

Reducing rural poverty through multiple-use water services: the women's perspective in north-western Ghana

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Abstract

Globally, poverty reduction has remained prominent in the development agenda of donors, governments and civil society organisations. Various strategies have been employed by these stakeholders to reduce poverty especially in rural areas of the developing world. Historically, although water provision has received much attention, integrating multiple-use water systems in the design and implementation was less emphasised. This paper presents findings on a case study that was conducted in three communities in north-western Ghana where multiple water use systems have been provided with the aim of alleviating poverty, especially among women. The main methods used in gathering data include focus group discussion, household survey and interviews. The study established that the provision of water facilities has had several social benefits. In terms of economic activities, the women have been empowered to actively engage in multiple income streams. Despite the benefits from the water facilities, marginalisation of women as regard the facility in one of the communities poses a threat to the sustainability and poverty reduction efforts. This can be overcome with the intervention of the District Assembly who has oversight responsibility over development interventions in the area.

Keywords: multiple use water services, rural, household livelihood, women, poverty, economic activities, Ghana.



1 Introduction

Poverty has been with humanity for centuries and equally across continents. Although poverty is a global issue, it is predominant in east and south Asia and Sub-Saharan Africa (SSA). In 2013, 33% of the world population who lived below the threshold of extreme poverty was in Africa [1]. Poverty has various dimensions and largely include social and economic [2, 3], and it is rural-based where over 70% of the poor live [4, 5]. This has triggered the concerned sub regions and the international community to fashion out interventions towards alleviating poverty. In SSA in particular, stakeholders have called for accelerated efforts to double infrastructure provision, especially water infrastructure. It is known that poor households often suffer from poor water provision. Hence, any measures to reduce poverty needs to include water provision [6]. But water provision should take a strategic approach, one that encapsulates the different uses of water as admonished by some experts (see, for example [7]).

With the multiple uses of water, there are often competitions for water as a productive resource if it is in short supply. For instance, women constitute 43% of the agricultural labour force in developing countries [8], and paradoxically, have been marginalised in terms of access to agriculture related services, assets, and resources [5, 9]. Despite the multiple needs of communities, the public sector of most countries have bureaucracies that have mandates for “single use” service delivery [10]. As a result, water development projects are often structured independently or even occasionally in conflict with one another [10]. Consequently, there is a growing concern about developing approaches that capture the multiple uses of water that can equally tackle the multiple dimensions of poverty [11].

Given that water supplied for domestic purpose ended up serving other functions, an enhanced approach, dubbed multiple-use water services (MUS) was put into the academic and practitioners’ domain as an effective alternative to design and supply of water services to take care of the varied uses of water especially in rural communities [12, 13]. NGOs operating in rural areas have a high level of flexibility in their approach and sectoral interventions. Hence, many of them have redirected attention to providing water using an approach that is close to a full-fledged multiple-use water services approach [12]. The overarching objective of MUS is to meet people’s multiple water needs that contributes to poverty reduction in rural areas [11, 14]. It mostly targets women because improved income for women has had impact on general household welfare (see, for example [15, 16]). The aim of this paper is to assess the impact the MUS has had on women and thus household livelihood.

2 The study area and research approach

This research was conducted in the Upper West Region of Ghana using three farming communities: Venne, Mantari and Meguo that have benefited from multiple-use water services from Care International, an International NGO. The population of Mantari and Meguo were 174 and 193 respectively. On record,



Venne has 154 persons but at the time of the study, only 24 (16% of the 154 persons) were in the community and the rest had migrated due to water challenges. This paper is a synthesis of a multiple case study, using the above communities as cases. In the three communities, focus groups discussions were held with the Water and Sanitation Committees, gardeners (community members who use the water system for gardening), and school children. Interviews were conducted with the school teachers and the “Tendamba” (the descendants of the first settler of the community. They are customarily the supreme or allodial owners of the land). In Venne, four households were surveyed because at the time of the study, all members of the fifth household had seasonally migrated. In Mantari, 16 households, representing 72.2% of all households were surveyed. In Meguo, 10 households, representing 83.3% of all households in the community were surveyed. In sum, 30 households were surveyed in the three communities with 40% and 60% of the respondents as males and females respectively. The FGDs were recorded using digital recorders and later transcribed while the household surveys were analysed using Statistical Package for Social Scientists (SPSS, Verse 20).

