

Fig: Railway slum problem map (montu colony)

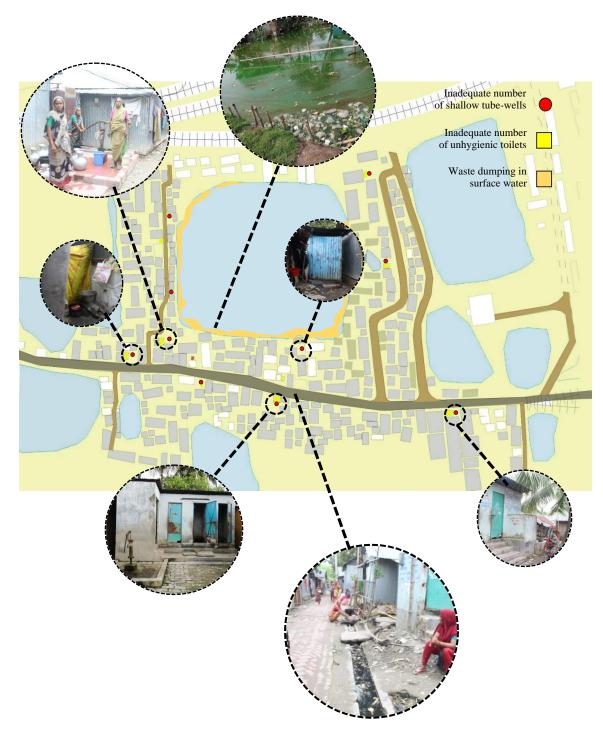


Fig: Railway slum problem map (montu colony)



: Fig: Kashipur slum problem map

Water supply:

Rupsha slum dweller have inadequate access to safe drinking water . Often ,they bought drinking water from venders ,because existing drinking water source can't provide required water for the dwellers. Mostly women and girls of the households collect water. Because of the distance of water source women face trouble .Shared water source sometime pose threat of violence . Khashipur slum women feel insecure collect water at night time. Railway slum dwellers buy drinking water from venders. Wheras, supply water provided at Rishipara slum,women spend 5-10 min to collect them .

For other purpose these slum dwellers use unsafe surface or shallow tube well water. Which highly threat for women and child. Even if they don't want to use them ,there is no other option to choose. Due to these problem they face several disease during the year.

We use JMP methods to compare these slums water condition. That present here as table:

S1-Rupsha slum, S2-Khashipur slum, S3-Railway slum

Indicator	Slum
Improved Drinking water source	S1. Tubewell
	S2. Tubewell
	S3. Tubewell
Piped improved drinking water	Unavailable
sources	
Non piped improved drinking water	S1.Tubewell at 30 min distance
sources	S2. One tubewell for 10 min distance
	S3.One tubewell 5 min distance

Table01:

Unimproved drinking water sources	No
No drinking water facility (surface	No
water)	
Improved water sources exceeding 30	
minutes collection time (limited	
drinking water services)	
Improved water sources exceeding 30	S1.Yes
minutes collection time (basic	S2.No
drinking water services)	S2.No
Improved water sources which are	S1.Yes
accessible on premises	S2.No
	S2.No
Improved water sources which are	S1.Yes
available when needed	S2.No
	S2.No
Improved water sources which are	Yes
free from contamination	
Safely managed drinking water	Yes
services	

The JMP uses a simple improved/unimproved facility type classification that has been refined over time. Improved sources are those that have the potential to deliver safe water by nature of their design and construction. These include piped supplies (such as households with tap water in their dwelling, yard or plot; or public standposts) and non-piped supplies (such as boreholes, protected wells and springs, rainwater and packaged or delivered water).

Sanitation:

While access to water supply was hard in all the surveyed slums, access to proper sanitation facilities has been found to vary significantly among the surveyed slums. The situation has been found to be particularly alarming in the Rishipara slum .In Rishipara slum, almost 30% latrines are unhygienic (i.e. without water seal and venting system). Open defecation is still practiced by some children living in the slum. In this privately owned slum, the slum-owner is not interested to install sanitary latrines, while slum people are not permitted to construct latrines. Because of this, a very unhealthy situation is prevailing in the slum.

In Rupsha slum, the situation is even worse, with 10% respondents still practicing open defecation and majority of latrine being unhygienic. The condition of toilets in this slum has been found to be very poor. Very few owned toilet seems good but still lack basic facilities.

