**ASSIGNMENTS FOR MODULE THREE WASH CERTIFICATE.**

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**Q1. Describe an ideal way of ensuring that hand washing is a culture and not a belief.**

**Answer:**

Hand washing refers to the personal hygiene done regularly before eating, after eating, after visiting the toilet and also after any mechanical activity that hands were involved.

Hands normally get in contact with many bodies daily and some of them are disease or carry disease causing pathogens. At the same time hands are very important when escorting food to the mouth for ingestion purposes.

Hands get in touch with so many things that we believe are clean and when we get in contact with food, we forget what our hands have gotten in contact with. It is important that washing hands regularly with detergent and using clean running water should be a priority in schools and even in social places such as markets. The water itself should be clean and the detergent used should be appropriate and not toilet soap.

It is important to let the hands dry by themselves instead of using a piece of cloth to wipe them dry which might be contaminated rendering the hands dirty than even the way they were before.

**Q2. In your own view, what should be done to communities who use one source of water for various purposes i.e. drinking, bathing, washing clothes and utensils, swimming and livestock use?**

**Answer:**

Basically, Sanitation refers to two essential ie personal hygiene practices that include hand washing with soap to prevent diseases before cooking or preparing food, before eating or feeding children and after defecating or after cleaning babies and secondly environmental hygiene practices such as cleaning our surrounding, food stored in covered containers, washing and cooking food, water source protection.

However, in rural areas people access water from boreholes, wells or springs. There are communities for example in Kenya Africa that to date they bathe in the rivers, wash their utensils in the same water, wash clothes in the same water and share the water with animals.

It is the responsibility of the leaders as well as role models in the community to sensitize the public on how to manage water and keep sanitation activities to international standards.

Also in places where we have community meetings for example religious grounds and markets, they should have proper waste disposal systems so that the wastes do not become public nuisance at the same time are not sources of diseases.

Water catchment areas should also be protected and for those who are still rooted to old customs, they should be enlightened to shun that way of life and adopt modern ways of sanitation.

Drinking water: A part from keeping sources of water safe and preserving them, people in rural areas have a responsibility of ensuring that they have access to clean drinking water, water used for cooking and drinking purposes should be boiled or be chlorinated to render it safe from diseases causing pathogens. In rural areas it is easier to access firewood as compared to buying chlorine which the community might not know how to measure appropriate volumes for whatever that they may want to treat.

Bathing: Bathing should be done routinely more so for children and should be done properly. Clean water should be used in the process, soap and clean clothes should be worn after bathing. Biology shows that the skin is a way that the body releases some of its waste products and if the skin is a depository ground for some wastes, then there is need to clean it.

Garbage disposal: There has been issue of disposal of polythene papers because the papers are left in the fields and normally they would be carrying food which attracts animals to ingest the same. After that they cause indigestions which leads to animal’s death and to the community are a reversed concept.

It should be a personal responsibility of the rural community to sort out garbage, whatever that is not should be gathered together from collections points where local government collects it for the purposes of managing it and converting to other products.

There are issues like burying animals that have died which is a responsibility of every citizen to take as a challenge.

Latrines: It is important that human beings are normally separated from human excreta through a number of ways that might be available. This includes a piped sewer system, septic tank, pit latrine or a composting toilet. Availability depends on the economic status of each family.

**Q3. There are communities who do not belief in fathers sharing sanitation facilities with their daughters, how would you handle a situation like this if you are a volunteer promoting digging of latrines in such a community.**

**Answer:**

The community should be sensitized on this and where the community might be reluctant to change, it is advisable that the latrine should be divided into two rooms so that children use one room and parents use the other room.

However, there is need for maximum sensitization to discard the custom. The government should also help subsidise in building of toilets and latrines.

**Q4. Explain how you will come up with a system for disposal of sanitary towels in rural and remote villages where it is even a taboo to use sanitary towels.**

**Answer:**

Disposal of sanitary towels in rural or remote villages have been an issue of waste management. For example, Narok in Kenya, the place is inhabited by the Massai who are pastoralists. There has been the issue of disposal of polythene papers because the papers are left in the field and normally they would be carrying food which attracts animals to ingest the same. After that they cause an indigestion problem which leads to animal’s death and to the community animals means everything therefore interfering with the way of life of this community.

It should be a personal responsibility of the rural community to sort out garbage, whatever that is bio gradable should be used as manure in the farms and whatever that is not should be gathered together from collection points where local government collect it for purposes of managing it and converting for other products.

The rural community should be sensitize on dumping of sanitary towels where by the community should identify dumping site for waste so that waste can easily be manage and controlled. If wastes are not properly managed, it will be cause pathogen diseases affecting the local community healthy by producing bad odour, breeding ground for diseases and flies which affects the population.

**Q5. Example the main objectives of an efficient operation and maintenance of water supply system.**

**Answer:**

Water and Sanitation projects experiences the most serious problems with operation and maintenance and with cost recovery aspects. Hundreds of projects around the world demonstrate how the newly built infrastructure deteriorates after the project termination.

