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Overview on Management Patterns in Community, Private and Hybrid Management in Rural Water Supply

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Abstract

Rural water supply sector is urging for sustainability for long time. Till now sustainability is a dream. Enormous efforts for obtaining sustainability become fading due to improper selection of management model for delivery of water in rural areas. Demand driven approach, community participation, community management of services are well known and widely applied in the sector. Community management has proved itself as a good tool for short term and simple point water source management in rural areas. With the advent of technology and due to desire of rural community for more improved services, water supply sector seeks for new models like private or other form of hybrid management. This article attempts to review the merits and demerits of both community management models and private management models in line with sustainability concept. This paper further conceptually provides ground of selection of appropriate management model for sustainability based on the reviewed literatures.

Keywords: community management, private management, sustainability, rural water supply

1. Introduction

Water is essential for human life. It plays a vital role not only for the survival of human life, but also for all forms of life. So, every person posses a subconscious concern to maintain, preserve and defend the access to the water which they need for their own survival (Jack, 2009). To supply water for urban and rural community, there are different forms of organization in different countries. Water supply management is pivotal to ensure sufficient amount of good quality water for the community. As a result, water management has emerged as an essential part of the organizational structure of community life. This management starts from the simplest family groups and has gradually become complex and more important in response to the situation caused by water scarcity or increasing population density (Jack, 2009). Roark, Hodgkin and Wyatt (1993), defined management for water supply as the marshalling of resources to plan, direct, monitor and evaluate the operation and maintenance (O&M) of water supply and sanitation (WSS) systems. To manage the services various management models are also working in practice. These are namely, self management, community management, private and public management. The management type also varies with technical options used and geographical location. Among these models, community water supplies are managed mainly by community itself, private operator or state owned utility. Till date utility services, like, water supply are provided by state owned monopolies all over the world (Wallsten & Clarke, 2002). In public sector management, water supply is managed through municipal utilities or local government providers (Lockwood & Smits, 2011). Until 1980, most of rural water supply were delivered and managed by Government institutions through supply driven approach (Harvey & Reed, 2007). In most of the cases, the efficiency of such management systems was found poor due to inadequacy of government capacity and commitment leading to the level of sustainability at very low ebb. High costs, insufficient supplies and chronic deficits are some of the noticeable weak points of purely public managed water supply (Lewis & Miller, 1987).

The prime focus of this article is to review major highlights of the merits and demerits of community based management models and private management models based on the available literature. The findings of the study may be instrumental for planners and policy makers to identify appropriate service delivery model for rural water supply system for developing countries.

2. Rural Water Situation in Developing Countries

Lack of water supply and sanitation services are alarming globally. More than 884 million people do not have improved drinking water supply; almost all of them are from developing regions and 84% of them live in rural areas (WHO, 2010). Globally around 10% of total burden of diseases are related to unsafe water, sanitation and hygiene and it costs 3.6 million lives annually (Pruss-Ustun, Bos, Gore, & Bartram, 2008). At any moment, half of the developing world's population suffering from diseases associated with inadequate water supply and sanitation services and more than half of hospital beds in the world are filled with people suffering from water related diseases (DFID, 2009). Therefore, access to improved water and sanitation is the cornerstone for healthy communities and plays a significant role for maintaining health, economic and social gains (Bartram, Lewis, Lenton, & Wright, 2005; Hutton, Haller, & Bartram, 2007; Montgomery & Elimelech, 2007). World Bank (2009) identified two big challenges for sustainability of rural water supply, one is continue to expand access and another is the high breakdown rate of water supply options. A large percentage of non functional water supply wells and unused latrines are the stark marker of poor operation and maintenance and proof of unsustainable services (Montgomery, Bartram, & Elimelech, 2009). Several global studies have witnessed the unsustainable picture of water supply, especially in developing countries. Briscoe and de Ferranti (1988), mention that one in every four rural water supplies in developing countries do not work and that in some countries the construction of new facilities does not even keep pace with the failure of existing ones. A number of water and sanitation programmes in developing countries have not "continued to work overtime" (Carter, Tyrrel, & Howsam, 1999). The tremendous investment in rural water supply during the decade had resulted, *inter alia*, in a tremendous increase in the number of broken down, poorly functioning, and little used water supply (Kleemeier, 2000). HTN (2003) reported that in Africa more or less 250000 hand pumps were installed, out of which only less than one half was operational. Water supplies become non-operational within a few years of implementation and the next rehabilitation or development project begins (Harvey & Reed, 2003). A study conducted by Mackintosh and Colvin (2003) in the Eastern Cape found that more or less 70% of the boreholes were not functioning. Another survey conducted on 11 countries in Sub-Saharan Africa showed a range from 35-80% of water supply systems were non functional in rural areas (Sutton, 2004). Haysom (2006) surveyed 7000 wells and boreholes in Tanzania and found only 45% were in operation. Department of Public Health Engineering (DPHE) and JICA (2008), studied on 120 village piped water supply schemes in Bangladesh to assess operational status of the systems, which showed only 48% of the schemes were functioning during the survey, whereas, 13% and 39% were partial functional and non-functional respectively. Therefore, irrespective of technical options, non functionality of a huge number of systems fades the sustainability of the rural water supply.