The situation is much better in Railway and Khashipur slums; unhygienic latrines account for only 2% and 4% sanitation facilities, respectively in these two slums, and open defecation has been completely eliminated. In Railway slum, many toilets constructed during past intervention by NGOs are still working satisfactorily. However, in Khashipur slum, many latrines constructed under owner interest and are functioning properly.

S1-Rupsha slum, S2-Khashipur slum, S3-Railway slum

Table02:	

Indicator	Slum
Improved sanitation facilities	S1.Dry latrines
	S2.Pour flush latrines

	S3.Dry latrines
Improved sanitation facilities	S1. No
connected to sewers	S2.Yes
	\$3.NO
Improved sanitation facilities	S1. No
connected to septic tanks	S2.No
	S3.No
Improved pit latrines or other on-site	S1. Yes
improved facilities	S2.Yes
	S3.Yes
Unimproved sanitation facilities	S1.Few households
No sanitation facility (open	No
defection)	
Improved sanitation facilities which	Yes, not limited
are shared (limited sanitation	
services)	
Improved sanitation facilities which	No
are not shared (basic sanitation	
services)	
Sewer connections where wastes	No
research treatment plants and are	
treated	

On site sanitation facilities where	No
wastes research treatment plants and	
are treated	
On -site sanitation facilities where	Yes
wastes are disposed of in situ	
Safely managed sanitation services	No

The JMP now divides improved sanitation facilities into three categories: limited, basic and safely managed services. The population using improved facilities that are shared with other households will now be called limited rather than shared. Improved facilities that are not shared count as either basic or safely managed services, depending on how excreta are managed. Most of the slum households use limited sanitation facilities, few household use basic or safely managed services.

Hygiene:

The reported hygiene practices by the households seems absent in slum areas. The reported hand washing practice by households before taking meals is 5%, and after defecation 58% due to lack of knowledge and proper equipment. 98% household members reported wearing sandal (slipper) before going to latrine in slums. 48% respondents in slum reported washing their hands before feeding and after anal cleansing of their children. In slum area, about 40% households practice hand washing with soap and 9% with ash.0-50% women and adolescent girls in slums area can take bath privately. Sufferings from various waterborne diseases like diarrhea, dysentery in the four slums are almost similar. Majority of respondents (over 95%) in all four slums demanded more support in WASH for further improvement of hygienic practice in their community.

A focus on gender differences is of particular importance with regard to sanitation facilities. Inadequate access to sanitation and hygiene disproportionally affect poor women and girls, as they are often faced with additional challenges related to menstrual hygiene, personal safety, sexual harassments and violence. Limited access to latrines, many women and girls become 'prisoners of daylight', using only the night as privacy. Night-time trips to fields or roadsides expose them to risk of physical attack and sexual violence. To ignore their natural bodily functions out of fear causes discomfort but also increases the risk of being affected by health problems such as urinary tract infections, chronic constipation and mental stress. Furthermore, in many countries, school attendance by girls is lower and dropout rates are significantly higher in schools that have no access to safe water and no separate toilet facilities for boys and girls.

Table 03:

Indicator	Slum
A hand washing facility on premises	No
A hand washing facility on premises	No
with soap and water available (
basic hand washing facility)	
A hand washing facility on premises	Yes
lacking soap and /or water (limited	
hand washing facility	

People living in households that have a hand washing facility with soap and water available on premises are classified as having basic facilities. Households that have a hand washing facility but lack water and/or soap are classified as having limited facilities. In some cultures, ash, soil, sand or other materials are used as hand washing agents, but these are less effective than soap and are therefore counted as limited hand washing facilities. Most of slums dweller having limited hand washing facilities.

Lessons from Vietnam (Slum):

Instead of being a country with similar economic condition like ours, Vietnam has gone so far ahead in terms of WASH service provision with its sustainable and integrated long-term planning. The condition is well understood while focused on the WASH state of the marginalized, i.e. the slum dwellers.

In order to have a comparative comprehension of the slum WASH provision a pilot survey was conducted in a slum named Dong Humg Thuang in Ho Chi Minh city. This was a slum alongside the river which comprised a population of about 25 households.



Figure 2: Dong Humg Thuang slum, Ho Chi Minh City

Water:

Where each of the houseolds comprised safe drinking water supply by the concerned branch of the Government. As well as there are provision of buying drinking water barrels through vendors. The condition of access to safe drinking water supply is thus adequate. There was no provision seen of rainwater harvesting instead of sharing similar climatic characteristics like ours. As well as the concern for recycled water usage was absent.