3 Multiple-use water services and poverty reduction

Emphasis on the provision of water since the 1980s has been on potable water. This was orchestrated by the insurgence of water related diseases at the time. But it has now been observed that though potable water is usually provided, households use it for varied purposes. This led to the new concept of Multiple-Use Water Systems (MUS) approach, which takes poor women’s and men’s multiple water needs as the starting point. MUS is referred to as using a community’s water sources to render different services to people – drinking water, hygiene, and productive needs – for the betterment of their lives [10, 12]. The focus of MUS is to meet the multiple water needs of households with the ultimate aim of improving their lives. Prior to a conscious design of MUS, rural communities used existing water sources for multiple uses. Although not a new concept in practice, the design of water infrastructure did not take into consideration the multiple uses to which water is put [12].

Sometimes they use different sources for different uses including both productive and consumptive functions in several dimensions, but in most cases, the same source is used for the myriad functions [17, 18]. Therefore, multiple-use approaches are thought to be effective for poverty alleviation and gender equity for several reasons. By taking poor people’s multiple water needs as a starting point, multiple use approaches meet a broad range of basic water needs and alleviate many dimensions of multifaceted poverty. MUS also promote sectional representation in user association. Having a water user organisation that includes all water users, instead of having parallel irrigation committees, domestic water committees, and traditional structures governing the same water resources could be more effective and sustainable (see for instance, [11, 19]).



3.1 Water at the centre of the MDGs

The United Nations launched the Millennium Development Goals (MDGs) and all member countries were required to work towards achieving them. Given the thematic nature of the MGDs, water remains central to the achievement of the MGDs [7, 12] as shown in Table 1.

Several authors have explored and established the link between water and the other sectors, and consequently the MDGs. It has been established that water increases production and productivity, stabilises income and consumption, and contributes to non-farm output [17]. Voegelé *et al.* [22] also indicated that, improvements can also reduce time and energy spent walking long distances, especially for women and girls (See Table 1). This allows women to use the time gains for productive purposes. It has been established that increase in access to water to support agricultural purposes comes with increased food output, diversification of crop production which often results in access to balanced diet [17, 23, 24]. Additionally, provision of water, especially the MUS approach is generally gender friendly since the link between water and gender is inextricable [12, 25]. In most instances, women are the beneficiaries of MUS and as such it has been identified as a gender-equitable and women empowering approach to development of rural areas [13]. In societies where women are landless, MUS which are mostly supplied around the household, potentially increase women economic activities and their income [12]. For example in Senegal, a study of 47 MUS showed that women participation in gardening was twice that of their men counterparts [13], thus contributing to women economic empowerment.

Moreover, improved domestic water supply contributes in income generation, time saving, health benefits [18]. As regard maternal health, Sultana and Crow [26] established that in Bangladesh, maternal cases (complications) were linked to women carrying water pitchers on the hip due to long distance to water sources. Again, in many developing countries, lack of water limits the practice of proper hygiene [27] which affects the attainment of MDG in combating diseases. For example, access to water supply has reduced the incidence of illness among adults by 11%, and an increase in weight-for-height by 0.835 kg/m in rural areas [28]. Undoubtedly, water supply has gone beyond human right to a key development indicator that is linked to the MDGs [18]. Given the thematic nature of the MDGs and the role of water in fulfilling the different but related MDGs, there is the need to integrate multiple functions of water in water delivery process. The following sections provide empirical evidence of how MUS approach to water delivery has contributed to poverty reduction and attainment of the MDGs in the three communities.