3. Sustainability and Rural Water Supply

Many researches in water and sanitation sector have tried to define sustainability from different perspectives. In rural water supply, sustainability has been studied by various researchers lighting shed on its different aspects and recommends for adopting sustainability factors for supplying of safe water in the rural areas. Here some of them may be produced to get an understanding from the standpoint of water and sanitation services. Sustainability is now a very common word found in almost all the project proposal document as an objective of any water supply and sanitation programmes (Parry-Jones, Reed, & Skinner, 2001). Literary meaning of sustainability given by Shorter Oxford English Dictionary (1973) is "to keep or maintain at the proper standard". However, sustainability defined by WCED (1987) as "meeting the needs of the present without compromising the ability of future generations to meet their own needs". This definition encompasses both the development and environmental dimension of sustainability. Hodgkin (1994) clarifies sustainability more specifically for water supply and sanitation projects. He defines as sustainability is the ability of a WSS development project to maintain or expand a flow of benefits at specified level for long period after project inputs have been ceased. However, more simple and workable definition of sustainable water system is seemingly given by Sara and Katz (1997) is that the system, which is able to provide an acceptable level of services all through the design period of the water supply system. Abrams, Palmer, and Hart (1998) state sustainability very simply "it is whether or not something continues to work overtime". They elaborated definition for water service as water continues to be available for the period for that it was designed in the same quantity and at the same quality as it was designed. Webster, Dejachew, Bereket, Mehari, & Tesfaye (1999) define sustainability of rural water and sanitation projects, where the system functions continuously with maintaining physical and nonphysical components of the project active, continues the benefits to the beneficiary level after external support is stopped. Harvey and Reed (2003) defines sustainable rural water supply covering most of the aspects of sustainability. He argues that it is sustainable when "the water sources are not over exploited but naturally replenished, facilities are maintained in a condition which ensures a reliable and adequate water supply, the benefits of the supply continue to be realized

by all users over a prolonged period of time, and the service delivery process demonstrates a cost-effective use of resources that can be replicated".

Even a cursory look over the above-mentioned definitions reveals several key issues of sustainability in water and sanitation sector which are as follows:

- Long term external support should be minimal
- Operation and maintenance costs should be financed by users
- Flow of benefit should be continued over a long period

Sustainability has several dimensions. Sara and Katz (1997) divided sustainability under three components. These are technical aspects, institutional aspects and social aspects. Researchers have identified system design and construction quality as the most influential technical factors for sustainability. As for institutional aspects, water committee, O&M of the system and money collection are the vital institutional determinants for system sustainability. Socio-economic factors like income level, willingness of the users to allocate time, availability of adequate fund and labor too are equally important and vital sustainability issues to maintain the system functioning.

Apart from this, many other researchers have described sustainability of WSS projects taking five dimensions into account, namely institutional, social, technical, environmental and financial or economic (Abrams et al., 1998; WELL, 1998).

Harvey and Reed (2004) have identified eight sustainability factors. These are policy context, institutional arrangements, technology, natural environment, community and social aspects, financing and cost recovery, maintenance, training and capacity building.

