

Common standard guidelines for inclusive construction and management of Public toilet in K.C.C. areas :



Public Toilet construction and management Directory-2020



Preface

Khulna city corporation is a densely populated city. K.C.C. considers the demand of Public Toilet (PT) with utmost importance as the other Public services. In spite of having public toilets , the number is vastly insufficient comparing the huge population. Again due to various unforeseen circumstances, we are unable to maintain as well as retain the hygienic standard of the existing public toilets. In order to cope up with this situation k.c.c. has taken significant steps in inclusive construction and management of public toilet. We are also trying to facilitate our public toilets such that they are ensuring the universal access model.

I hope, this directory will play an important role in inclusive construction and management of public toilet.

Mayor
Khulna City Corporation, Khulna.

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1 Introduction

According to the City corporation Act-2009, each and every city corporation must have sufficient public toilets with the facilities to male and female separate toilets zone. In this Act, dhara 41 describes in details that it is compulsory works to provide better facilities in these public toilet. But it is a matter of sacked that as a third divisional city khulna has a minimum capacity of public toilet. It has only 24 nos public toilets with worse physical conditions. Without proper monitoring system these public toilets are not user friendly at all. Now the people of khulna city are increasing day by day and the trade and commerce works always make a upcoming pressure to it's city dwellers life style . Now a days women are doing outside jobs like males , so it is now a time to provide universal access to the Public toilet at the same time provide sufficient numbers of Public toilet in K.C.C. area.

Public toilets(PT), which can be better referred as 'away from home' toilets is considered a core component of modern cities, particularly densely populated cities. Public toilets (PTs) should not be viewed as only a public service, but should also be believed as a critical element of environmental design, adding to a city's quality and viability. Research has shown that public toilets are essential design and planning concern to make cities more sustainable, accessible, inclusive and convenient for all members of society.

Despite its immense importance, the major cities of Bangladesh lacking the basic PT facilities for the city people including the floating population. Currently, more than 166,280,712 people living in urban areas of Bangladesh, of which a large number of people work and stay out of their homes for long hours. This section of people in the city, particularly those who are employed in the informal sectors critically require PT services. In general, there is a significant lack of attention of the government and the city authority to plan and provide PTs. Khulna City is probably not out of this scenario, rather a similar situation is exist in the city. The population of Khulna City is about 1.5 million having a density of 32,859 persons per square km suggesting enormous increasing demand for PTs with the population growth. Khulna Water Supply and Sewerage Authority was established to provide water and sanitation within the city, but mainly focused to water supply.

To meet the basic sanitation needs the people often use open areas, street side, walls, drains to respond to their natural needs. It is indeed a growing public nuisance which demands attention of all concerned. It is also an urgent issue which, if addressed in a planned manner will contribute to improve the "livability" of any city. In addition, PT provisions often overlooks the needs (and even the existence) of women, children, disabled people, and the elderly. Ensuring public toilet provisions available to everyone can be considered essential to removing a serious barrier to wider participation in public life in Khulna City. In order to improve the PT facilities, and to improve the quality of life, health and living environment it is much more important to follow a common standard guidelines to construct a universal access to public toilet.

2. Objectives of these guidelines:

In khulna city about 2,00,00 disadvantaged people always suffer from unsustainable, unjust, inhuman and inequitable environment. To improve the quality of life, health and living environment it is much more important to follow a common standard guidelines while construct a public toilet.

This guidelines is for local authorities in towns and cities in charge of public and community toilets. This includes leaders and officials in charge of funding, planning, designing, regulating, monitoring or managing these facilities. It is also useful for national governments, public and private service providers, NGOs, donors and civil society organizations who have a role in this provision. Although much of the content might apply globally, the focus is on developing country contexts.

This guideline can support local governments to better understand the sanitation requirements of women and girls. It suggests practical steps towards ensuring public and community toilets respond to these requirements.

The specific objectives are:

- 01) Assessment of physical structure and service performances of existing public toilets located at public places in Khulna City.
- 02) Recommend for up-gradation and improvement in facilities and services to meet the universal use of public toilet.
- 03) Identify new locations for public toilets in KC to serve the existing and future demand with availability of space, ownership of the land, and population coverage.
- 04) Develop sustainable management models including drafting of associated service level agreements.

