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WASH ASSIGNMENT 3 IN MODULE THREE 30 July 2019

CUSE TITLE; DIPLOMA IN WATER. HYGIENE AND SANITATION (WASH)

ADMISSION NUMBER AIPMS 258 /2019

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

Interdiction;

Empowered through decentralization Integrated water management can only be possible if the community is and is free to make decision on their natural resource management .The four main important resources are land water livestock and forest which form the village ecosystem . Without balance management of all of these four based resources. The development process cannot be sustainable. The development programmers must be built around a sound hand water .Forest – livestock oriented module with decision making at the micro level. (Module 3 page 5).

Rural water supply should not treated as amine services delivery process but as a step toward house hold water security .water security requires household . Community and national action s to protects and preserve water sources to use water as a scarce resource and to ensure it equitable supply. Investment in the capacity building of the community in planning development .implementation and maintenance of the water supply. Projects is one of the first steps toward sustainable development,

To analyze the complete social economic impact of a water supply .Sanitation and hygiene project. The full impact should be taken in to consideration,

They include less diseases better education for children (particularly girls) batten nutrition for mothers and children time energy saving for women and secure livelihoods. To achieve maximum impact through water and sanitation intervention in rural communities, there is need for multilevel and intersect oral actions (module 3. Page 5)

The UNICEF conceptual module for water and environment sanitation identifies the condition that have a bearing on achieving the desired out come at three levels-structural underlying and immediate. The structural condition release to natural human and economic resources, In order to influence underlying conditions it is necessary to have social and gender equity in availability access and control of these potential resources. The resources need to be organized to cultivate an empowering environment by promoting and supporting self –motivation build skills communication knowledge and aligning social services, the systems that is the only ways that the goal of sustainable development can be achieved especially in fragile Eco region through Deeping democratic values and participation at the grass roots level. (Module 3 page 5).

2) With examples .discuss the differences between community management and community participation?

Community participation;

Community participation are arose on as concept in the mid- 1960s. It was not adopted by the IDWSSD until the midge -eighties after it become apparent that Governments and donors could no longer afford to tally centralized operation and maintenance systems for and sanitation.

Planners began to realized that ,in order to share the responsibilities for maintenance beneficiaries or users would have to be involved in some way in the on –going maintenance of their own community system It is now realized that If communities are expected to take responsibility for maintenance ,

They must also be involved in planning and implementation of projects from the initial stages. The must develops a sense of ownership and understand that maintenances is essential and is a community responsibility.

Communities should be perceive as informed consumers clients and managers capable of making choices as to the type of services they have , the capacity to provide rather than passive receives +communities must also acquire management and organization skills with leadership capable of defining tusks and managing facilities ,it should be recognized that many communities may already have considerable management and organizational skills.

Central’s agencies responsible for water and sanitation must change from benefactors who make all the decisions to facilities who enable communities to make their own decisions.

Agencies must leave to be responsive to consumer – client demands. Self-help activities in the construction phase are often ambiguous calling for analysis on accuses basis on some projects mention voluntary labor and contribution in cash or kind as accost saving element.

This approach can increase local pride and commitment after training possibilities and stimulate proper use and maintainers .How ever some managers are maintained that the private contractors with more efficient as they avoid delay. increase costs .over burdening the community and poor construction leading to frequent break downs .there is al so temptations for government to expect much from poor community .self-help should not be used as an excuse to avoid giving poor communities a fairer share of Tax or revenues .Classifications of different types of communities participation developed in 19814. (Module 3 page 27)

Here are some of examples of communities’ participation;

1. Consultation.
2. A financial contribution by the community.
3. Self –help projects by group of beneficiaries.
4. Self –help projects involving the while community.
5. Community specialize workers.
6. Mass action.
7. Collectivize commitment to behavior charge.
8. Endogenous development.
9. Autofocus community project.
10. Approaches to self -sufficiency.

A discussion follows describing issues associated with each classification

1. ) Consultation;

Consultation is a basic means of giving communities some voices of involving them in decision making .If is main rationale is to ensure that projects or programmers introduction by outside agencies are adopted to meet community needs as well as to avoid difficulties in implementation.

A) Consultation may involve

Consultation with community representation or leaders only .Such consultation does not amount to real community participation unless the decisions formally made by representatives or leaders are the results of consultation and consensus within community is involved in decision-making on signification aspects of the projects.

