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

This is because integrated water management can only be possible if community is empowered through decentralization and is free to make decisions on their natural resource management. Here the four main resource are land, water ,livestock and forest which form the village ecosystem. Without a balance management of all these four basic resources, the development process cannot be sustainable. The development programmes must be built around a sound mind land, water, forest livestock oriented model with decision making at micro level. On the other hand water security requires household, community, and national actions to protect and preserve water resources to use water as a scarce resource and to ensure its equitable supply. Also investment in the capacity building of community in planning development implementation and maintenance of water supply project is one of the first steps toward sustainable development. This is to analyze the complete socioeconomics impact of water supply sanitation and hygiene. The full impact has been taken into consideration. They include less disease, better education for children , better nutrition, for mothers and children, time energy saving for women and secure livelihood, that is say, to achieved maximum impact through water hygiene and sanitation interventions in rural communities, there is need for multilevel and intersectoral actions.

1. **With examples, discuss the difference between Community management and Community Participation.**

The community management involves long term and changing partnership between communities and supporting agencies, community management strengthen the capacity of each partner and enables their combined resources to be used more effectively. The community's partners in the management of its water supply system include government agencies, NGO, the private sector, and critical other communities . Relationship change as community develops greater to capacity to management its own affairs and to choose for itself where to acquire it the support service it needs its water system functioning reliably.

While community participation is the involvement of communities in the project to solve their own problems, here community participation is especially important in emergency sanitation program where people maybe unaccustomed to their surrounding and new sanitation facilities, the examples of community participation includes working groups, committees and workshops involving community members. In Community participation, communities are expected to take responsibility for maintenance and are also involved in planning and implementation of project from the initial stages, another example could be that when there is a drilling of new bore hole in a village, the first thing to conduct participatory rural appraisal (PRA), this to engage communities to show their interest to take decision of where the bore hole should e drilled .

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

The five maintenance problems with their difficulties are;

**The labor and materials cost;**

These costs are highly variable within and between states and Counties and have a major influence on the final cost of the system. The degree to which a project depends on highly skilled technicians influences overall cost. Another factor here in South Sudan is the amount of material and equipment which must be imported from abroad( Uganda / Kenya). While importing equipment such as hand pumps and water yards material may economically justifiable during the construction phase of the project, this create problems later during maintenance of the system, especially if no provision has been made for continue import of spare parts once the project has finished .

**The level of service;**

The two basic indicators are quality of water per person and the minimum distance from a water point. In some places where the minimum level of service to be 500 people per water point within 10 miles will pay less than a neighboring state that has defined the minimum as 150 people within 5 miles or within the same Country the cost of urban based on in-house connection will be highly than the cost of rural system.

**Technology choice;**

There is always a choice of technology for new water supply systems that affect the final cost of the system. This choice is related to the level of service desired but can also be influenced by other factors such as type water source, government and donor agency and preference , and the lack of awareness of alternatives.

**Accessibility and quality of water source;**

The least water supply system are with few exceptions based on shallow to medium depth ground water sources. This is because there are variety of inexpensive

technologies to tap and pump water and of equal importance the water does not often to be treated before use. The use of other water sources such deep ground water that is beyond the range of hand pump contaminated the streams or ground water with high concentration of iron of fluoride can significantly increase system cost. Even water sources which at first glance appear to be plentiful and of good quality can be much more expensive to tap than the shallow ground water.

**Effectiveness and cost Effectiveness of Project Management;**

The cost of management can be proportion to the overall project cost. Overhead cost of government, NGO and donor agencies contribute to and thus be included in the overall cost of water system . The management expenses and overhead in some projects can easily add to some percentage to the total project cost and can significantly affect its cost effectiveness. Insufficient project management is often a factor that results in costly project.

The above problem can be overcome by involving communities, when the community is involved every stage from planning to operation and maintenance and thus has a real sense of ownership of the system from the beginning many cost are minimize or eliminated. Costs savings can be direct when the provides volunteer or low labor during construction or contribute locally available materials.

**Involvement of women;**

Women are responsible for water at the household level and are traditionally influential in any decisions regarding communal water supplies . If women are involved the risks of costly errors in the systems design will be minimized

**Capacity** **building;** the long term cost reduction and sustainably in the sector can achieved if national capacity for delivery of service is enhance through training planning and organization . This capacity should be at community , technical and managerial level.

**Local production of materials and spare parts;**

Imported inputs add both to the capital and maintenance costs and are constraint to sustainability.

Tariff reduction

In Countries where local production is not taking place, it will be necessary to import equipment and materials. The cost of importing materials can be reduced if the government reduces tariff on the import.

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

In our area the water technologies we have are ;

**Hand dug well**, this has been traditionally dug by our elders, and here water is drawn with the help of 10 meters rope with 5litres jerrican cut on the top to draw water in order to filled up 20 litres jerrcan

**A hand dug well** but changed-to Single Point system- this is small- diameter drilled well and later cover up by an organisazation ( CRS ) and water is drawn as a hand pump.

**Water yard** , this has been erected by German organisation (GIZ) where kiosh are setup in villages and water is drawn from the tap after having been pumped up by generator

**Standpipe .** The pipe that has been distributed in the town by private company to deliver water by households are paying monthly.

**Machine drilled Bore hole ,** this has been installed by organisation, this is to be pump till a woman filled up her jerrican.

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

Cost effectiveness in water supply is ensured when there is good control of diarrhea disease among the under 5 year-olds and when there a serious monitoring of water quality.

REFERENCE:

Water hygiene and sanitation (DIPLOMA IN WSAH)

Module Three

Unit 2: