DIPLOMA IN WATER, SANITATION AND HYGIENE

ASSIGNEMNT- 3

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1. Why is community based managed essential in management of water resource?

Community based water management is a holistic process which often involves end-users in assessing

water use, the risks to water quantity and quality, and in prioritizing the use of water to meet the needs of all stakeholders. Engagement of community in water resource management have been emphasized over the last few decades and seen as one of the best ways of sustainable water management practices. It is essential for communities to know how much water is available to them map their needs and manage the water sources responsibility. It has been proved very effective method so far for. There are numerous distinct advantages of engaging in community-based water resource management These include the following;

- Local water users often possess detailed indigenous knowledge related to water resources, water needs and historical change that has occurred related to water use.
- Water users recognize that water is a fundamental component of their subsistence-based livelihoods, which helps to weave relationships between water users.
- Communities are able to monitor agreed water usage on a daily basis, as part of their daily activities.
- Communities often have historical mechanisms for conflict and dispute resolution related to water resource management, which may require continued support and assistance to evolve and adapt to global challenges.
- Effective water management requires community participation; this principle is well understood in development literature. (ST John Day (2009), Community-based water resources managed. Retrieved from https://www.ircwash.org/sites/default/files/Day-2009-Community.pdf)

2. With examples, discuss the difference between Community management and Community

Participation.

Community Participation:

The goal of participation is to include all key stakeholders. Effective public health promotion practice always places people at the heart of all activities. Community participation or community engagement requires the public health promotors to engage with communities in ways that allow people to have ownership of and involvement in all stages of public health promotion activities. The communities shall be informed about the different levels of participation for example providing information, getting feedback or exploring issues or collaborating on solutions (Tasmanian government, Department of Health and Human Services. Retrieved from https://www.dhhs.tas.gov.au/wihpw/principles/community_participation)

Community participation is essential all stages of WASH project planning, designing and implementation to get successful. Communities are the key actors behind setting any ground for decision making related to project designing and implementation.

Community Management

For centuries water resources have been managed by communities themselves and they have sustained those living on it. In the past, many communities had found ways and means of storing and conserving water through catchment protection, small check dams, and growing the types of crops that they could with the available supply of freshwater resources from surface sources. (Diploma in water sanitation & hygiene, Module 3, file:///C:/Users/sbalouch/Desktop/WASH%20online%20Diploma/My%20Course/Notes-Manual/Diploma%20in%20WASH%20Module%203%20Notes.pdf)

While with the emergence of new technologies in water management, regulation and consumption patterns, the community has been losing the control over management of water resources. However, there is still lot which communities can do to take control of water management resources available in their constituencies; such as;

- Technology choices and support to technology development - promotion of catchment protection, bunds, small check dams, storage reservoirs, rainwater harvesting - in addition to bore wells;
- Community awareness of its freshwater resource potential and sustainable rates of extraction;
- Community mechanisms, including building institutions and capacities at the local level to manage freshwater resources;
- Advocacy and actions at higher levels to influence policy making towards sustainable management of water resources at the community level;
- Mitigating the impact of fertilizers and pesticides on the soil and use of more environmentally products;
- More efficient utilization of water for irrigation;
- Financing of actions needed at the community level; (Diploma in water sanitation & hygiene, Module 3, file:///C:/Users/sbalouch/Desktop/WASH%20online%20Diploma/My%20Course/Notes-Manual/Diploma%20in%20WASH%20Module%203%20Notes.pdf)

3. Give five maintenance problems and difficulties. How can you overcome maintenance?

difficulties in the water supply system management?

Following are the key problems in water supply systems management

1. **Maintenance of pipelines**
   Solution:
   Develop and implement an appropriate maintenance schedule (preventive and corrective). Monitor it and rectify any malfunctioning observed in the pipelines at very early stages before it gets worse and require larger resources to maintain/rehabilitate or recover the losses

2. **Leakage**
   Solution:

Prevent and control water leakage at household level and main supply lines. Report the visible leakage immediately to water monitors and any hotline established to report water leakages. Repair the system where leakage is happening and educate the users to maintain the system to prevent leakage.

