Diploma in WASH

Assignment 3

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1. ***Why is community based management essential in management of water resources?***

Historically, the management of fresh water resources has been carried out by respective communities and the resources were utilized sustainably for all members of a given community. However, over time there have been exponential growths of populations coupled with advancements in technologies for exploitation of water resources. This has had led to increased pressure on already strained fresh water reserves. Communities have consequently lost control of their water resources due to the external factors mentioned above. Communities are best placed to manage fresh water resources. This is the essence of promoting and advocating for increased involvement of communities in the management of their water resources especially by;

* Sensitizing the communities on the potential of their fresh water resources and encouraging them to be vigilant to ensure sustainable utilization. This will involve the community actively engaging in catchment protection to prevent pollution by industrial and agricultural waste, and encroachment of riparian reserves.
* Fostering capacity building of the community to enable institutionalization at the grassroots level to be able to operate and manage water resources and systems.
* Encouraging the community to be at the forefront of advocating for more influence in setting of policy that ensures community level institutions are equipped to manage water resources and infrastructure. This includes the ability to determine the legalities surrounding ground and surface water within their areas.
* Improving their access to funding for water projects.
* Improving their capacity to set pricing of water for different use including irrigation with relation to acceptable/ sustainable rates of abstraction of water.

A successful community management program achieves the ultimate goal of creating a sense of ownership of water resources and infrastructure. Consequently, the management and operation of water systems is taken up by the community. It ensures that the community is not considered as a beneficiary in water projects, but as partners or clients with sufficient control over decision making on matters concerning their resources. This results in the community making the best use of locally available resources with support from the government, NGO’s, private sector and other communities. As a result, the executing agencies and the government are left with tasks of facilitating capacity development at the community level and establishing policies and legal frameworks to ensure community management works. Routine management and maintenance is therefore left to the community. This decentralization of water resource management is more effective and sustainable.

1. ***With examples, discuss the difference between community management and community participation.***

Community participation is the deliberate and active involvement of the community in all aspects of project conceptualization including analyses of situations, development of strategies, and implementation of programs, monitoring and evaluation of projects and giving them adequate audience to air their views concerning management and administration of projects. Community participation is a precursor to community management. Community management goes a step farther beyond community participation by equipping communities to ultimately take charge of the operation and maintenance of their water resources and infrastructure.

Community management has three main components.

* The first component is responsibility and involves the community ultimately taking ownership of the water system and its operation and maintenance.
* The second aspect that sets it apart from community participation is authority. This means that the community management has adequate power or influence to make decisions about the water system on behalf of the users.
* Finally, the community is allowed sufficient control to carry out its decisions and determine the outcomes of their decisions.

Community participation, through ensuring active involvement of the community throughout the project, plays a significant role in the success of community management especially through participatory training and capacity building. Consequently, while the ultimate goal of community participation is to foster a sense of ownership and to aid in educating the community, community management aims to develop a long-term and dynamic partnership between communities and supporting agencies. It therefore strengthens the capacity of each partner leading to effective combination and utilization of resources. The following features further distinguish community management from community participation;

* The community through community management are empowered with legitimate authority and effective control over their water resources and system.
* The community are capable of seeking or raising funds for implementation of and maintenance of water system projects. The resulting sense of ownership as a result of contributing is good for sustainability of the projects thus allowing benefits to accrue to the users for the design life of projects.
* Development of strategic partnerships with supporting agencies while still reserving the authority to make all key decisions regarding the community’s water resources and system.
* Community management is people-centric and capacity development is as important as development of the water system. This ensures the community management acquire the skills and confidence to manage the system.

1. ***Give five maintenance problems and difficulties. How can you overcome maintenance difficulties in the water supply system management?***

* Technical challenges- design, construction and operational errors lead to requirement of frequent and often costly repairs leading to prolonged down-times for the system.
* Inappropriate technologies and loss of as-built drawings also pose a great challenge to system management.
* Environmental challenges such as floods and droughts affect availability of water and functionality of water systems. This is coupled with continued degradation of water quality leading to increased costs of operation and maintenance to achieve acceptable water quality for human use.
* Inadequate number of skilled labor especially mechanical and electrical experts for maintaining equipment.
* Centralization of maintenance resulting in high costs of mobilization of mechanical teams as well as low morale to respond, as the staff are non-local and underfunded.

The most effective method of maintenance of water supply systems is increasingly being accepted to be the decentralized model of maintenance. Community level management of water systems is increasingly cost effective and efficient. The Village Level Operation and Maintenance model ensures that there are adequately trained personnel at various tiers of expertise that are readily available and committed and motivated to carry out maintenance depending on level of maintenance required. This creates a sense of ownership among the community resulting in a collective sense of responsibility for the system. The Community chooses when to service, who will carry out the service and they manage the costs for repairs.

Avoidance of over-reliance on central government bodies for the daily management of on-site projects and daily operation and maintenance of systems is the best strategy to overcome difficulties management of maintenance of water supply systems. Investment towards capacity building of local, community management teams is therefore necessary. They must acquire the capacity to operate, maintain and manage the systems as well as develop institutional capacities to ensure sustainability of said systems.

1. ***What are water technologies available in your area? Explain five.***

* Dug wells for abstraction of ground which are single point systems
* Drilled wells (small large diameter) - Abstraction of ground water through hand pumps and electric pumps respectively. These can be designed as single point systems or piped to form house connections with standpoints at strategic locations.
* Rain water harvesting and storage in tanks at homes and reservoirs if collected from large catchments. For centralized water systems, piped systems are used to distribute water for access through standpipes or house connections.
* Surface water in my area is utilized at large scale by the local water authority. The water is treated and distributed through a piped system to households.

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

Cost effectiveness in water supply can be achieved through the following appropriate measures;

* **Capacity building**- In the long-term, capacity development through training, planning and organization at the community, technical and managerial level can accrue savings and ensure sustainability in the sector.
* **System management**- Improving the capacity to manage water systems locally can significantly reduce the unit cost of water, as opposed to using costly expatriate staff. This is also achievable through continuous capacity development within the local water sector.
* **Ensuring community management and involvement of women-** Community management of water resources should be prioritized as a means of reducing long-term operational and maintenance costs through decentralization of such duties. This requires the formalization of roles of all stakeholders including the community and the supporting agencies. The full participation of women in all stages of a project is vital to the long-term success of the project.
* **Technical and logistical considerations-** For economic exploitation and supply of water, all the necessary experts such as hydrogeologist and engineers must be involved to prevent over-designing or costly errors leading to unsuccessful projects. An example is in drilling of boreholes where losses could be averted through thorough hydrogeological surveys to minimize failure rates. The correct choice of equipment and maximizing the productivity of plant and personnel can greatly reduce project costs. Standardization of installed equipment reduces requirement for spare parts and reduces operational costs.
* **Local production of materials and spare parts-** Encouraging the use of locally produced equipment where feasible minimizes the capital and maintenance costs of a water system.
* **Tariff reductions-** The government can help reduce cost of water projects by subsidizing or eliminates tariffs of imports for water projects.