Giné and Pérez-Foguet (2008) have added managerial dimension also in the sustainability loop and claimed that institutional, social, technical, environmental, financial and managerial factors are interrelated (Figure1).

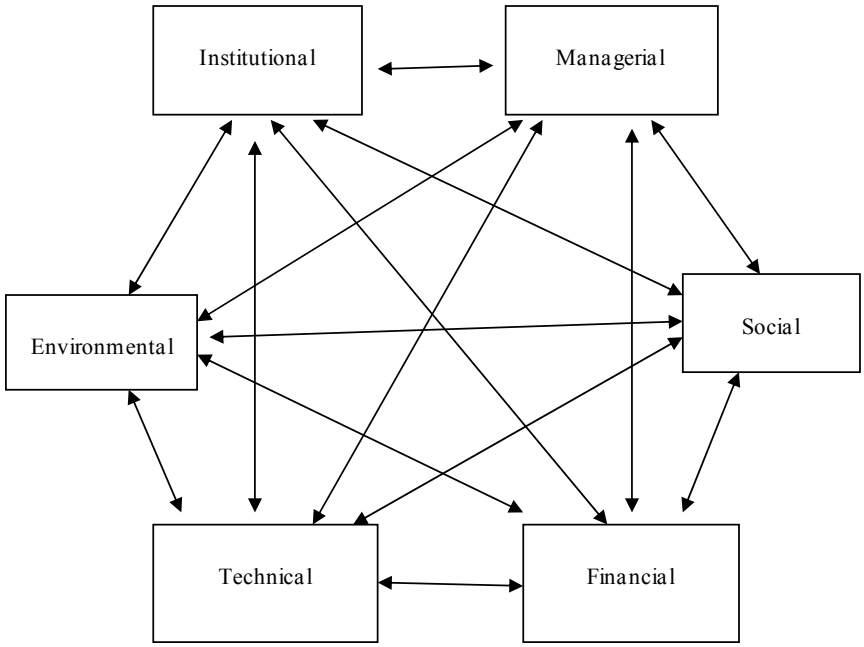

Figure 1. Factors effecting sustainability (Giné & Pérez-Foguet, 2008)

According to Montgomery et al. (2009), three sustainability components are universal, which lead to long term functioning of water and sanitation supplies. These are effective community demand, local financing and cost recovery, dynamic operation and maintenance. These researchers have also recognised some enabling factors for each of the sustainability components, participatory planning, appropriate technology choice and social marketing influencing effective community demand, local financing and cost recovery influenced by local borrowing and saving schemes, financial planning and community cross-subsidies. Clear management

responsibilities, accessible spare parts or technical expertise, monitoring and evaluation, and ongoing outreach and support are the enabling factor for dynamic operation and maintenance.

Several researchers have also depicted sustainability as a dynamic mechanism (Carter et al., 1999; Sugden, 2001). Carter et al. (1999) have proposed a sustainability chain consisting of four essential components (Figure 2). The missing of any one of these may endanger the sustainability of whole system.

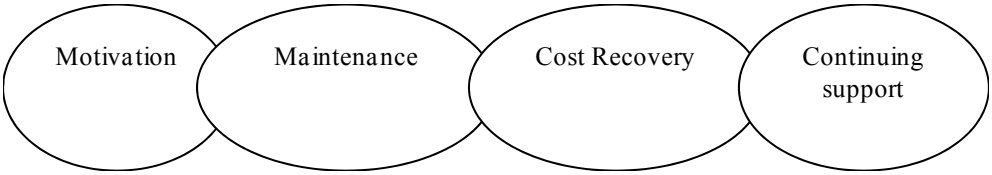

Figure 2. The sustainability chain adopted from (Carter et al., 1999)

Community motivation encourages community to utilize the new service. Through appropriate motivational activities beneficiary people become aware that the new service source is beneficial by comparison with the previous water service in terms of access, or proximity and safety. It is also argued that motivation, value, worthiness, self interest are required for all stakeholders including individual consumers. Management committee within the community and caretaker, Government organization, Non-government organization, and private sector entity involved in service providing need to perceive participation and the delivery of high quality services. Health education, community involvement as well as establish community ownership are regarded as harmonious to community motivation.

