SJ Dennehy WASH Assignment 3

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

The concepts of community participation and management of water resources have dominated development discourses and practices since the early 1970’s when we saw a marked shift, in many developing nations, from state-led, technocratic water resources management programmes towards more ‘participatory’ and ‘community-based’ water resources management systems.[[1]](#footnote-1)

The reason for these changes stems from criticisms of large-scale, infra-structure-focused water development projects that ultimately proved unsustainable. Maintaining complicated, over extended and overburdened distribution systems proved practically and financially unviable for many impoverished nation states. Issues such as drought, spread of disease, population explosions and violent conflicts all served to bring these systems to their knees. Those who suffered were, of course, the end users. Development practitioners quickly realized that a different approach to water resources management was required.

Participatory development models designed and implemented in 1970s and 80s, saw community participation and ownership of development projects yield great success. It was decided that participatory community-based management could be applied to the issue of water resource management as a way for states, international donors and NGOs to pursue ‘sustain-able development’[[2]](#footnote-2)

Community management allows local actors to exert control, or at least considerable influence, on the development of a community water and sanitation system. This acts to decentralize ownership and management of water resources and assets, encouraging communities to take responsibility for maintenance of distribution systems and equitable division of available resources.

Community management consists of a number of key concepts:

* Responsibility: the community takes on the ownership of and attendant obligations to the system.
* Authority: the community has the legitimate right to make decisions regarding the system on behalf of the users
* Control: the community is able to carry out and determine the outcome of its decisions.

Development practitioners realized that by empowering the community with legitimate authority and effective control over management of the water supply system and use of the water you create a sense of ownership and invested interest. As a result, the community commits people and resources toward the implementation and upkeep of the water system. In turn, this allows the role of governments and NGOs to change from one of benefactor to facilitator, providing advice and technical support, equipping communities to take charge of their own water supply improvements.

Concurrent development of supporting and enabling skills within the user community is also imperative. The correct technical skills and managerial expertise need to be imparted to the community managers and maintenance personnel to guarantee ongoing success. This, in turn, frees institutional, human and financial resources to enable agencies, both NGO and governmental, to reach more indigent groups.

According to McCommon[[3]](#footnote-3), the benefits of community management should include the following:

* Short term improvements in system performance such as greater use of water and sanitation facilities, adoption of improved hygiene practices, and greater community support for system maintenance;
* Changes in support conditions: long term improvements in available resources and complementary investments;
* Long term impacts: anticipated health, social well-being, economic and environmental quality changes.

Community-based management of water resources is essential because it empowers local communities, through democratic decision-making and problem-solving, to maintain and manage their available resources in an equitable manner to the benefit of all. By augmenting/replacing unreliable publicly managed distributions systems, communities can protect themselves, to some extent, against the risk of drought, famine and spread of disease associated with poor access to water and sanitation.

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

Community participation and community management are not mutually exclusives concepts. In fact, the latter is simply an extension of the ideas of the former. Community participation becam popular in the early 70’s and looked to involve community members in the design, construction and implementation of a local water supply project. This could manifest itself in the form of community consultation, voluntary labor, contributions in cash or kind, behavior change programs or self-sufficiency training for the local populous. This narrow conception, however, had inherent limitations to the successful implementation of rural water programs as it was quickly discovered that it is post implementation support where these projects so often fail. Development practitioners thus, shifted their emphasis to a model of ‘community management’.

This model assumes that the water and sanitation facilities can and should be best managed and controlled by local user communities.[[4]](#footnote-4) Community Management goes beyond community participation and equips communities to take charge of their own water supply improvements rather than remain dependent on external agencies. They are not merely involved in the decision-making process of an external agency, but instead exert direct control over water assets and resources. Listed below are some of the key features that distinguish community management from community participation and are at the heart of successful community managed water systems.[[5]](#footnote-5)

* The community has legitimate authority and effective control over management of the water supply system and over the use of the water.
* The community commits people and raises money toward the implementation and upkeep of the water system.
* Supporting agencies provide advice and technical support, but all key decisions are taken with the community.
* Community management is "people-centered". Its success depends on the user community and support agency staff acquiring new skills and confidence in applying them.