Therefore, it is imperative to plan for operation and maintenance, with a planned withdrawal of external support as local ownership builds. This this document is intended for managers and planners who are concerned with the challenging problem of how to implement effective operation and maintenance in water and sanitation projects.

Operation and maintenance activities which encompass not only technical issues, but also managerial, social, financial and institutional issues, must be directed towards the elimination or reduction of the major constraints which prevents the achievement of sustainability. Operational and maintenance is crucial element of sustainability and frequent cause of failure of water supply and sanitation services facilities in the past. Many failures are not technical ones, they may result from poor planning, in adequate cost recovery, or the outreach in adequacies of centralised agencies.

Operation and maintenance has been neglected in the past or been discussed and introduced only after a project was completed. This neglect or delay in applying proper operational and maintenance has adversely affected the credibility of the investments made, the functioning of the services, the well-being of the rural populations and the development of further projects.

However, the importance of operation and maintenance has gained considerable visibility over the past few years and it appears that policy makers and project designers are now more conscious of the direct links between improved operation and maintenance practices and the sustainability of the water supply and sanitation services.

There is also greater recognition of the need to approach these projects in a comprehensive way, emphasising not only the design and construction but also post construction activities.

Operation and maintenance is required to ensure the sustainability of any project in which a new infrastructure has been put into place.

**Q6.In remote and rural villages, how would you design and make sure that the inhabitants have an efficient operation and maintenance of water supply system.**

**Answer:**

The operation and maintenance of a facility is central to its sustainability and must be given careful consideration in design. Some operation and maintenance issues are specific locations however urban and rural complexities normally differ in the complexities of technologies involved.

For example, when designing the sewage setup for different locations, the engineers should take into consideration that in the urban setup the sewer will be having more chemicals as compared to those in the rural areas.

For maintenance purposes it is important to acknowledge that urban areas are accessible within a short period of time for responses to emergencies for maintenance purposes as compared to rural areas.

Power is also available in urban centre for undertaking maintenance purposes but for the rural areas one has to be equipped with a diesel powered generator to execute good services which laying out pipes or doing maintenance.

Operation and maintenance overall aim is to ensure efficiency, effectiveness and sustainability of the water supply and sanitation facilities. The two activities of operation and maintenance are very different in nature. Operation means the direct access to the system by the user for example handling a pump to the activities of any operational staff and to the rules or by-laws which may be devised to govern who may access the system, when, and under what conditions.

Maintenance is to do with the technical activities planned or reactive, which are needed to keep the system working. Maintenance requires skills, tools and spare parts for any failure and emergency of the system.

Maintenance includes work that is planned and carried out on a regular basis to maintain and keep the infrastructure in good conditions, such as network inspection, flushing of the well, cleaning and greasing of mechanical parts and replacement of items with a limited lifespan. It sometimes also includes minor repairs and replacement as dictated by the routine examinations.

Maintenance includes replacing or repairing something that was done incorrectly or that which needs to be changed. A good example here is reallocation of a pipe route or replacement of a faulty pump. Maintenance is normally due to a reaction to a crisis or public complaints. It occurs as a result of failures and malfunctioning or breakdown of equipment.

In order to ensure the routine maintenance and health of a system, the technicians should adhere to routine check-up. The only way to avert this is to make sure that everything is done on time by a qualified person and using appropriate tools and spare parts.

**Q7. What are the duties of the municipal/county government in ensuring an efficient operation and maintenance of water supply system?**

**Answer:**

The duties of the municipal/county government in ensuring an efficient operation and maintenance of water supply system are:

* To ensure that operation and maintenance activities of a project is sustainable in the long terms.
* Operation and maintenance allow for the correct provision of services and benefit of end users.
* Operation and maintenance prevent the system from collapsing creating environmental and health hazards.
* Community need to be involved and sensitized in the operation and maintenance of water supply system.

**Q8. Community management of operation and maintenance of water supply system has been termed as efficient for rural projects. Do you agree with the statement? Explain your answer.**

**Answer:**

Community management of operation and maintenance of water supply system has been termed as efficient for rural projects. I agree with the statement on the following justifications.

In many cases in order to ensure the sustainability of the sanitation and improved water solution, it is necessary to have a community ownership and management approach making the end users directly responsible for the operation and maintenance of the installed facilities.

Successful operation and maintenance requires an owner’s manual prepared by the contractor and engineer at the onset of the planning process. This should spell out a schedule and procedures for maintenance and should include methods to carry out tasks such as booking, paying employees, collecting bills, inspections, refurbishments, replacement of parts etc giving an integral frame work for operation and maintenance.

Households and members of the community need to be informed about the system that has been put in place for a proper operation. When new user interfaces or management approaches have been introduced, the end users have to be properly trained to ensure that they will operate the system correctly.