Figure 3: a) Safe drinking water supply for the marginal b) Installed water heating system & Hygiene tools available c) Decent Toilet with safe water supply, adequate sanitation and Hygiene facilities

Sanitation:

The condition of sanitation is quite inadequate. There is a zone of common toilet for every 5-7 households which are not so clean and hygienic. Though they possess the basic needs as a decent latrine, running water for daily chores, hygiene tools etc. some of them can afford the water heating system. Though the waste disposal is unsatisfactory. The untreated waste water is directly disposed to the adjacent water body. At the same time sewage are also disposed into the rivers because of improper management causing a direct threat to the urban environment, human health and ecology. The solid waste is also left untreated and left to degraded environment.



Figure 4:a) Disposal of untreated waste water directly to water body b) solid waste disposal randomly at the river

Hygiene:

The Hygiene scenario is better than slums of many other developing countries, especially of Bangladesh. Each toilet and handwashing zone consist daily hygiene necessities. The considerations for women are also observed. Alongside, they seemed to posses the basic hygiene knowledge which is reflected in the maintenance of their water and sanitation tools.

Grossly, Vietnam has not been the best in WASH management yet but they have shown a visible progressive impact, especially while providing for the marginalized. The integration of the water and sanitation system together is something to take lessons from. Concomitantly, the social structure and cultural stance for the access of women in WASH is prominent in the provision of women needed tools in the places. They were even so comfortable to share their experiences with the interviewer, which definitely proves the social ease. But the unconsciousness for the waste and its impact on environment is the threat to be handled for Vietnam to acquire the SDG target.

PUBLIC PLACE(MARKET PLACE AND BUS TERMINAL):

The study is conducted to find out the present sanitation status of Khulna City. For this reason a survey was conducted which would represent sanitation problem in Khulna City. To study the sanitation system of public place the survey covered 2 public places of Khulna City. The data and information have been taken from the field survey and local authorities. Our study was carried out on observation and open ended questionnaire survey basis. The samples were selected on random basis from different public places area

PUBLIC PLACE OVERVIEW:

Khulna city most of the public places does not have a sewer network or drinking water provision of any kind. Lack of administration forces the large sections of the people to use unhygienic latrines and drink impure water which are not only a threat to their health but also to the environment. Most of public places have unhygienic latrines and some have no latrines. That's why women are face trouble in public place.



Fig: study area



Fig: Location of sonadanga bus stand



Fig:location of new market

Fig: problem map)



Fig: Problem map

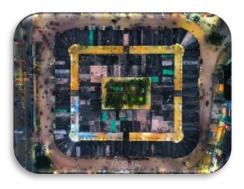


Fig: Top view of Khulna new market stand



Fig: Front view of Khulna sonadanga bus

WATER :

In public places water sources are not available for common people. Drinking water sources are far away and not located in healthy place. Such as for Khulna new market there is only one deep tube well for drinking water. Shop keepers purchase drinking water in cheap rate but they are dependent on the water carrying person and it needs around half an hour to bring water from the tube well. Some public places have no drinking water source. There people buy drinking water. There is no piped improved drinking water in any public place in Khulna city. Even there is no safely managed drinking water service. Also in sonadanga but terminal the condition is same. As a case study in Vietnam we also survey some public places. There is also no drinking water source except some modernized public places.

Table of water:

INDICATOR	Public Place		
	New market	Sonadanga bus stand	
Improved Drinking water source	No	No	
Piped improved drinking water sources	No	No	
Non piped improved drinking water sources	Carry from deep tube well by labor	Carry from deep tube well	
Unimproved drinking water sources	Un hygienic	Un hygienic	
No. drinking water facility (surface water)	No	No	

Improved water sources exceeding 30	No	No
minutes collection time		
(limited drinking water services)		
Improved water sources exceeding 30	01 (below 30	01 (below 30 minute)
minutes collection time	minute)	
(basic drinking water services)		
Improved water sources which are accessible	No	No
on premises		
Improved water sources which are available	Unhygienic	Unhygienic
when needed		
Improved water sources which are free from	No	Contaminated
contamination		
Safely managed drinking water services	By labor	No

SANITATION:

Public toilets in Khulna city bear the portrait of neglect for lack of supervision, causing immense suffering to those busy in outdoor activities during daytime. Visitors who come to Khulna for official and other purposes suffer much due to shortage of public toilets. Passers-by are often seen crossing many city areas covering their noses to escape from the unpleasant smell caused by human wastes lying there. The Khulna City Corporation (KCC) has only 13 public toilets for 15 million people in areas under its jurisdiction. Most of them operate under extremely filthy and unhygienic conditions. As a result people are forced to defecate on the open, thereby raising a stink in the area-both literally and metaphorically.