1. **Give five maintenance problems and difficulties. How can you overcome maintenance difficulties in water supply system management?**
2. ***Availability of spare parts***

It is imperative that the maintenance, repair and operating supplies are available and easily accessible, in country, to allow community managed water resource projects to survive after the initial external agency/NGO support concludes. Part of empowering communities to manage their own resources is giving them the tools to do so. This may involve the establishment of district/regional distribution centers that stock the most commonly required parts and tools. These centers must be regulated to prevent abuse of power. More specialist or expensive equipment and spares can be held at larger hubs but a reach back system must be incorporated as part of the post project support to allow communities to access these resources when required.

1. ***Inadequately skilled workforce***

Again, part of empowering communities to manage their own resources must include education and training to facilitate success. This may include technical training of construction teams and maintenance personnel charged with upkeep, management training for community leaders and decision makers charged with managing resources or assets after project completion as well as capacity building at higher levels to promote self-sufficiency in the future.

1. ***Inappropriate technology***

Poor planning or research, financial constraints, use of unskilled labor, use of sub-standard materials, theft of resources and equipment; these can all result in the installation of equipment that is not fit for purpose. It is imperative that during the planning process the correct equipment type is chosen, appropriate to the project. Technology should be simple and standardized where possible to make repair and maintenance easier and more affordable. The VLOM hand pump system, for example, identifies some key characteristics of low maintenance hand pumps suitable for use in WASH projects.

Technological advancements present opportunities for WASH practitioners but it is important that new systems are tested from robustness to avoid project failure. An example of this can be seen in the recent roll out of solar powered water pumps across many developing countries which have proven overcomplicated and unreliable.

1. ***Financial management***

Many community managed water resource projects require financial management structures to succeed. Government and NGO funding as well as community contributions to maintenance and repair budgets needs to be correctly managed to ensure continued success. Many isolated rural communities across the developing world do not have access to traditional banking systems, making money management difficult. Lack of financial accountability and traceability can often lead to strife within communities when people feel that their contributions are not being managed correctly. These disagreements can cause a breakdown in community management structures, reduced availability of funds and subsequent project failure due to poor maintenance. It is key that donor agencies provide financial management training and access to a system of money management to prevent such occurrences.

5.) ***Institutional Capacity***

Although we have focused on the concept of community management of water resources throughout this discussion, it is imperative that in country capacity to manage and maintain WASH infrastructure is developed at an administrative/government level. Technical and administrative expertise must be advanced to facilitate community management projects. More efficient management frees institutional, human and financial resources to enable agencies to reach more communities. Government also has a vital continuing role in establishing the policy and legislative framework to enable community management to work.[[6]](#footnote-6)

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

***Sub-Surface Dams***

Sub-surface dams are designed trap groundwater where it flows close to the surface in valleys or dried-up river beds. This essentially creates a shallow artificial aquifer beneath the surface where the water is naturally filtered and protected from evaporation. In order for it to work correctly the dam must be constructed across the width of the valley, down to an impermeable layer to be effective. The water is accessed by wells - preferably combined with infiltration galleries - constructed upstream of the dam.[[7]](#footnote-7)

***Spring Protection***

A spring occurs where the groundwater table intersects the surface. An unconfine water source such as this need to be protected inorder for it to be used a safe water source for a community. Unprotected springs are susceptible to contamination from bacteria, anima remains and defecation. The traditional method of protecting a spring usually involves the construction of a sealed "spring box" which traps the water and provides a basic filtration through the use of a gravel filter and sump. It is cheap and easy to construct, utilizing locally available resources and expertise. It is important to also remember to protect the area immediately upstream of the spring from animal defecation through the use of a fence or hedge.

***Hand Dug Wells***

Hand-dug wells have been used across the world for centuries and remain widely used in developing countries. Dug wells can be used to access the water found in relatively shallow aquifers above the bedrock, and to a lesser extent, in the upper layers of bedrock for relatively low capital expenditure. Unfortunately, this type of unconfined groundwater is more susceptible to contamination and the effect of falling water tables but this can be mitigated against by lining a had dug well with concrete or masonry and installing a concrete apron or well cover.

Hand dug wells have many advantages in that they are relatively cheap and easy to construct; do not require highly skilled labor; promote community involvement and ownership through participation of beneficiaries in the construction of the water point.

Their larger diameter means they can be used without a pump and the increased volume of the well shaft can act as a water storage space to provide sufficient water for peak use times.