4 Results and discussion

4.1 Characteristics of respondents

Of the 30 respondents, 86.7% were married whilst 6.7% were widowed. Generally, household sizes in the study area were very large. All the respondents were above



Table 1: Link between water and the MDGs.

| MDGs | Role of water |
|--|---|
| Eradicate extreme poverty and hunger | <ul style="list-style-type: none"> • Water is a core factor of production in homestead gardening, agriculture, animal husbandry, cottage industry and in many other types of economic activity • Investments in water infrastructure and services as a catalyst for local and regional development • Household water treatment and safe storage reduces the disease burden among the poorest who have no access to safe drinking water |
| Achieve universal education | <ul style="list-style-type: none"> • Contributes to improve school attendance from improved health and reduced water carrying burdens, especially for girls • A safer school environment for girls through appropriate sanitation facilities in schools results in increased attendance |
| Promote gender equity and empower women | <ul style="list-style-type: none"> • Gender sensitive water management programmes help empower women and give them confidence to increase their role in other societal activities • Community-based gender sensitive organisation (such as water user associations) improve women social capital |
| Reduce child mortality | <ul style="list-style-type: none"> • Access to improved quantities and quality of domestic water reduces the main determinants of morbidity and mortality for children |
| Improve maternal health | <ul style="list-style-type: none"> • Improved cleanliness, health and reduced labour burdens from water portage reduce mortality risks |
| Combat HIV/AIDS, malaria and other diseases | <ul style="list-style-type: none"> • Improved access to water supports HIV/AIDS affected households and may enhance the impact of home care programmes • Improved access to water reduces its related diseases |
| Ensure environmental sustainability | <ul style="list-style-type: none"> • Improved water management, including pollution control and sustainable levels of abstraction, are key factors in maintaining ecosystems integrity |
| Develop a global partnership for development | <ul style="list-style-type: none"> • Water problems (water scarcity, salinity, disasters, transboundary basin management) are major constraints on development in the affected countries |

Source: Authors' construct, from Soussan *et al.* [20] and Vasquez [21].



20 years of age. Specifically, 36.7% of them were over 50 years old and the least proportion (6.7%) falling in the age brackets of 31 and 40. Another 23.3% of them aged from 20 to 30 years whilst 33.3% were from 41 to 50 years of age. Generally, there was a fair representation of respondents across the various age cohorts and impliedly their views reflected the various age groups.

4.2 Improved access to water and the externalities

Before the construction of the MUS facility, various sources of water, both improved and unimproved were used by the communities. In Meguo, there was inadequate water in the wells in the dry season, compelling the people to move to Mantari (about 700 meters away from Meguo) to draw water. According to the household survey and the focus group discussions, this created congestion at the borehole at Mantari especially in the dry season resulting in delay in accessing water. The focus was on the dry season because preliminary visit showed that communities did not have challenge in accessing water in the rainy season. This is due to rain harvesting and availability of adequate water in hand dug wells (though the cleanliness of the water was doubtful).

Multiple use water service does not require a new technology in most instances. In a study of eight countries, using 30 communities, Smits *et al.* [14] observed that MUS can and really used existing technologies. Hence, Smits *et al.* [14] did not look at time benefit because they assumed that it is not significantly different from previous improved access to water. The difference here is that in these three communities, access to water was already a major challenge, and the MUS project was to serve a dual purpose – improve access to water for domestic and improved access for productive use. This is what van Koppen *et al.* [12] termed “domestic-plus”. This makes it necessary to assess how the provision of the new facilities contributed to access to water. From the household survey, 90% of the respondents spent over 90 minutes to draw water prior to the establishment of the MUS facility. Given the multiple uses of water, spending over 90 minutes to access about 20 litres of water actually results in waste of productive hours in search of water.