B) Consultation with all section of the community;

This involves ascertaining the view of those section of the community which may normally be excluded form decision making ( women .Certain ethnic minorities or low costs groups .the poorer section ) whose interest may not be genuinely represented in the existing processes of decision –in the community .The rationale is to ensure that the projects meet their needs .Also this is not always easy and there are different views and how important broad involvements,

2 ) A financial contribution by the community;

The financial contributions by the community are the cash collected by the community which is made by and within the community. Generally prior to or at the time of implementation of a projects. Usually as a contribution to capital construction .Excluded as not really constituting community participation are cases which amount to a payment by individual families for services even when it is an advance payment ,

3 ) Self- help projects by groups of beneficiaries;

In these projects specifics groups of local inhabitants contribute their labor and perhaps other input to its implementation while there are also the assistance of an external agency. Those who contribute will be recompensed be reduced fee for the services; they receive while non-members pay more.

4 ) Self –help projects involving the community

Projects in which every family in the community is expected to make a contribution ( usually in labor ) while there is also an input from an external agency ,food for –work projects may be include here ,though the element of community participation may be considered slight if it consists only of labor which is paid in cash or kind ,

5 ) Community specialized workers;

The training and appointment of one or few community members on voluntary basis to perform specialize tasks (e.g. as community health workers operators of community water supply system) Training and technical supervision are carried out by an external agency , but some form of community authority is usually also exercised over specialized workers ,

6 ) Mass Action

In the collection work , the absences of major input from an external agencies often such actions are directed at environment improvement , (e.g. To drained waste water.)

7 ) Collection commitment to behavior change.

In this cases, the community will make a collective decision to change the customs or personal habits and collective social pressure is exercised for the realization of such a charges .Examples rang from penning of domestic animals to constructed and use of latrine. Or reduction of excesses expenditure in connection with wedding. Funeral while charge of behavior may occur in other ways at the community participation is involved when an explicit decisions in collectively taken.

8 ) Endogenous development

In this cases ,there is an autonomous generation of ideas and movement for the improvement of living condition with in the community as opposed to stimulation by the outside agents .The community may have recourse to external agencies to help with implementation ,or indeed pressed for such help on the other hand where and this is simply pressure for services to be provided .it handle qualities for the terms ,community participation . Though in a wider sense .this is an example of political participation ,

9 ) Autonomous community projects;

The projects where external resources are paid for the community with funds rose internally. Including the living of outside expertise or professional staff such projects are under community control.

10 ) Approaches to self -sufficiency;

In this projects in which the objective is to satisfy local needs as for as possible by using local materials and man power directly .not by purchasing goods and services from outside self –reliance is al so times understood in these terms,

Q3 ) Give five maintenances problems and difficulties, How can you overcome maintenance difficulties in the water supply system management

(A)

1 ) Variables affecting cost.

The cost of water can vary from couple of dollars to several hundred dollars per person served and depends on a number of variables.

2 ) Technology Choice.

There are always choices of technologies for new water supply systems that affects the final cost of the system. This choice is often related to the level of services desired (e.g. In home connection with hand pump) but can also be influenced by other factors such as the types of source. (See below). Government and donor’s agency preference and the lack of awareness of or unavailability of alternatives.

3 ) Level of services’

The two basic indicators for level of services are the quality of water per person per day (often expressed as the number of people served by each water points and the minimum distance from a water points . A country that has defined as the minimum level of services to be 500 people per water points within 2 kilometers will pay less than neigh boring country that has 150 people with in half of kilometer or with in the same country . the cost of an urban system based on in house connection (one family per water points within 0 kilometer )will be significantly higher than cost of rural systems.

4 ) Labor and material costs;

These costs are highly variable within between countries and regions and have am ajar influence on the final cost of the systems .The degree to which a projects depends on highly skilled national or expatriate technicians ,Influences the overall cost .Another important factor is the amount of material and equipment which must be imparted from abroad. While imparting equipment such as hand pump may be economically, Justifiable ,(and may be the only option available)during the construction phase of the projects ,it can create problem later with the maintenance of the system especially ,if on provision has been made for the continuing impart of spare parts once the project has finished.