Maintenance level for water supply system depends on the nature and type of technology. By and large, for all types of technology a clearly structured, resourced and trained maintenance organization is essential. For community management systems, committee appoint caretaker for maintenance. But most of the cases, they need help from backstopping agency like government or NGO. So, communication line between community and backstopping agency is vital for low down maintenance response time.

Cost recovery is vital issue for financial sustainability of any scheme. Cost recovery required for staffing, training, transport, spare parts, materials, tools, and replacement of units. It is necessary to fix up the cost recovery mechanism such as the basis of payment, the means of administering and accounting for water charges by the community. Better cost recovery can ensure sustainability of schemes.

Water supply is a long term function. In developing countries water and sanitation facilities work long time if service is managed jointly by community and external support agencies. So it is essential to deploy government agencies or NGOs for follow-up support. In consideration of this fact, Mazango and Munjeri (2009) have also acknowledged external support as the vital factor which affects sustainability of water supply.

Abrams et al. (1998) also classifies the relative importance of sustainability in two phases of service-one is initiation phase and the other one is ongoing phase. Initiation phase is the establishment phase of service. It covers recognition of service need to planning, design and construction of service, the establishment of the institutional framework and initial commissioning. The ongoing phase is the rest of service life. It deals with operating the services to satisfaction of the consumer, collecting the revenue, maintenance of the infrastructure, administration and all of the day to day activities. It is maintained that service provision is essentially a process of human organization and the use of technology is related to the benefit of the society. Probability of things going wrong is more in ongoing phase. Considering sustainability, it is suggested that there are some activities which may promote sustainability with respect to both initiation and continuation phase. For initiation phase sustainability, the points like demand driven development, capacity building, community awareness, project initiation and the development of key performance indictor are worth-mentioning. But by contrast, very little thought has been put in place for continuation phase. However, the continuation phase sustainability is heavily contingent on the institutional arrangement of local government, District councils, Provincial Government and the National Government. It is vital to establish institutional support system which has the capacity to perform their function to survive and deliver real service to consumer.

An elaborate literature review conducted by Lockwood, Bakalian, and Wakeman (2002) reveal critical issues affecting sustainability of two types-pre-project and post-project issues-which are given below in the following Table 1.

Table 1. Critical issues of sustainability in different project phases (Lockwood et al., 2002)

Pre-project issues	Post-project issues
Community participation	Finance and tariff collection
Demand responsiveness	User satisfaction
Empowerment	Capacity of water committees
Technical design	Definition of rules and responsibilities for system management
Construction quality	On-going training
Gender and poverty focus	
Training	

Bohm, Essenburg, and Fox (1993) research on financial sustainability of rural water systems has identifed water tariff and willingness to pay as major factors responsible for sustainability of the scheme. Water tariff collected could not cover full cost of service. In addition, village size influences sustainability of the scheme. Willingness to pay is found working better for improved services like house connection in preference to public fucets. Household income and wealth, family size, education, and dissatisfaction with traditional water sources positively influence willingness to pay resulting in increased sustainability of the scheme. Similar study on operational sustainability of water supply systems carried out by Bhandari and Grant (2007) have also concluded that satisfaction, trust worthiness of the water-user committee, affordability of user and willingness to pay are the most important operational sustainability factors.

4. Management Models

4.1 Community Management Model

Community Management (CM) has become a major subject in the design of rural water supply and sanitation projects throughout the developing world. For many years, community participation has been considered as vital for management of water and sanitation development projects, especially in rural sector. There have evolved different forms of community participation over the past few decades. For rural water supply, the prominent model is community management service model (WEDC, 2003). Community management has achieved wide spread acceptance and majority of rural water supply and sanitation projects all over Sub-Saharan Africa are currently applying it (IRC, 2003). Community management is evolved as an NGO- or donor-driven model for time-bound pilot projects. This model may play under the leadership of government with community institutions to scale up the rural water supply delivery with the support from local and national government structures (Schouten & Moriarty, 2004). Community management as a demand driven community-led approach incorporates participatory method and decentralization strategy to successfully deliver rural water supply services better than supply driven government-led models (Lockwood, 2004). It is argued that CM can improve efficiency, meet the target of the project within planned budget and enhance sustainability of rural water management (Mazango & Munjeri, 2009).

