_sanitation\\_health/publications/wash\\_standards\\_school.pdf](http://www.who.int/water_sanitation_health/publications/wash_standards_school.pdf)
- [2] WHO and UNICEF. (2012). *Progress on Drinking Water and Sanitation: 2012 Update*. United States: WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.
- [3] Country Paper Nepal. (2011). *South Asian Conference on Sanitation - IV*. Kathmandu: Country Paper Nepal.
- [4] DWSS. (2010). *DWSS Database*. Kathmandu: Department of Water Supply and Sanitation.
- [5] CBS. (2009). *Report on the Nepal labour force survey 2008*. Kathmandu: central bureau of statistics, United Nations Development Programme and International Labour Organisation.
- [6] NPC. (2010). *Nepal Millenium Developoment Goals: Progress Report 2010*. Kathmandu: National Planning Commission.
- [7] Water Aid. (2009). *Improving water and sanitation governance through citigens action*. Kathmnadu: Water Aid.
- [8] UN. (2007). *Millenium development goals report*.
- [9] MOHP. (2006). *Equity in Health Report*. Kathmandu: Minister of Health and Population.
- [10] Water Aid. (2012). *Saving Lives*. Water Aid.
- [11] Save the Children. (2008). *Improving water, sanitation and hygiene behaviours in schools: successes and lessons learned from Mangochi District, Malawi*.
- [12] WHO. (2006). *Guideline for Drinking Water Quality. 1st edition Volume 1*. Geneva: WHO.

- [13] Khan, A, H. (1997). *The Sanitation gap: Development's deadly menace*. Retrieved february 21, 2013, from [www-unicef.org/pan97/4-13.pdf](http://www-unicef.org/pan97/4-13.pdf).
- [14] Curtis, V., and Cairncross, S. (2003). Effect of washings hands with soap on diarrhea risk in the community: a systematic review. *Lancet infectious diseases*, 3 , 81-275.
- [15] Water Aid. (2009). *Fatal neglect : how health system are failing to comprehensively adress child mortality*. Uk: Water Aid.