5 ) Accessibility and quality of water sources;

The least expensive water supply systems are with few exceptions, based on shallow to maximum depth ground water sources, this is because there are a variety of an expansion technologies to tap and pump. The water ((hand- dug wells or bore wells with hand pumps). And of equal or greater importance. The water does not often have to be treated before use of other sources such as deep ground water that is be young the range of the hand pumps bacteriologically polluted ponds streams, or ground water with high concentration of iron or fluoride can significantly increase system costs ,Even water sources which at first glance appear to be plentiful and of good quality can be much more expensive to tap than shallow ground water –example include rain water systems which can become very expensive because of the need to be construct large storage reservoirs and springs which are often too far from beneficiaries and thus require expensive piped system, In all case the specific situation determines the final choice of water sources in hilly for example aspiring fed piped water system may become more cost effective than hand dug- wells or above wells.

6 ) Efficiencies and cost effectiveness of project management;

The cost of management can be a significant proportion of the overall projects cost . Overhead costs of government NGOs and donor agencies contribute to and thus must be included in the overall costs of a water system, Management expenses and over heads in some projects can easily add 25 percent or more to the total projects costs and can thus significantly affect it cost effectives,

In efficient project management is often a factor that results in costly projects poor logistics resulting in equipment down –time non-standardization of equipment problem relating to transportation or port clearance and the underutilization of labor or equipment are all common examples of in efficient projects management

7) Community management;

Numerous examples have shown that a project is managed by the community. It self is much more cost effective in the long run than atop down project when the community is involved at every stage from planning to operation and maintenance and thus has a real sense of ownership of.

The system from the outside many costs are minimized or eliminated ,cost saving can be direct such as when the community provides volunteer or low –cost labor during construction contributes locally availed materials indirect cost saving s are often more important for example when the community is involved in the planning stage of the project, it may provide the local knowledge necessary to avoid using a water sources that would be in appropriate for cultural reasons or identifying a water sources such as aspiring which may have been over looked by outsides cost saving through community management are often significant in the area of operation and maintenances a routine maintenance programmed designed and implemented by the community itself will function much better than a system imposed from outside and will result in a reduction in repair and replacement cost.

8 ) Involvement of women;

Women are primary stakeholders in the area of domestic water supply .They are responsible for water at the household level, and are traditionally in fluently in and decisions regarding communal water supplies, If women are fully involved at all stages of projects implementation, the risk of costly errors in system design will be minimized .In addition the active participation of women in community management bodies well ensure that these bodies are effectives and their cost efficient.

B ) Improving cost effectiveness;

1 ) The large per capital cost variation between water supply projects in the supply projects in the same region and experience of successful cost reductions within individual projects illustrates that cost effectiveness can be dramatically improved If appropriate measures are taken , Systems management control of systems management costs can reduce the unit costs of a water point significantly ,However ,There are limits depending up on the technical management capacity available in the country and the quality of programmed management countries which generally have the capacity, such as Pakistan can deliver the output using more local staff instead of costly expatriate staff. In other counties where there is insufficient local system management expertise, the used of expatriate staff is imperative for success, while system management cost can be controlled to a certain extent as much of the effort in the short run could use fully be directed at ways and means of increasing output using available man power resources which could contribute to the both an increase in the number of facilities and units cost reduction, In this context greater co-ordination between donor agencies active within the country and their long –term commitment of resources in the provision of rural water supple can contribute to a significant reduction in system management costs .

2 ) Capacity building;

Long –term cost reduction and sustainability in the sectors can only be achieved ,If the national capacity for delivery of these services is enhanced through training ,planning and organization capacity building should ideally be carried out at the community technical and managerial levels.

3 ) Ensuring Community;

In this case ,the management and the participation of women ensuring that community are the managers of their own water supply systems should be given high priority as means of reducing long-term costs ,The formalization of the differing roles of Government ,the donor agencies private contractors and the community through contractual a agreements is a good first step towards achieving true community management projects design must also address the key roles of women water providers ,The full and meaning full participation of women in the community management structures is essential for long –term efficiency and success.

4 ) Technical and logistical consideration;

Then , even when considering only one technical option that of the bore well hand pump a variety of cost –saving measures can be applied ,The largest single cost items in the hand pump option and one which acts as constraint to expansion is the drilling operation and drilling success rates corrected choices of drilling equipment, drilling areca and drilling rig movement can reduce overall costs ,selection of the right equipment depends on the geological conditions and anticipated drilling depths, Proper surveys prior to drilling can contribute significantly to costs reduction for example, In Nigeria the failure rate in the community programmed due to in adequate surveys has been particularly high with a number of boreholes running dry after a short period of time since drilling costs are the single major component of cost actions to optimize the use of surveys. Rig movement and monitoring can have a major impact,

Q 4 ) What are water technologies available in your area? Explain fives,

A) Roof catchment;

After passing through a screen and or filter. The water conducted through gutters to castes.