3. Definition of a Well designed public toilet:

Architecture and sociology agree that spatial impact influences society which is determined by the interaction of customs, values and norms and its architectural form of expression. To fully understand this impact might be difficult or even impossible. But to understand that it exists gives the opportunity to use design to change behaviour.

Anyone, who has even been in an overcrowded or uncomfortable public toilet, will value a good toilet design. Public toilets are places where one is obliged to ease oneself in unfamiliar surroundings among the strangers of the same sex. Therefore, the fundamental principles of design of toilets include psychological studies and not just physical clearances and space requirement.

The usual demands placed on a high traffic and heavily used facility requires extra thoughts for each process. A well-designed public toilet has to be:

- a) clean and dry
- b) well ventilated
- c) safe and user-friendly
- d) vandalism proof
- e) easy to maintain
- f) and needs to have a carefully planned layout

Toilets located in either public or in high-density residential settings need to be inclusive and safe environments. They need to be facilities that people feel confident to use, are easy to maintain, and are resource efficient. To achieve this, toilets need to be well located, well designed and effectively managed.

There is a close relationship between design and management. Design choices should be made that allow for easy cleaning and management, resistance to vandalism, low maintenance requirements, and user convenience.

Design and material choices need to ensure that the life expectancy of the structure can be realised. Besides, toilets should be designed and constructed in accordance with environmentally sustainable, equity (access and usability) and efficiency (cost over time)

4. Sustainable design principles for Public Toilet:

Public sanitation facilities should be built and managed in accordance with sustainable design principles. Sustainable designed sanitation facilities aim to lessen their impact on the environment through energy and resource efficiency. Besides, they will improve the sanitary conditions in low-income areas and the safe disposal of wastes.

Consideration must be given to the inclusion of the following objectives in the design stage:

- minimising of water and non-renewable resource consumption
- promoting health and hygiene
- reducing initial investment cost without spoiling functionality
- meeting the demand of intended users
- enhancing of durability of materials and equipment
- easy to extend, upgrade and replicate
- safe disposal of waste products with focus on possible reuse options
- reducing of environmental pollution
- providing options to reuse waste products
- meeting minimal space requirements

Adopting these principles often requires taking the following measures:

- demolish and rebuild only when it is not economical or practicable to reuse, adapt or extend an existing structure;
- make the most of the site, e.g. by studying its history and purpose, local micro-climates and the prevailing winds and weather patterns, solar orientation, and the form of surrounding buildings;
- design the building to minimise the cost of ownership and its impact on the environment over its life span by making it easily maintainable and by incorporating techniques and technologies for conserving energy and water and reducing emissions to land, water and air;
- wherever feasible, use the construction techniques which are indigenous to the area, learning from local traditions in materials and design;
- put the function of the building and the comfort of its users well before any statement it is intended to make about the owner or its designer. That is, make it secure, flexible and adaptable (to meet future requirements);
- build to the appropriate quality and to last. Longevity depends much on form, finishes and the method of assembly employed as on the material used.

- avoid using materials which cannot be reused or recycled, especially in structures which have a short life.

5 . Necessity of universal access to public toilet :

Now our govt. has taken different action plans to meet the SDG Goal within 2030. From this goal 6.2 , we informed that Govt. initiated different Sanitation facilities for ensuring sanitation facilities for everyone in everywhere. Universal access to public toilet is an emergency fact now-a days . In our country ,previous period women were stay at home and did all household works only. But now they do different challenging jobs in outside ,so now designers should consider special needs of women while designed and constructed public toilets.