In Khulna new market the toilets are not clean and urinals pipes are licked and thus bad smell spread all over the area. All toilets are not usable. Due to mismanagement one of three toilets is used as waste dumping place. Floor is flooded with water. Supply water has bad smell and is not useable. In the toilet at Sonadanga bus stand. The floor of the toilet is full of dirty water and people entered it by covering there nose. The toilet is completely unusable as it is unhygienic. There is basin for hand wash but no soap or hand wash liquid. The shopkeeper. Slum dwellers, beggars and vagabonds relieve themselves on the roadside, making the areas unsanitary. As

defecate on the roadsides, walls and in the drains, canals and ponds, causing health hazards and environment pollutions. But Females, children, aged people, patients,can't use the toilet by any way. Male can respond to the call of nature by using footpath sides, parks and open places but use of such places by women is impossible. Some of the toilets do not even have separate arrangement for the women. For this reason most of the women don't feel comfort to use public toilet. And because of unhygienic environment the users suffer many diseases. There is no provision for children in any public toilet. In Khulna new market and sonadanga bus stand there is pit latrine. But every public toilet should be pit latrine or improved latrine. There should not be shared toilet. One wards of the KCC its need at least one public toilet at each of the thirty people.

In Vietnam some public toilet like mackong delta river bank gathering places there is male and female toilet but there is no water source or toilet tissue in toilet and not useable. There is a broken basin with no water supply. Overall condition is very poor.

IMAGES OF OF KHULNA NEW MARKET TOILET



Fig: Male toilet



Fig: female toilet



Fig: drinking water caring pot in toilet



Fig: Unhygienic floor



Fig: Unhygienic hand wash facility



Fig: One toilet is blocked

IMAGES OF KHULNA SONADANGA BUS TERMINAL'S TOILET



Fig: Unhygienic floor male toilet



Fig: Human waste discharge to drain



Fig: hand wash facilities without any soap



Fig: Urine direct to in toilet direct to the drain

Indicator	Public Place	
	New market	Sonadanga bus stand
Improved sanitation facilities	Yes	No
Improved sanitation facilities connected to sewers	Connection with drain	Connection with drain
Improved sanitation facilities connected to septic tanks	Yes	Yes
Improved pit latrines or other on-site improved facilities	No	No
Unimproved sanitation facilities	No	Yes
No sanitation facility (open defection)	No	Yes

Table of sanitation:

Improved sanitation facilities which are shared	Two Common	One Common
(limited sanitation services)	toilet(L/G)	toilet
Improved sanitation facilities which are not shared	No	No
(basic sanitation services)		
Sewer connections where wastes research treatment	No	No
plants available and are treated		
On site sanitation facilities where wastes research	No	No
treatment plants and are treated		
On –site sanitation facilities where wastes are disposed	No	No
of in situ		
Safely managed sanitation services	Yes	Not properly
		managed

HYGIENE:

In Khulna city public toilet's have neither soap nor tissue paper in the toilet. People deserve better service as they pay for using toilet. But without maintaining hygiene standards of the toilet facilities, KCC only keeps on increasing lease rates every year. That's why for women It's much better to control themselves than using the filthy toilet. The environment is becoming dump and unhygienic. Every public space should hygienic. Even the carrying pots of drinking water are stored in one corner of toilet. This is really unexpected.

Table of Hygiene

Indicators	Public Place	
	New market	Sonadanga bus
		stand
A hand washing facility on premises	No	No
A hand washing facility on premises with soap and	No	No
water available (basic hand washing facility)		
A hand washing facility on premises lacking soap	Yes	Yes
and /or water (limited hand washing facility		

At the end of analysis of water and sanitation condition of public places the condition is really harmful for men and women both. But women and young girl are being suffered in most of the cases. And a big percent of women don't use public place because of the unhygienic condition. another group of women are suffering many diseases for using these toilets. So it is really should be in the concern of the KCC of Khulna and other related management sectors.