These castes can be large enough to services a community or institution (such as school) or relatively small, for single – family used.

B ) Ground Catchment;

The run off from hard ground during heavy rain may be cough in hiked pits or may be diverted in to special bore well as means of artificially recharging aground water aquifer .In addition .dams can be constructed to retain water flowing in galleys. The environmental impact of larger dams and any artificial recharge systems must be carefully examined at the designs stages. Once designs appropriate to local conditions are available collection systems can be constructed at relatively low cost by communities themselves with the help of local draftsmen.

C ) Machine-Drilling Bore wells;

The majority of water points constructed by Non-governmental organization (NGOs and Government are machine drilled bore wells mechanized drilling is choose over hand digging or hand drilling for three principal reason .bore wells can be drilled much faster than with the other two methods, much greater depths can be achieved and drilling rigs are available which can efficiently produce bore well s in semi-consolidated (hard ) formation s. In fact in many regions, mechanized drilling rigs are the only choice for ground water based water supply programmed .

The main disadvantage is that the capital ,operating maintenance costs are much higher with mechanized drilling rigs than with hand drilling or digging .An efficient drilling programmed off sets these costs by the speed of drilling and can produces water points for less than USD 1000 each in some cases on the other hand, the speed of drilling rigs is always limited by the efficiencies of the logistical infrastructure, it operates with in, there are cases where drilling rigs .Theoretically capable of drilling of 150 bore hole a year only . Drilled 10 or less because of the lack of fuel .spare parts, skilled operators or poor planning and management, the operators of drilling rigs and the management of mechanized drilling programmers is complex occupations requiring skilled and experienced personally.

D ) Hand - Drilled Bore holes;

The drilling of bore hole using simple in expensive hand operated equipment is very appropriate technique under certain conditions , the aquifer must be relatively shallows (usually less than 25 to 30 meters ) and the formation must be soft .Under these conditions ,hand drilled bore holy can be completed much faster than hand dug wells and can reach slightly greater depths , the most common type of hander drilling equipment consists of a tripod and which the drilled rods and bits , the rode are manually turned ( usually by four people and extra down ward force is applied by people sitting on the cross bare .

E ) Hands Pumps;

Hand pump are the most common and in cases, the only economically feasible water lifting be vices for community needs. Yield depends on the depth and design , normally in the range of 600 to 1.500 liters per hour during constant used ,Thus the maximum number of users for any one pump should ideally be not more than 150 persons, However in many countries ,and especially in Africa ,the actual number of users per hand pump is 500 or higher.

The first farces mode hand pumps used in UNICEF assisted water projects in the 1960, were based on single family cost-iron pumps used in the developed nations for more than a century, These pumps were quickly demonstrated to be in a appropriate for community water supply projects because they were unable to with stand being used by hundreds of people a day and because the were difficult to maintain as the resulted of this an effort initiated in the 1970s was launched to develop a hand pump that was sturdy easy to maintain and that could be manufactured in developing countries , the first and most successfully out comes of this effort was the Indian-make11 hand pump which become the standard pump in Indian and many other countries in the late 1970s and the 1980s while suction pump can be only list water from a maximum depth of about seven meters ,

They are still widely used and continues to derive hundreds of millions of people where ground water levels are falling , These pumps are gradually being replaced with forced mode pumps like the Tara, However suction pumps continue to be appropriated in many situations and they remain the easiest pump to maintain due to the fact that all moving parts are above ground .

The hand pump develops that effort also led to new thinking in the area of maintenance. programmers and the realization that a decentralized management of the maintenances structure is the most success full model that the most important design criteria for a hand pumps is its maintainability ( see the following chapter on maintenances ).

During the 1980s a undo global projects for hand testing and development (executed the world bank and with active UNICEF input) further studied and developed design and manufacture of hand pumps, It established standards and testing procedures that can be used by UNICEF and other organization for the selection and procurement of hand pumps ( see the box in this section on UNICEF specific selection and standardization guiding ) The findings of the project are contained in the book community water supply ( module 3, page 83 ).

Q (5) How do you ensure cost effectiveness in supply of water ?

A ) Institutional Arrangements;

The majority of failures in water supply projects, Over long term are attribute able to the problem with maintenances ,and most of these problems are institutional rather than technical in nature , A success full cost effectives maintenance programmers is often much more difficulties to achieve than the installation of the water system itself.