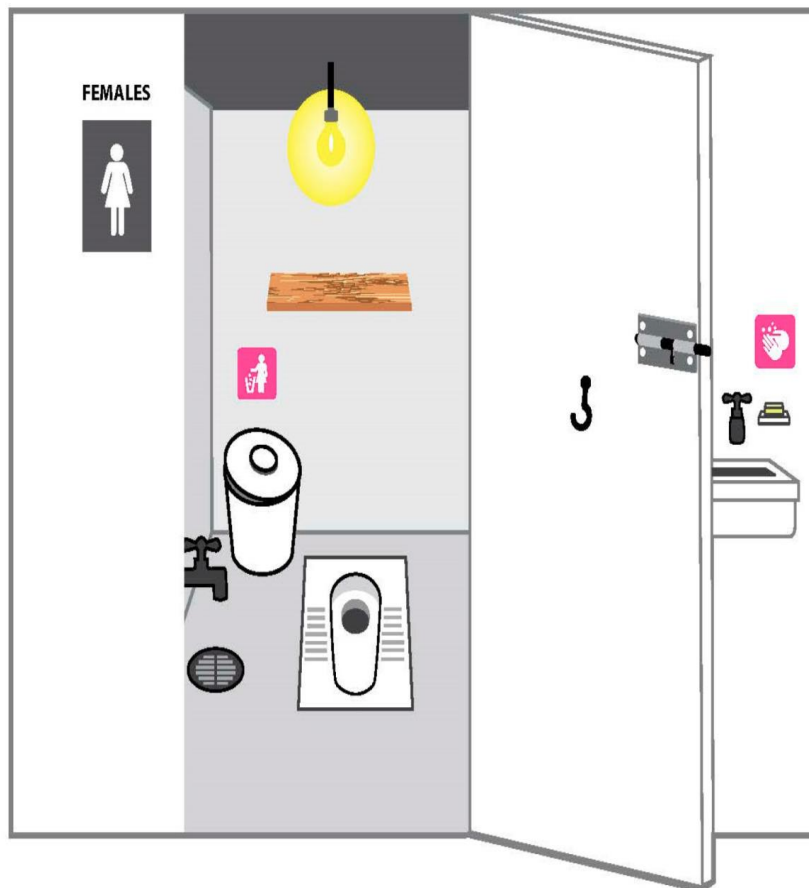
Female-friendly public and community toilets must have:

01. **Be safe and private:** be in a safe location; have a clearly marked female toilet section with a separate entrance; have good lighting; have trained male and female attendants; have robust, private cubicles.
02. **Provide Cater for menstrual and other hygiene requirements:** water and soap; hooks, shelves and mirrors; access to menstrual products; means for washing and/or disposal of menstrual products.
03. **Be accessible to all users:** be at a reasonable distance from homes or activity centre; be reachable via an accessible path; have at least one cubicle accessible to all users.
04. **Be affordable and available when needed:** have enough cubicles to avoid long queues, which means allocating extra space and cubicles for women; be open when needed; have an affordable tariff or be free.
05. **Be well maintained and managed:** have adequate management arrangements and cleaning and maintenance budgets; have safe management of faecal, liquid and solid waste.

So, now we need a public toilets that meet everyone needs.



EXAMPLE OF A FEMALE-FRIENDLY TOILET



Adequate numbers of safely located toilets separated (with clear signage) from male facilities.



Safe and private toilets with inside door latch



Clear signs instructing girls and women to dispose of menstrual waste in the trash bin



A shelf and hook for hygienically storing belongings during usage.



Night time light source both inside and outside of the toilets



Easily accessible water (ideally inside the cubicle) for girls and women to wash themselves and menstrual materials.



Trash bins (with lids) to dispose of used menstrual materials



Walls, door and roof are made of non-transparent materials with no gaps or spaces.



Some units should be accessible to people with disabilities.

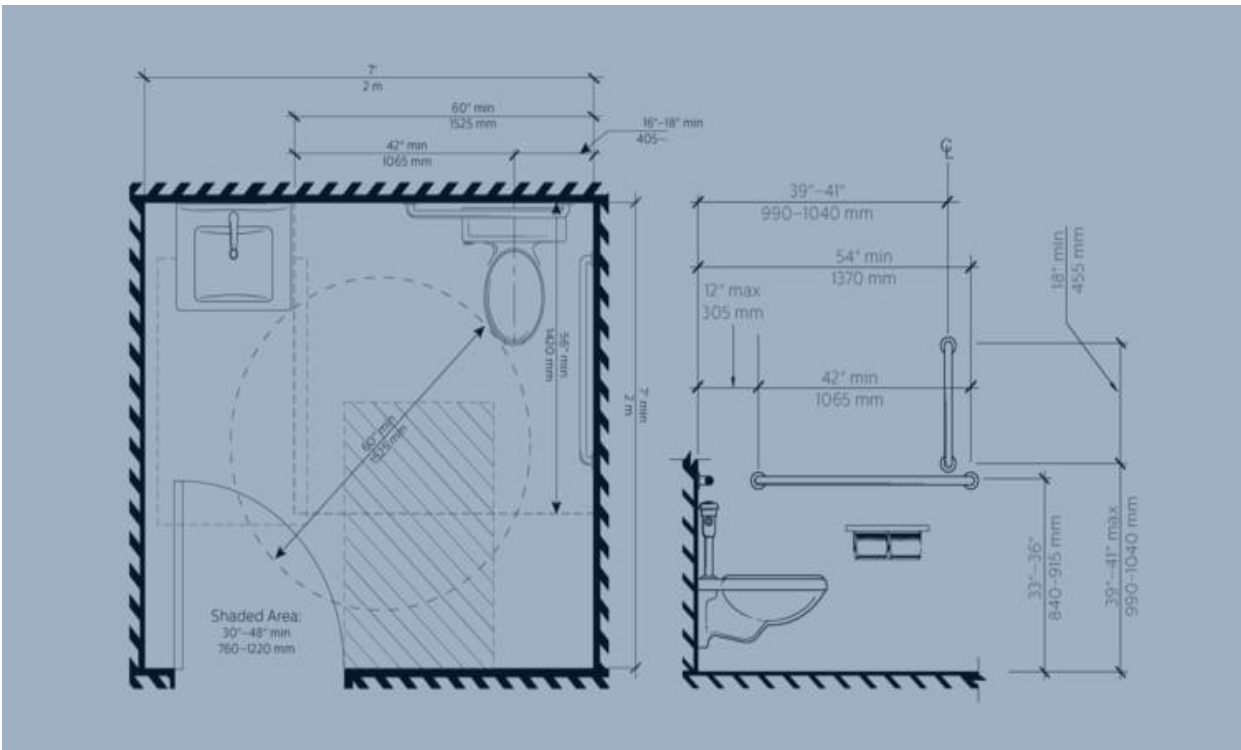
This is the standard Female friendly public toilet construction guidelines.

Disable -friendly public and community toilets must have:

Facilities for the people with physical limitations are now a prime concern while designing any public toilet in any places. Disable and aged peoples have some special demands for using public toilets. Disable –friendly public toilet has special measures and dimensions of length and width, door size, ramp size and slope , handrails height and size, special seats size and height, smooth and healthy inside etc.

Service provider must consider the following needs of disabled people while constructing public toilets -

- Design depends on the needs of the people
- May include:
 - Special seats
 - Handrails
 - Ramp
 - Smooth pathway to the toilet
 - Smooth floor inside
 - Wide doors



Special consideration of a disabled friendly Public Toilet.

6. Materials of public toilet :

Materials used should be durable and resistant to vandalism and neglect. Applied finishes such as paint should be avoided.

Examples of good materials:

- (a) Floor: Non-slip ceramic tiles, natural stone, homogeneous tiles, terrazzo, terra floor tiles.
- (b) Wall: Ceramic tiles, natural stone, homogeneous tiles, glass blocks, aluminium panels, phenolic cladding.
- (c) Doors: wood, steel

Carefully selected, durable materials minimise maintenance and prevent misuse. It is highly desirable that painted finishes are avoided, together with any materials, which are affected by moisture or corrosion.

Floor finishes are available in a wide variety of materials. When selecting a finish, it is important to note that the material supports the image being presented. The finishes must be sufficiently durable to withstand the anticipated traffic levels and the toilet-cleaning frequency should also be sufficient to keep the floor looking well maintained and clean.

Non-slip homogeneous tiles are often selected because they are durable and are relatively easy to clean. The walls should be tiled, allowing the cleaners to sponge down the walls and floors thoroughly with little difficulty. Another alternative is to use ceramic tiles or wall cladding.

Wall and floor tiles of large surface areas are encouraged for easy maintenance. The tile size should be at least 100 mm by 200 mm.

It is important to use colours to brighten the toilet, create interest, and produce a conducive environment. Colour, achieved with materials and lighting, is one of the vital ingredients in creating ambience. It can be part of the tile or stone finishes, or added to the applied finishes such as the enamelling on steel or aluminium. If paint is to be used, it should be restricted to areas that are out of reach, e.g. ceilings.

Generally preference should be given to materials that are recycled, recyclable and renewable. Local and/or locally produced materials shall be used to the greatest extent. Reuse of materials upon refurbishment or demolition of toilets should be considered. Durability of materials is important and directly translates into minimal additional resource use.

Non flammable material should be selected in the design of public sanitation facilities. Opportunities to start fires should be removed, and the opportunity for the flame to spread should be minimised

7. Exterior and interior of public toilet :

Toilet's exterior : Placing well visible signboard at the main road or public gathering places near to the Public Toilet (PT) showing location map with signage of provisions (man, woman, disable person _etc.)

Exterior wall :

_Light coloured tiled walls are easy to clean, reflect light and offer a sense of space. Walls must provide sufficient privacy as well as ventilation. They can also be used to maximise the use of light.

Skylights and other sources of natural lighting are strongly recommended. Wide entrances, light coloured and reflective internal surfaces, gaps under doors and exterior walls, grills and batons below the roofline, will assist to maximise the use of natural light and minimise the requirement for artificial lighting during the day.

Timers or sensors on lights as well as low energy fixtures are required

Toilet's interior : The interior design should maximise user visibility and minimise the opportunity for collision and conflict. No blind corners will leave open sightlines throughout the facility. The use of light colours is recommended for maximum visibility.

The use of non slip tiles or other floor coatings that are easy to clean and vandal resistant are recommended (not just concrete). Floors should slope slightly to an internal drain and / or floor trap to reduce water pooling.

Fittings should be common throughout public toilet facilities, to provide for easy replacement. Toilet roll holders (if considered) should be robust and secured well. Sanitary bins must be provided in each female cubicle. Air freshener units can also be considered. A mirror must be provided above the wash facilities. Mirrors should be flush with the wall surface.

Always mind that some disabled people need to get to a WC quickly. Their position should, wherever possible, be adequate to ensure they are easily accessed. . Doors should open outwards. Toilet doors should have a clear minimum opening width of 925 mm. The cubicle should be provided with hand washing and drying facilities.

The toilet enclosure and layout should be designed to maximize its breathing ability.

The mechanical ventilation system should be so designed that malodour generated is removed at the source as quickly as possible and will not be diffused away. The mechanical ventilation system of exhaust fans and, where applicable, ventilation ducts and grilles should ensure that every part of the toilet is within 3 m of the fan inlet or an intake grille, measured horizontally. Preferably, intake grilles should also be provided at low levels near the WCs to enable foul-air from interior to exterior.

8. Equipments of public toilet

Each toilet facility contains two types of equipment that is sanitation hardware such as toilet bowl, squatting pans, urinals and wash basins on one side and standard facility hardware such as electrical lighting appliances, mirrors, door handles and locks on the other. Both types are key-parts of a toilet facility and therefore need to be of high quality, durable and robust as well as preferably locally available. This is important for the longevity of the installed equipment and hence low cost of maintenance and high service quality.

Furthermore, a good technical status of equipment will always be of high value for the toilet customers who can rely on a high standard of sanitation services as compared to frequent break-down when using low-quality equipment.

The following list of criteria for a high quality level of equipment should be a guideline for procurement:

1. Durable: other than plastic, preferably strong metal and/or ceramic, especially the equipment exposed to direct human usage and reach like cisterns, flushing valve, dispensers, bins, taps etc..
2. Easy to clean.
3. Equipment like squatting pans and toilet bowls / pedestal should be of ceramic materials for easy cleaning and comply with high quality standards of brand name companies.
4. Equipment that can be integrated and concealed into walls, floors and ceilings or can be heavily bolted or otherwise securely attached to prevent damages, vandalism and theft.
5. Equipment with least possible amount of moveable parts.
6. Equipment is preferably operated manually than electrically.

9. Technology of waste treatment in Public toilet :

Public sanitation facilities should be connected to a reticulated sewer if available. If it is not possible to connect to the sewer then consideration should be given to the use of secondary treatment plants which will treat the wastewater to a higher standard than a basic septic tank. Other systems that may also be considered are composting toilets. The type of system to be used will be determined / influenced by the site characteristics.

The following on-site and off-site wastewater disposal technologies are acceptable:

Connection to a septic tank.

Level:

Wet on-site system

Description:

An in-house full flush-toilet connected via pipe and plumbing fixtures to an underground watertight settling chamber (the 'digester') with a liquids outlet connected to a:

- a) Subsoil drainage / soak away system or
- b) Small diameter sewer with liquid disposal to a central collection sump or existing sewer system.

Principles of operation:

Waste from the toilet, and grey water from sinks and showers is flushed into the settling chamber where it is retained for at least 24 hours to allow settlement and biological digestion. This reduces the sludge volume and provides preliminary treatment (about 35% BOD reduction and 65 % suspended solids (SS)).

Partially treated liquids then pass out of the tank into the subsoil drainage / soak away system. Alternatively, liquid effluent is conveyed by a system of small-diameter pipes to a communal treatment point (which may be off-site treatment works reached either via existing sewerage or by tanker).

Digested sludge gradually builds up in the tank and requires removal by tanker.

Connection to a Decentralized Treatment System (DTS).**Level:**

Wet on-site system

Description:

A low-flush-toilet connected via pipe and plumbing fixtures to a system of anaerobic and/or aerobic treatment modules that allow on-site and decentralized off-site treatment of toilet and other domestic wastewater.

This system offers the option to reduce the pollution load to such a level that a connection to a sewerage network is not necessary and the effluent can be safely released into the environment and/or re-used for different purposes. Pathogens reduction is sufficient.

The anaerobic treatment produces methane/biogas as a beneficial by-product. Requirements for space and maintenance are different for each module and determine over their suitability for certain site-conditions either as a single module or as a combination of different modules.

All modules require a watertight structure as to protect the environment from pollution. The anaerobic modules further require an airtight construction in order to capture biogas. The following treatment modules are applicable in the following order with each module further improving the effluent quality:

- (i.) Biogas settler (primary treatment) with gas capture connected to
- (ii.) Anaerobic Baffle Reactor (ABF) with gas capture (secondary treatment)
- (ii.) Or Anaerobic Up Flow Filter (AF) with optional gas capture (secondary treatment)
- (iii.) Aerobic constructed wetlands or ponds (tertiary treatment)

with the following disposal options according to pollution load:

- ☞ after (i): Disposal into a sewerage system (small diameter or conventional) with terminal treatment system (central, semi-central, decentralized system) or to a central collection sump.
- ☞ after (ii): Disposal into a subsoil drainage / soak away system.
- ☞ after (ii) and (iii): Disposal into the receiving water course or discharge into an irrigation system and other re-use schemes with lowest required pollution load according to NEMA and/or WHO guidelines.

Sludge coming out if the system needs to be treated and disposed of safely by either applying it to drying beds to harvest dried sludge, planted sludge beds to compost sludge, or by putting it into simple trenches for composting. At Rajbandth Khulna city corporation has a Human Sludge Treatment Plants (FSTP) which is one of the largest and modern FSTP in southern Asia.

So, our newly constructed Public toilets must have the technology to sludge treatment.

10. Provision for connection to the sewer system

Recently KWASA took an initiative to install sewer pipe line for better sanitation of khuln city corporation areas. They selected 10 sewer district (SD) zones according to priority basis. So our newly constructed Public toilet must have the provision for connection to the sewer system.

11. Recommendations :

Considering summary findings of the study, individual toilet status, recommendation from the users, non-users, leaseholders and caretakers the following general recommendation is proposed for improvement and up gradation;

11.1 All the measures should be taken to make the people know the existence, location of the PTs and provisions. This will be achieved through -

- i) Placing well visible signboard at the main road or public gathering places near to the PT showing location map with signage of provisions (man, woman, disable person)
- ii) Well visible nameplate on toilets wall.
- iii) Signage (written or sign) for male, female, disable and children at entrance.

11.2 Make sure that the users easily get into the toilets and feel free of apprehension during use. This requires -

- i) Make sure caretaker is sitting properly at the entrance all the time during service hours.
- ii) Parking facilities, particularly for the van/rickshaw puller and auto rickshaw driver. Although there is limited facilities, but make sure the caretaker is guarding vehicles during use.

iii) Lockers for safely keeping the users' belongings during use, particularly for women at entry point.