In all three communities, the Black Volta River was another source of water for household consumption and other uses. However the use of the Black Volta as a source of domestic water was more pronounced in Venne prior to the provision of the facility. Now, about 70% of the households in all communities spend less than 30 minutes to access water because the crowd that used to characterize major water points has dissolved with the provision of the MUS facility. Moreover, the MUS facilities are piped systems where no energy is required to pump water unlike borehole or hand dug well with hand pumps. There are ripple effects of reduced time spent on fetching. It has improved teacher-pupil contact hours in school. This was testified by both teachers and pupils. Pupils report to school early as they spent less time to obtain water prior to school hours. Relatedly, according to the focus group discussion with the women and the WATSAN Committees, reduced time at water points for women in particular, has given them enough time for farm work and other household chores. This complements what Van Houweling *et al.* [13] established in Senegal where the presence of small piped system (MUS), earned



time for women to invest in new economic activities. This further confirms that improving access to water contributes greatly to achieving other MDGs such as education and women empowerment [20, 21].

4.3 Gender-based participatory MUS as poverty reduction machinery

User participation has been espoused as a key ingredient for sustaining projects and ensuring that benefits are equitably shared and cost borne by all parties with the exit of donors. Hence, its planning should ensure that benefits are pro-poor [29]. In this study, user participation was assessed at two levels. The first level comprises the decision on the provision and operations of the MUS facility while the second level focuses on the decision to use the MUS facilities especially for economic gains. The study revealed that community members participated in various aspects of the project implementation. During construction, they contributed labour and at times accommodated the artisans. The choice of the type of technology (solar powered piped water system) was determined by CARE/GWI with no community influence. The study also established that the community members selected the Water and Sanitation Committee, decided on the days and hours of operation of the facility, pump levies and mode of payment.

The second dimension of community participation looks at the utilisation of the MUS facilities for economic gains. In both Mantari and Meguo, the community members unanimously agreed that women should take up gardening. The reason given by communities was that women are engaged in buying ingredients and should know the types of vegetables that will be required in the house. Moreover they will know the market demand for the various vegetables and therefore determine which vegetables to grow and make profit. A man in Mantari pleasantly had this to say about women engagement in dry season gardening: *"We have allowed only women to engage in gardening because they are the housekeepers. If a woman sells vegetables, the proceeds will reach home for the entire house to benefit, but if a man sells vegetables, he will use the proceeds to drink alcohol and the wife will still be required to buy vegetables for the household"* (excerpts from interview, 12th April, 2012). This implies that the men have realised the crucial role of women in sustaining households. The views of the men in Mantari and Meguo complements the establishment of Meinzen-Dick and Zwartveen [15] and Van Koppen [16] that improved income of women is felt at the household level because women spend their income for the general being of the family in relation to their male counterparts. It also reinforces that women empowerment has several benefits to the households as established by others (see [9, 30]). Consequently, in Mantari and Meguo, 32 and 27 women respectively work in the garden.

Contrarily, in Venne the men side-lined the women and monopolised the cultivation of the garden. As regard general participatory decision making in the communities, both men and women in Mantari and Meguo at different discussions indicated that women take part in decision making on development issues, and water supply and management in particular. However, in Venne, the women indicated that they participate actively in decision making only when outsiders were present. In a situation where it was only the community members who were meeting to take decisions, women participation was just passive.



4.4 Socio-economic impact of the MUS facilities

Linked to the gender-based participation in the usage of the MUS facility is the socio-economic impact of the facility. From a social perspective, the presence of the facility has served as a key factor that women, especially in the rural areas close or far from the case communities, consider in moving into a community for marriage. Empirically, women have been the drawers of water in rural areas (see, for example [31, 32]), and will not want to marry in communities where water is scarce as that will increase their burden of carrying water over long distance. It has been established in Meguo and Mantari that the rate at which ladies come into their communities for marriage has increased as a result of the MUS facility. Within the last three years, ten and four new wives had come into Mantari and Meguo respectively. The FGD revealed that perhaps only four and two women would have come to Mantari and Meguo respectively if the facility had not been provided. This is similar to what was established in Burkina Faso where young men in Silmiougou had difficulty getting wives due to water scarcity which scared young ladies from marrying in that community [33].