The basic assumptions of community management allow beneficiary community to develop, own and operate and maintain their facilities or systems (Harvey & Reed, 2007). Additionally, it plays important roles during the planning and implementation phases (WEDC, 2003). According to Harvey and Reed (2007), development stages of community management for water supply are (i) Water committee formation (ii) Training and capacity building (iii) Setting and collecting water tariffs (iv) Management and /or implementation of O&M activities of the system. The core values of community management are to empower and equip communities to take control of their own development (Doe & Khan, 2004).

However, community management encounters a lot of challenges. First, it cannot work successfully due to absence of right configuration of markets, government institutions and tradition (Kleemeier, 2000; Kleemeier, 2010). Second, a sticky problem with the volunteer based community management of water supply is that community-level committee and care taker lose their interests or trained individual moved away, community never felt ownership of the new infrastructure (Carter et al., 1999).

Third, sustainable rural water supply projects in developing countries face several threats. For instance, dependency on community spirit becomes weaker with the modernizing influences such as increased mobility through infrastructure development, more off land employment access, industrialization, rural urban drift, increased wealth, materialism and individualism which erode the traditional structures and values. Moreover,

bureaucracies of government structures in developing countries which are not suitable for community management approach (Carter et al., 1999).

Fourth, this management model is also fraught with types of constraints-internal and external. Internal constraints include poverty, strong traditions, misplaced priorities and unfavorable settlement patterns with in the rural milieu. External constraints noted are beyond the control of rural communities that include time constraints and sectoral development plans by External Support Agencies (Laryea, 1994).

Fifth, community participation is identified as a tool for water and sanitation projects for short to medium term success (Carter et al., 1999). Doe and Khan (2004) recommended community management for smaller rural communities in which community will be involved actively. Community management model, albeit runs smoothly at the initial stage, problems begin within 1-3 years after the commissioning of systems leading to the breakdown of management system (Harvey & Reed, 2007). Moreover, Harvey and Reed (2007), identified the causes for breaking of management system which are dependency on voluntary input, lack of incentives for community members, absence of appropriate replacement policy for committee members, lack of transparency, accountability and lack of regulations, lack of legal status and authority of the water committee, absence of liaison with local government institutions, and inability to replace the major capital items. Most of the community managed water supply schemes run with acute financial shortage as this management cannot collect tariff from the beneficiary efficiently (Whittington et al., 2009).

Sixth, in addition to all of these problems, Kleemeier and Narkevic (2010) have described elaborately the problems of community management approach. Significant problems are given below:

- Impossible to predict funding from one year to the next. As a result it is very difficult to make even short term sector planning
- Poorer, dispersed, and less organized communities cannot address in most of the cases
- Follow up is minimal or less after construction
- Dramatic drop of management capacity of local water committee over the time as the people lost their interest, even though, initially committee members are trained extensively; no option to skill upgrading, or move away
- Spotty cost recovery for operation and maintenance; if too much raised attract unscrupulous for occupying surplus; otherwise too little is collected which cannot meet the expenses of repair while needed
- For technologically complex system or large number of user, customer operation become challenging
- Recuperation of investment cost identically stopped fully once an upfront payment has been made
- Availability of spare parts, trained manpower and tools are scarce for major repair resulting in the infrastructure sitting idle for long period of time

It is mentioned that in developed countries community management model could not manage rural water supply successfully, so it is not justified to expect breakthrough of community management in low income countries. Although community management approach is adopted unanimously in rural water supply of sub-Saharan Africa, it cannot ensure sustainability of the interventions (Harvey & Reed, 2007). However, Opare (2011) has observed that developing countries adopt community management initiatives as it removes internal differences, increase technical knowledge and management experiences. This study has found co-management with public agencies along with private firm immediately after implementation for 3-6 months made community capable of assuming the full management responsibility. This reveals that community management system works successfully, if local capacity is adequately strengthened with external support prior to assumption of full community control of water supply systems, and if assumption of responsibilities is pursued gradually. In addition, capacity building, construction supervision and providing support to the community owned management during the first year of implementation are recommended for maintaining long term functionality of water points (Jiménez & Pérez-Foguet, 2011).