Systems of maintenance and repair which depend upon mechanics going out from a limited number of centers( e-g district level . )

Here are some of the workshops which have been often found to entail.

1 ) High costs mainly from transportation.

2 ) Long system down –times because of long waits for mechanics to arrive.

3 ) Reluctances of communities to take any initiative to protect and prevent miscue of installations which are considered to be the responsibility of a distant Government. In recognition of these problems most Government and counties are now establishing systems of villages lever operation and maintenances where community members are primarily responsible for the operational and maintenances of installations. One of the most common institutional arrangement is the three tier system .

Originating in India and used there elsewhere, than there are some of the points which are used for selection at villages level;

1. Hand pump caretakers, selected from among the villages are responsible for the general care and routine maintenance of the hand pumps in their own villages.
2. Pumps mechanics at the sub-district level regularly inspects all installations make minor repairs and when necessary ,
3. Teams of more highly trained mechanics based at state provincial level are called in for major repair and replacement works they are equipped with all the necessary tools and machinery.

In some counties and regions, it has been found that even a fairly general institutional framework like that of three-tier maintenances cannot be applied everywhere ,The institutional arrangements should be made (or modified ) on a case- by –case as for as possible , The ultimate decision of the form of the maintenances system should be made by the community itself , In India for example ,even though the three- tier system is long established and wildly implemented throughout the Country , In some areas ,communities or districts are using different systems that are more locally appropriate, such as combining the first two tiers and training care taker pump mechanics instead of separate groups of care takers are mechanics, or eliminating care takers altogether and expanding the duties of the mechanics.

1. Training of personal at all levels should include operation and maintenances, Technicians should be specifically trained in these techniques and selected community member trained to undertaker specific tasks within their capabilities. In some case the Government pass local- level pump mechanic and repairs terms and subsidizes prices of spare parts which are made available at different levels , in other cases, communities have to pay care takers are remunerated by the communities which also pay for spare parts either out of communal fund(from regular payments by households ) or by collecting money when necessary for repairs while projects planners and Government staff can provide training and suggestions to the community in the area of managing the financial systems used is best lost to the community it self ,

Over- reliance on central Government bodies should be avoided for managing individual on-site projects and ongoing operation and maintenance of systems, the development of local Government and community capacity to operate and maintain the system and design the institutional arrangements well help to ensure long system life times.

B ) Technical issues;

All water supply systems require some maintenance and occasional repaired some need frequent attention even when there are no problems of misuse, Typical maintenance programmers include.

Hand pumps;

Periodic lubrication of above group components replacement of washer and seals replacement of plastic bearings, occasional replacement of individual riser mains.

Bore wells;

Occasional development (or rejuvenation) of bore wells with compressed air and, If necessary, hydro for factoring to increase yield.

Aprons and drains;

Around hand dug wells, bore wells and standpipes regular cleaning repair of cracked and broken concrete, Unclogging of drains.

Hand –dug wells repairs;

In this case, it is repairs of concreted, that lining cap and necessary head well deepening, if necessary replacement of gravel filter.

Spring Boxes;

It is regulars cleaning, repair of masonry and unclogging of drain.

Motorized pumps; It is extensive mechanical maintenance.

Rain water systems; It is regular cleaning and repair of guttering replacement or cleaning of filters.

Distribution systems; Inspection and repair of leaks in pipe lines replacement and repair of taps and fileting’s.

Storage and Filtration; Tanks regular cleaning replacement of filter media maintenances difficulties and problems with frequent break downs are multi plied by selecting in appropriate pumps and other materials.

Hand pumps in particular; Are not always appropriate for the heavy instance use to which they are subjected as communal facilities pumps which requires specialized to often and equipment are sometimes selected ,so that even the smallest maintenance task is beyond the capability of willing community members.

In the selection and procurement of pumps there should be the maximum passible standardization on one a small number of models which are robust appropriate to the local situation ,simple and on which maintenance can be under taken by community members with a minimum of tools and training , To ensure consistent level of quality in hand pumps used in water supply programmers , a national quality assurances and inspection system should be established in all countries which have large –scale hand pump programmers ,using international standards and quality control procedures which are available for most popular hand pumps. Funds and technical skills are available, neither routine maintenance nor repairs will be done promptly unless the necessary tools and spare parts are also on hand at the local level and at reasonable and affordable prices .

( Module 3 page 101 - 106 ).

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