***Hand Drilled Bore Wells***

Hand dug bore wells use simple, inexpensive hand-operated equipment to access a relatively shallow aquifer (typically less than 25 to 30 meters) in soft ground formations. Hand-drilled bore wells can be completed more efficiently than hand-dug wells. The most common type of hand-drilling equipment consists of a tripod and winch with drill rods and bits. The rods are manually turned (usually by four people) and extra downward force is applied by people sitting on the cross bars.

***Machine Drilled Bore Wells***

Machine drilled bore wells use either cable tool rigs or rotary rigs to access aquifers at much greater depths than hand drilled wells (up to 200 meters). Machine rigs are significantly faster than manual methods and allow for excavations in more consolidated ground formations. The main disadvantage of mechanized drilling systems is that the capital, operating and maintenance costs are much higher with than with hand-drilling or digging. The higher costs can be offset by the speed of drilling but this is of course dependent on numerous factors such as the availability of skilled operators, logistics and technical support.

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

Cost effectiveness is achieved through effective management, capacity building and key stakeholder engagement.

***Effective Management***

System management costs in the delivery of water projects can be significant and can also vary greatly depending on the area of operation. One must look at the existing technical and management capacity available in country as a measure of potential system management costs. Countries which generally have the capacity, such as more developed regions recovering post conflict, can deliver the required output using more local staff instead of costly expatriate staff. Iraq is a prime example of this. If, however the host country does not have the indigenous capacity to deliver, than more expatriate staff will be required to ensure success, driving costs up. In this case it is important that expatriate staff are managed effectively and efficiently to ensure maximum value for money. Communication between participating donor agencies and NGOs working within country is imperative to avoid duplication of effort and ensure cost effective delivery of services.[[8]](#footnote-8)

***Capacity building***

Long-term cost reduction and sustainability in the provision of water and sanitation services can only be achieved if 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. Effective management and maintenance of installed systems will ensure longevity

***Community management and participation of women***

Development practitioners have long known that WASH infrastructure projects managed by the community itself are much more cost effective in the long run than a "top down" project. Community involvement throughout the planning, implementation and maintenance phase, imbues a sense of ownership and invested interest in the system from the outset, leading to a reduction in costs in the long run. This reduction in cost can be both direct and indirect.

Examples of indirect cost saving could manifest itself in the form of voluntary labor or contributions in cash or kind.

The indirect cost savings are, however, often more important. Community consultation in the planning stage can save time, effort and resources when local knowledge informs efficient decision making. Further cost savings are often observed in the area of operation and maintenance: a routine maintenance programme 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 costs.[[9]](#footnote-9)

It is also imperative that women, who are often the primary stakeholders in the area of domestic water supply, are involved at all stages of project implementation. Their insight into the practical requirements of the end user can greatly reduce the risk of costly errors in system design, saving cost in the long term.

1. Meenakshi Ahluwalia (2009) - Representing Communities: The Case of a Community‐Based Watershed Management Project in Rajasthan, India [↑](#footnote-ref-1)
2. Community and Participation in Water Resources Management: Gendering and Naturing Development Debates from Bangladesh. Available from: https://www.researchgate.net/publication/227615953\_Community\_and\_Participation\_in\_Water\_Resources\_Management\_Gendering\_and\_Naturing\_Development\_Debates\_from\_Bangladesh [accessed Sep 28 2018]. [↑](#footnote-ref-2)
3. McCommon, C., Warner, D. and Yohalen, D. (1990). Community Management of Rural Water Supply and Sanitation Services. Washington D.C, UNDP-World Bank [↑](#footnote-ref-3)
4. Irit Eguavoen (2006) - The Political Ecology of Household Water in Northern Ghana [↑](#footnote-ref-4)
5. McCommon, C., Warner, D. and Yohalen, D. (1990). Community Management of Rural Water Supply and Sanitation Services. Washington D.C, UNDP-World Bank [↑](#footnote-ref-5)
6. Diploma in WASH Module 3 Notes [↑](#footnote-ref-6)
7. Diploma in WASH Module 3 Notes [↑](#footnote-ref-7)
8. Diploma in WASH Module 3 Notes [↑](#footnote-ref-8)
9. Diploma in WASH Module 3 Notes [↑](#footnote-ref-9)