Communities and community based organisations that will undertake operations and maintenance and management of local infrastructure will need training on technical matters, financial accounting management basic contract procedures, monitoring and reporting.

Non- governmental organisations that will become involved in the programme need similar training, but at a more advanced level, as they are going to have train the participating communities.

Local technicians and caretakers need to be trained for the proper operation of new infrastructure. In this case, on hands training is desired in order to ensure the fully understanding and implications of the new system.

Operation and maintenance is required to ensure the sustainability of any project in which a new infrastructure has been put into place.

**Q9. Explain the difference between an ecosan latrine and a standard pit latrine.**

**Answer:**

An ecosan latrine refers to an approach where human waste management rather than a single method. In ecosan systems, human excreta are considered to be a resource not waste. The principle is to make use of excreta by transforming it into an end product that can be used as a soil improver and fertilizer for agriculture.

Ecosan aims to decrease contamination of the environment caused by human excretion and to prevent faeco-orally transmitted diseases. An additional benefit of using waste in this way is that the amount of artificial fertilizer used in cultivation of fields is decreased. This saves money for the farmers and protects lakes and other water bodies from eutrophication caused by run off of these additional fertilizers.

Standard pit latrine is an improvement over the simple dry pit latrine. The distinctive feature that gives the standard latrine is the vent pipe installed into the pit, which is used to exhaust the foul odour from the pit and control flies.

The principle is that a continuous flow of air comes in through the superstructure and enters the pit through the hole. This cold air will go down into the pit displacing the hot smelly air upwards through the vent pipe. The other advantage of the vent is controlling flies. Sometimes dry pit latrines potentially serve as breeding places for flies. Newly-emerging adult flies will try to escape through the vent pipe because the pipe allows sunlight to enter into the pit and flies are photo positive (meaning they move towards light) by nature. A mesh screen tied at the top of the vent pipe will prevent flies from escaping to the outside of the latrine.

Standard pit latrines can have a single pit or double pit. It should be noted, however, that the health risks from flies are not completely removed by ventilation.

**Q10. What are the potential risks posed to the environment in using dry pit latrines?**

**Answer:**

Dry pit latrine is the cheapest and basic form of improved sanitation available. It consists of a square, rectangular or circular pit dug into the ground and covered by a hygiene cover slab or floor, with a hole through which excreta fall into the pit.

Depending on user preference, a seat or squat hole with footrests can be installed and a lid supplied to the hole. The latrine is covered with a shelter and fitted with a door, and is situated well away from water sources and some distance from the house.

The simple pit latrine is most appropriate when water is used for anal cleaning and fitted with a chimney. They consist of a pit dug in the ground and a cover slab or floor above the hole.

The excreta (both faeces and urine) drop through the hole to enter the dry pit. Pit latrines with a slab are effective sanitation systems because they isolate human excreta from the surrounding environment and prevent the transmission of faeco-orally transmitted diseases.

However, pit latrines may pose risks to the environment through a foul odour from the pit and they can be a favourable place for the breeding of flies and mosquitoes.

With single pits, a new pit needs to be dug every time one gets full. They can be susceptible to failure/overflowing during floods. Other disadvantages can be overcome by improper design, construction and usage. For example, if the superstructure is not properly constructed, it may discourage use of the latrine by family members. Children may be discouraged from using the latrine if the slab is not designed with them in mind and is too big for them.

Use of excess or less compostable materials for anal cleaning should be avoided because it may affect the decomposition rate of human excreta.

**Q11. List the materials you would need to make a simple device for hand washing.**

**Answer:**

Hand washing refers to the personal hygiene done regularly before eating, after eating, after visiting the toilet and also after any mechanical activity that hands were involved.

Hands normally get in contact with many bodies daily and some of them are disease or carry disease causing pathogens. At the same time hands are very important when escorting food to the mouth for ingestion purposes.

The materials required for making simple device for hand washing includes running water, jerry cans, tin cans, detergents, bucket, poles, wooden bowls and pottery.

Hands get in touch with so many things that we believe are clean and when we get in contact with food, we forget what our hands have gotten in contact with. It is important that washing hands regularly with detergent and using clean running water should be a priority in schools and even in social places such as markets. The water itself should be clean and the detergent used should be appropriate and not toilet soap.

It is important to let the hands dry by themselves instead of using a piece of cloth to wipe them dry which might be contaminated rendering the hands dirty than even the way they were before.

**Q12. Explain how you will ensure that a latrine is user friendly to those who are disabled?**

**Answer:**

A latrine is user friendly if the site of a latrine should be in the backyard of the house and away from an alley in the village. It should not be nearer than 6m or farther than 50m from the house.

The latrine should be properly maintained to function. Families should be advised to keep the squatting or standing surface clean and dry. This will help to prevent pathogen/ diseases transmission and limit odours.

**References:**

Module three noted, Rural Sanitation, Operation and maintenance of water supply, water technologies and latrine construction.