3. **Cross Connections**
   Solution: Monitor and report any illegal cross connection. Regulate and improve the system of cross connection to strengthen governance of water supply system.

4. **Water Quality**
   Solution: Collection water samples regularly and check the quality. Take corrective measures n case of any negative findings

5. **Records and reports**
   Solution: Develop and maintain record of whole water supply system. Its input, output, consistency, maintenance schedule, consumers (legal & illegal) etc. It will help to track the overall performance of water system and inform the decisions makers to allocate sufficient resources for the operation and maintenance of the system. (World Health Organization, 2005, Manual on Operation and Maintenance of Water Supply Systems, Central Public Health and Environmental Engineering Organization, Ministry of Urban Development, New Delhi. Retrieved from http://cpheeo.gov.in/upload/uploadfiles/files/Prelims-Pages.pdf)

4. What are Water technologies available in your area? Explain five.

Water technologies available in Pakistan:

1. **RO plant Reverse Osmosis Water Treatment Filtration System**

Reverse Osmosis (RO) is a water treatment process that removes contaminants from water by using pressure to force water molecules through a semipermeable membrane. During this process, the contaminants are filtered out and flushed away, leaving clean, delicious drinking water.

2. **Desalination Plants**

More generally, desalination refers to the removal of salts and minerals from a target substance, as in soil desalination, which is an issue for agriculture. Saltwater is desalinated to produce water suitable for human consumption or irrigation. One by-product of desalination is salt.

3. **Distillation Water Treatment**

Distillation is one of the oldest methods of water treatment and is still in use today in Pakistan, though not commonly as a home treatment method. It effectively removes many contaminants from drinking water, including bacteria, inorganic and many organic compounds.

4. **Ceramic filters**

   Ceramic water filters are an inexpensive and effective type of water filter, that rely on the small pore size of ceramic material to filter dirt, debris, and bacteria out of water.

5. **Biofilters**

Biofiltration is a pollution control technique using a bioreactor containing living material to capture and biologically degrade pollutants. Common uses include processing waste water, capturing harmful chemicals or silt from surface runoff, and microbiotic oxidation of contaminants in air.

6. **How do you ensure cost effectiveness in supply of water?**

To ensure cost effectiveness of water supply systems, cost-benefit or value for money analysis shall be undertaken. Interventions shall be based on the result of cost-benefit analysis. One way to do it is to analyses its value for money in terms of health benefits and reduction on water born disease such as Cholera or diarrhea (Haller Laurence, WHO, Geneva (Feb 2003), Cost-Effectiveness Analysis of Several Water Supply and Sanitation Interventions. Retrieved from http://www.who.int/water_sanitation_health/cea_0203.pdf)

The other ways include to analyses the time cost required and social cost involved in dealing with the inefficient water supply systems. If the system is broken or not working, people have to find the alternative solutions; which often involves high social, economic and time costs. While planning any water intervention, these costs shall also be taken into account

References:

1. ST John Day (2009), Community-based water Resources Managed. Retrieved from https://www.ircwash.org/sites/default/files/Day-2009-Community.pdf

2. Tasmanian government, Department of Health and Human Services. Retrieved from https://www.dhhs.tas.gov.au/wihpw/principles/community_participation

3. (Diploma in Water, Sanitation & Hygiene, Module 3, file:///C:/Users/sbalouch/Desktop/WASH%20online%20Diploma/My%20Course/Notes-Manual/Diploma%20in%20WASH%20Module%203%20Notes.pdf)

4. World Health Organization, 2005, Manual on Operation and Maintenance of Water Supply Systems, Central Public Health and Environmental Engineering Organization, Ministry of Urban Development, New Delhi. Retrieved from http://cpheeo.gov.in/upload/uploadfiles/files/Prelims-Pages.pdf

5. Haller Laurence, WHO, Geneva (Feb 2003), Cost-Effectiveness Analysis of Several Water Supply and Sanitation Interventions. Retrieved from http://www.who.int/water_sanitation_health/cea_0203.pdf