4.2 Private Management Model

There are different forms of private sector participation in the Water and Sanitation sector. Davis (2005) identifies some types of participation arrangements which include (a) Service or management contract, (b) Lease, (c) Concession, (d) Build-Operate-Transfer (BOT), (e) Divesture and (f) Independent service providers.

Participation of private entity in the water sector is a growing issue (DFID, 1998). In private sector management approach, the private sector manages the system, whereas communities have to pay for the service received (Harvey & Reed, 2004; Harvey & Reed, 2007; Parry-Jones et al., 2001). The search for substitute of community management is a natural and growing response by the beneficiary communities and policy makers to improve

rural water services. Relevant literature review illustrates a wide range of private sector and public private partnership (PPP) initiatives are underway around the world (Kleemeier & Narkevic, 2010). Private operators are involving in rural water supply in the form of delegated contracting through PPPs (Lockwood & Smits, 2011).

Carter et al. (1999), Doe and Khan (2004) and Harvey and Reed (2007) have advocated for private sector participation in rural water supply sector. Harvey and Reed (2007) underline the need for exploring private sector options in the rural water supply areas, where there is resistance to community management or limited capacity for its successful operation. Carter et al. (1999) have focused on the issues which will be taken care for successful private sector participation are providing reasonable profit of service provider along with safe guarding consumers' or purchasers' proper rights, protection and choice. Giné and Pérez-Foguet (2008) have termed private sector participation model as an alternative emerging management model for rural water supply, but till it is in premature stage. Authors have also cautioned not to overestimate private sector's commitment to public service delivery as they have lack of sufficient skill and experience in the sector. So capacity building of private sector is essential. Besides, they focus on the pricing of service and goods, which should be affordable to the community and agreement between consumers and service provider, need to be fair and equitable. They also indicate the weakness of water entities, low negotiation capacity that can produce unequal contracts with private operator resulting in an unequal competition where operator is likely to enjoy more benefit than users. Despite all these facts, rural private operator model for water supply appears to be the promising option for solving the problems of sustainable operation and maintenance (Kleemeier, 2010).

Neoliberal ideas offer straight forward solution to complex water management. It includes the actions of market environmentalism following the development of water markets and market incentive mechanism as proper means for realizing environmental protection (Bakker, 2003).

Lee and Jouravlev (1997) described merits of private sector management of water supply as a way of management which would reduce costs, opportunistic management and regulatory capture alongside increase investment, transparency and efficiency.

However, a number of researchers Vandana (2002), Lobina and Hall (2008), Barlow and Clarke (2002), Hall and Lobina (2007), argue against private sector management that the profit motive of private corporation marginalize the poor. Without strong regulatory institution, privatization is inappropriate, adoption of incentives for externalities will make harm for environment, less competition for contract, private sector financing is costlier than public sector. Finally their strong claim against private management, water cannot be treated as commodity, as access of water is human right. In addition, some researchers support their statements and opine that private sector participation in water supply is geographically segmented. Specially, the low income areas are avoided globally, locally and regionally by private service provider (PSP) (Jimenez & Perez-Foguet, 2009). The cause behind it is clear as PSP want safe return of their investment.

During the last decade emerging trend appeared in the world water sector is that Governments of the countries are positively embracing the increased involvement of the private sector both to financing and managing the industry's infrastructure and services. There is a growing political consensus that public sector is less capable than private sector to manage new or existing assets efficiently (Martin, 1996).

World Bank and the International Monetary Fund advocating for water service privatization based on the assumption that private entities can improve the management as they can invest capital to improve infrastructure, improve system performance, reduce water rates and more responsive to consumer needs (Cardenas, 2011). However, in some cases private water services facing challenges because of much increase in water rates, economic fluctuation, decline of water quality and failure to expend the services to less profitable areas (Cardenas, 2011). Additionally, water privatization in lower-income economies are problematic due to the technology of water provision and the nature of the product, transaction costs, and regulatory weaknesses (Kirkpatrick, Parker, & Zhang, 2006). Lewis and Miller (1987), based on the study of Public-private partnership in water supply and sanitation conclude that though private managed water supply programme fails to meet its coverage targets, but able to become financially solvent and have fostered a rapid growth in capacity through the informal sector. The authors have also made some recommendations on the basis of the experience of developing countries' water systems which favor private management of water supply. These are:

(i) Water vending and charging for water is common in developing countries and not culturally unacceptable

(ii) To ensure sound management of water supply and sanitation services provision on incentives are essential

In addition, roles of regulators are essential for public authorities to regulate the private supply activity and monitor quality of supply to maintain competition and ensure proper and fair operation. Billing, metering,

maintenance of various components or tracking water losses are areas of partnership with the private sector is possible through contracting out. Private sector involvement offers better motivation and efficiency, except poorer communities.

5. Sustainability and Scheme Management

Management of rural water supply and sanitation (WSS) systems are major issues till date within the sector. Actual number of people served by these facilities is often lower than uttered data as many of that are inoperative or operating at reduced capacity. In most of the cases management systems have failed to provide necessary guidance and structure for effective operation and maintenance (O&M). The role of O&M in the project cycle is critical for sustainability of project benefits. Indeed, O&M may be considered as synonymous with sustainability (Roark et al., 1993). However, Webster et al. (1999) refers sustainable scheme management integrating all the social, economical, cultural and political components of a scheme. A number of studies also have found that the existence of a formal organization like water committee is necessary to manage the water systems' sustainability (Sara & Katz, 1997). Mazango and Munjeri (2009) have identified external support, demand, social and collective needs, cultural institutions, economic and technological factors as vital for sustainable water management. Harvey, Uno, and Reed (2006) have acknowledged low levels of service sustainability in the rural water supply sector as the effect of community management. Community management dominated the scene of rural water supplies in developing countries for a long time. However, it has failed to produce the desired results in terms of sustainability and functionality, and it is time to question the very nature of the management model instead of blaming practitioners and governments for poor implementation (Koestler & Shaw, 2009). WELL (1998) suggests that for sustainable WSS programme design, four success criteria need to consider. These are effectiveness, equity, efficiency and replicability. Therefore, to achieve sustainable scheme management structure, social, economical, technical, institutional and environmental factors of rural water supply need to be considered in scheme management for long term sustainability of services.

6. Conclusions

This article conceptually reviewed articles that addressed different management models of rural water supply and its sustainability in developing countries. These include community management models, private management models and hybrid management approaches. This review identified the merits and demerits of each model which would be useful for planners in practice and academia in researches to select appropriate management model for sustainability of rural water supply. Proper management of water supply profoundly influences the sustainability of water supply system. All over the developing countries most of rural water supply is managed by the community itself. But, the success of this community based management is not up to the mark. With the rapid urbanization, rural communities are changing their behavior remarkably fast. As a result, incentive free voluntary community management does not become attractive to the rural people so much. Moreover, with the improvement of economic condition rural people are demanding better services. Rural water supply is mostly dominated by pure technical options like borehole, dug well, and hand tube well which are not fulfilling the growing demands of the rural people. These straightforward options can be managed by non-skilled or semi skilled rural people through community management. However, improved water supply like piped water supply is complex technical option which cannot be properly managed by the community management. Previous studies reveal that community management has seemingly failed to collect water tariff properly resulting in poor operations and maintenance. Therefore, with the adoption of technically complex water supply technology, there has been a concomitant demand for changes in the type of scheme management from community to private management or hybrid management. Profit motive of the private entity forces them to ensure better water supply. Private sector involvement offers better motivation and efficiency. In addition, low water coverage of rural areas and slow rate of public and donor investment in the sector creates an opportunity for local investors to explore for new business horizon. Previous study reveal that community management is suitable for poorer community with highly rural areas whereas, private management shows it robustness in well off rural communities. Taking cognizance of all these facts, it may be said that private management can provide permanent and evolving management structure for long term sustainability of the sector. Therefore, this paper is seemingly provides insights for the expansion of knowledge base on management of rural water supply in developing countries for both community and private management in relation to sustainability.

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