EDUCATIONAL INSTITUTION (SCHOOL, COLLEGE AND UNIVERSITY): OVERVIEW OF EDUCATIONAL INSTITUTION:

The official rules of Bangladesh after 4or 5 years of birth every child is prepared for going to school. In Khulna city, almost 11bangla medium non-government schools, 18 colleges, and 3 public universities are established(https://en.wikipedia.org/wiki/List_of_educational_institutions_in_Khulna). Among defense schools and colleges, B.N school and college is renowned in Khulna city. On the basis of accessibility, we have selected this school and college purposively and have tried to observe and know that how this institution maintains their water, sanitary and hygiene system and prioritizes this issue like other rules and regulations as followed strictly. It would be easy to evaluate the WASH conditions of other government and private schools in Khulna city, especially for female children and women. BN school and college have been governed by the same authority. It has two academic buildings for school and college sections separately. Every academic building has five-storied and there are three toilets are on each floor for both male and female students and teaching staff. Around 3942 students are enrolled in the school and college section and 92 teachers are of this institution (oral interview of PS of Principal, is taken on 05.01.2020). Almost 134 peoples usage a toilet each day averagely.

On the other hand, Khulna University is one of the largest universities of 6965 students (https://en.wikipedia.org/wiki/Khulna_University). Khulna is one and only politics-free university in Bangladesh. As students of this university, the researchers have access to almost everywhere in this varsity. Besides, as female the researchers could contribute in this study personally from their lived experience regarding access to water, sanitation and hygiene. According to 2016, 5616 students study here regularly (https://en.wikipedia.org/wiki/Khulna_University).

We, the researchers have used JMP suggested indicators to evaluate the accessibility of women to WASH in educational institution from primary to higher study level.

WATER:

Table of water:

INDICATOR	Educational Institution		
	BN School	BN College	Khulna University
Improved Drinking water source	Yes	Yes	Yes
Piped improved drinking water sources	No	No	Yes
Non piped improved drinking water sources	Purchased mineral water jar	Purchased mineral water jar	No
Unimproved drinking water sources	No	No	No
No. drinking water facility (surface water)	No	No	No
Improved water sources exceeding 30 minutes collection time (limited drinking water services)	No	No	No
Improved water sources exceeding 30 minutes	3 water	3 water mineral	Yes
collection time	mineral jar	jar	(available
(basic drinking water services)			anytime)
Improved water sources which are accessible on premises	Piped services	Piped services	Piped services
Improved water sources which are available	Hygienic big	Hygienic big	Sometimes
when needed	water dram	water dram	unavailable
Improved water sources which are free from	Might be	Might be	Might be
contamination	contaminated	contaminated	contaminated
Safely managed drinking water services	By labor	By labor	Available

SANITATION:

Table of sanitation:

Indicator	Educational Institution		
	BN School	BN College	Khulna
			University
Improved sanitation facilities	Yes	Yes	Yes
Improved sanitation facilities connected to	Yes	Yes	Yes
sewers			
Improved sanitation facilities connected to	Yes	Yes	Yes
septic tanks			
Improved pit latrines or other on-site	No	No	No
improved facilities			
Unimproved sanitation facilities	No	No	No
No sanitation facility (open defection)	No	No	No
Improved sanitation facilities which are	15 toilets for	5 toilets for	Common
shared (limited sanitation services)	1000	250 students	toilets
	pupils		
Improved sanitation facilities which are not	Separate Toilets	Separate	No
shared (basic sanitation services)	are available for	Toilets are	
	students,	available for	
	teaching stuffs	students,	
	and non teaching	teaching stuffs	
	stuffs	and non	
		teaching stuffs	
Sewer connections where wastes research	No	No	No
treatment plants available and are treated			
On site sanitation facilities where wastes	No	No	No
research treatment plants and are treated			
On -site sanitation facilities where wastes	Septic Tank	Septic Tank	No
are disposed of in situ			

Safely managed sanitation services	Yes	Yes	Yes

HYGIENE:

Table of hygiene:

Indicator	Educational Institution		
	BN School	BN College	Khulna
			University
A hand washing facility on premises	Not well	Not well	Yes
	managed for	managed for	
	all	all	
A hand washing facility on premises with	No	No	No
soap and water available (basic hand			
washing facility)			
A hand washing facility on premises lacking	Yes	Yes	Yes
soap and /or water (limited hand washing			
facility			

SUMMARY OF THE SURVEY IN EDUCATIONAL INSTITUTION:

In these educational institutions, sanitary fittings are not satisfactory, especially in school and college. There are high commodes for commonly usages for students. Public usages of high commodes are hygienic or not are a questionable issue in terms of net and cleanness. Improved drinking water and piped water sources for other activities are available but cleanness is not satisfactory. Though toilet facilities are in terms of gender usages are separated but in built form is the same i.e. gender dimension has not been considered in building or structuring toilet. Hand wash is not available in toilets for both the school and college sections. Hierarchy is strictly maintained in arrangement of toilet for teaching staff, non teaching staffs (administrative, clerk etc). Toilet tissue, hand wash and towels in administrative stuff and teacher's toilet are more compare to the clerk and students' washroom. Bins are only found in male students' toilet but those washrooms are not clean. Any menstrual facilities are not available in female students in the college section. One sanitary napkin is seen in the female toilet in the school section but no basket is here for dumping. In the school section play to class ten, all students use the same toilets. Since high commodes are placed here so these toilets are not feasible in usages for kids. In university-level, improved water sources are commonly used but sometimes the provision of water supply is

disrupted due to technical problems. Besides piped water sources might be contaminated due to commonly used by mass students. Non piped improved water sources are not available here. Sanitary condition is not satisfactory here as well. Toilets are not well managed. These are unhygienic and dirty. Water supply in the toilet is adequate but due to unhygienic conditions females might be uninterested to discharge urine and defecation and thus urinary problems would be a major health issue of female students. Hand wash, soap or toilet tissues are not offered in toilets. In university level all toilets including female toilets are also decorated by the male fittings which are totally unused. Toilets are not favorable in usages for married female pregnant students. Moreover, it could be stated that the condition of toilets for a long time. The existing WASH system especially sanitation and hygiene are not female friendly and thus not supportive for ensuring SDG goal no. 6.2. To ensure the accessibility to WASH for women equity and sustainability have to be confirmed and this why we need to assess this issue from feminine perspective instead of masculinity one.

Images: on the basis of observation of the toilet of BN school



Fig: Improved drinking water source for both school and college (purchased mineral water jar)







Fig: Toilet fittings are same for male and female for boun college and school section







Fig: No hand wash is available or limited hands wash facilities Fig: Bins are found only male toilet



Fig :Only one sanitary napkin



Fig :Septic Tank of BN school and college is seen in school section for common toilets of male and female students from play to class ten Images: on the basis of observation of the toilet of Khulna university Architecture Depertment



Fig: Female toilet of university



Fig: Hand wash facilities are unuseable





Fig :These male toilet facilities are availabel in female toilets in university which are unused



Fig:Unhealthy and unhugienic toilet used by famle in university



Fig: Handwash facilities are not available in female toilets in university



Fig: Piped water facilities for all students

Findings:

- In educational institution toilets are commonly designed for male and female and thus in female toilets one third fittings are unused.
- Due to lack of proper management female toilets are unhealthy and unhygienic compare to male toilets.
- Female toilets are not user friendly for pregnant, female child and senior citizens.
- Proper and enough sanitary facilities are very limited in female toilets and thus during menstrual and emergency times females are unwilling to go to toilets for cleanness and discharge urine for a long time. This situation is caused for suffering urinary and others female diseases.
- Concern authority doesn't look after toilets for a long time.
- The existing situation doesn't ensure the equity for female to WASH.
- No drinking water sources in public places.
- Toilets are not adequate in public places and exiting toilets are unusable.
- In public places toilets are not mentioned separately for women and for this working woman are not interest to use these toilets which impacts on their reproductive health for a long time.
- Hygiene provision is so limited in public toilets.
- Safe drinking water sources are inadequate in slum areas and existing facilities might be contaminated due to lack of proper management.
- Many people of slum areas purchase drinking water which indicates we still cannot ensure basic right like drinking water for all easily.

- Due to lack of proper drainage system in slum areas toilets are logged during rainy season.
- Infrastructural condition of maximum toilets is poor but due to intervention of stakeholders like NGOs built forms of toilets are quite good.
- Hand washing tools are very few in shared toilets in slum area.
- The health of female in slum area is at risk due to unhygienic condition of sanitation.

<u>Chapter 07</u> <u>Recommendation & Conclusion</u>

To ensure accessibility to WASH for women -

Firstly, women sanitary issue should be considered from feminine perspective not from masculine views.

Secondly, in our country maximum policies are made by male and it works as barrier in implementing level for female and thus many policies of our country are not gender oriented.

Thirdly, sanitation facilities and system should be sustainable for women which ensure the implementation of goal 2 of SDGs.

Fourth, to ensure accessibility of women to WASH different parts of concerned authorities should work together. Due to lack of integration mismanagement of provision of basic water services, sanitation and hygiene are hampered.

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