This suggests that besides the economic benefits and the domestic purpose for which MUS facilities are provided, there are social benefits that cannot be quantified but significant to rural settings. Discussions with the community members showed that prior to the MUS facility, households suffered from “kuo nang” (literally, they suffered from water poverty) which has ripple effects on several dimensions of their lives. Now, it is evident that MUS has reduced “kuo nang” and equally strengthened social relations among households. In Meguo, a woman summed it up as follows: *“Initially, we had difficulty accessing water and that affected our social lives. For example, at the time that it was very suitable for lovemaking, that is, early dawn, a woman pushed the husband aside and went out in search of water for the household. Before this facility was given to us, we did not have good meals and were often falling sick, and the children particularly suffered from anaemia. Our husband’s livestock used to move far in search of water and some got lost. Today, we are very blessed. We have enough water for our livestock, household and other uses. We have fresh vegetables from our gardens for good meals. We no longer frequent the hospital to complain of ill health. We have good nights and do not have to spend our lovemaking time to draw water. We now give birth and as you can see, these are our children all over. In sum, this facility has reduced hunger, weakened poverty (nang balee, i.e. poverty is weak) and brought peace and love to our households”* (excerpts from FGD, 12th April 2012).

This social impact of MUS as presented above is similar to what has been established in other settings where women had sleepless night in order to access water [34, 35]. This confirms that freedom from poverty is more than income and material wellbeing [2, 3]. As noted by Sullivan [6] without adequate water supply, any measure to reduce income poverty will not succeed.

Economically, the major source of income for households and especially women in the study area is economic activities which activities depend on large quantities of water. The study found that the households have not had a shift in



economic activities in the rainy season as they continue to depend on farming. Economic activities in the dry season changed slightly. Farming, shea butter production and 'pito' (local alcoholic beverage) brewing were key activities before the establishment of the facility. About 33.3% of the households were engaged in shea butter and pito production. After the facility was constructed, gardening became a major dry season activity.

About 33.3% of the women are able to engage in three economic activities (shea butter extraction, gardening and pito brewing) concurrently. This implies that MUS comes with multiple economic activities and consequently, multiple income streams. Though the frequency of small scale industrial activities such as pito brewing and shea butter production has not changed significantly, the patronage/demand has increased and based on the increased demand, they are able to increase production levels. In most instances, where there is enough potable water, private gardening is the most immediate use to which water is put [36], and this was the case in these communities. The study found that the vegetables produced are mainly for sale and a little left for household consumption. The average earnings from sales of vegetables in a season (four to six months) were GH¢483.38/gardener in Mantari, GH¢472.31/gardener in Meguo, and GH¢575.58/gardener in Venne. The cultivation of vegetables has brought cost savings to the households as they would have spent money to buy similar vegetables for their households. In addition to these averages, there are earnings from shea butter extraction, pito brewing and dawadawa products. These were excluded from the computation because the process is not entirely dependent on the water facility but includes other major services and core inputs.

It is emphasised here that these earnings are additional earning because none of the communities was engaged in gardening prior to the establishment of the MUS facility. This complements the literature that MUS has contributed to increased household income, improved food supply and security for households, and reduced household expenditure on food that they hitherto did not produce (see 13, 14, 37, 38)). This shows that there is a strong link between water provision and rural poverty reduction, and central role of water in facilitating the achievement of the MDGs is remarkable.

5 Conclusion

This study contributes to the literature on the role of water and MUS in particular, in reducing rural poverty. Empirically, MUS is gaining grounds in many developing countries and the integration of MUS concept into water sector planning and infrastructure design is indispensable. This is particularly relevant in rural savannah where the economic activity is seasonal farming. Therefore, the benefits of MUS including: social recognition, acquisition of knowledge and practice of personal hygiene and general sanitation, community recognition of invaluable role of women in households' upkeep, savings for households, access to fresh vegetables for good meals, and on the whole, healthier and happier homes, and all the other bundles of social satisfaction if quantified, justify the need for government and private sector organisations to mainstream MUS into water sector



planning. These benefits cut across the various MDGs and as the communities themselves mentioned, poverty has reduced.

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