11.3 Make necessary physical up gradation and/or adjustment to add following new provision, adequate facilities and ensure better environment. –

- i) Provision and adequate facilities for disable person .
- ii) Provision and adequate facilities for children.
- iii) Provision and adequate facilities for female including separate entrance and MHM.
- iv) Build/develop bathing facilities in all toilets; particularly those are in the markets and bus terminals.
- v) Ensure sufficient natural light and ventilation of those toilets lacking these facilities.
- vi) Proper septic tank and soak well of those toilets lacking those
- vii) Septic tank pipe is not leaking, thus not polluting the environment

11.4 Make sure that all the PTs have proper functional arrangement for maintaining health and hygiene of users, caretakers and cleaners. This requires –

- i) Running water during service period in all toilet cubicles and common spaces. This may require an overhead water resurvey tank (1000 lt) cc for all toilets to supply water in case short supply from WASA.
- ii) Place hand washing basin and soap in all male and female blocks in PTs.
- iii) MHM provision and facilities for female
- iv) All toilets are adequately clean and floors are dry and no bad smell in the toilet.
- v) Place an awareness building board at toilet entrance with pictorial messages for users to keep the toilet clean. Like “What should you do in the toilet?”.

11.5 Demonstrate accountability to users and managers/owners in all toilets through –

- i) Appointing a full time caretaker for each toilet.
- ii) Female caretakers for the female toilets.
- iii) Displaying the cleaning roster
- iv) Displaying services and rates of the services

11.6 Improve the management aspects of the PTs.

- i) Make sure that everyone connected to PTS clearly understand their roles and responsibilities and executing their duties as well as improve their attitude to provide service. This can be done through
 - a) Training/workshop for the caretakers and leaseholders,
 - b) Motivation cross-visit for caretakers and leaseholders to good and badly managed PTs.

- ii) Properly lease out all the PTs for running the PTs commercially and deploy a competitive leasing process.
- iii) Develop monitoring and feedback systems by the management and implement.

ANNEX

Annex 1: Detail description of the indicators, sub-indicators and features

1. Accessibility of Public Toilet by All

1.1 Easy to identify the PT

1.1.1 Public Toilet has a visible nameplate on its wall

A nameplate is important to point the exact location of a PT. A standard PT should have well written nameplate in front of the PT mentioning "Public Toilet". The nameplate should be visible from a fair distance and not obstructed by anything.

1.1.2 Public Toilet has Male and Female Signage at the entrance

A public toilet should have separate provision for male and female and a signage (written and/or pictorial) at the entrance can inform people about the provision for both male and female. In addition, the signage at entrance indicates the way to access the male and female cubicles.

1.1.3 Signage on main road

The very first important thing about a toilet is telling the people "there is a 'Public Toilet'". A proper signage (picture with writing) can do the job. To maximize the effect of main signage should be placed like main road in a suitable place where the people can easily know and locate the PT.

1.1.4 Public Toilet has Signage for disabled people at the entrance

A standard PT should have provisions for disabled person. If the toilet has the provision, there should be a signage for disable person at the entrance so that they don't require to enter into the toilet to inspect whether s/he can use the toilet or not.

1.2 Facilities at entry point

1.2.1 Parking facility next to public toilet

Parking space and facilities is an important feature of a PT. Many people pulling rickshaw /van/ auto rickshaw or traveling by personal bicycle, motor bike and vehicle may need to use the toilet. They require a parking place. If there is no parking facility s/he they may avoid the PT.

1.2.2 Space for keeping belonging at entry point

Working people, particularly women need to keep their belongings safely while using the toilet. S/he may not consider it safe to keep this to caretaker. If there is no facilities of hanging hock or

locker in Public toilet , it does not work.

- Public toilet must have a clear written nameplate at entry level and which is visible from road level.
- Public toilet must have ramp for ensuring the entry of disable.
- Public toilet must have handrail with standard height for ensuring universal access to this toilet.
- Public toilet must have separate toilets zone for Male and Female and must have a standard sized (7'-0"x7'-0") disable friendly toilet and a breast feeding corner.



A typical design of Public toilet with all facilities.

