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Effects of Water Scarcity on Women in Pastoral Areas: A Case Study of Melela Ward in Mvomero District – Morogoro, Tanzania

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Abstract

Rural areas in most developing countries are subjected to low water coverage, which is also contaminated with chemicals and bacteria. Such a situation is the consequence of lack of proper water management which creates insufficient and poor water quality in the community. The sustainability of community water for good health is based on available and within-reach safe water sources, free from contamination. Melela Ward is a pastoral area, with an estimated population of 292,505 people and has only one water source serving the whole population. The water source is contaminated with human beings bathing and washing in it, and there are faecal contaminants from animals and chemical (mercury) contaminants from mines operating around the area. Such hazards endanger people's lives, who are subjected to frequent outbreaks of diarrhoea and cholera. Findings revealed that water scarcity forces women and children to walk long distances in search for this scarce facility. This has resulted to conflicts and violence in their households when these women come back after dark with insufficient water for the house and unable to do productive work. Sometimes, they risk being raped by men who would like to take advantage of the circumstances; they risk being attacked by wild animals; and they even become psychologically affected due to unnecessary harassment from their spouses. Again, these women are constantly in fear of the security of their children, when the latter have to be left back to fend for themselves when their mothers are out in search of water. It is being recommended that there has to be awareness creation regarding the hazards that might be the result of using contaminated water. Responsible authorities should ensure proper management of available water and water sources, ensure that the whole community is aware of ways to make water availability sustainable, and the government and organisations concerned with environmental protection should seek to design programmes that will address and improve the lives of women in pastoralist areas.

1.0 Introduction

Rural areas in most developing countries are subjected to low water coverage which is also contaminated in most cases. Study on water, women and children in Mozambique and Philippines revealed that in most poor communities, water collection is a woman's chore; and children reared by such mothers who have little time to cook are subjected to malnutrition as they eat less nutritious meals. Similarly,

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these women do not have enough time to do other household tasks such as cleaning, sweeping, scrubbing, washing, child care and agricultural work (Cairncross, 1987).

Melela ward, which is a pastoral area with an estimated population of 292,505 people, has only one water source serving the whole population (URT, 2003). The aim of managing water sources as documented by the National Water Policy, focuses on water conservation, water quality management and pollution control. It puts in place the appropriate principles and procedures for managing the quality and conservation of water resources, improving and protecting the ecological systems, biodiversity and wetlands (URT, 2002). What is taking place in Melela village where water is of very poor quality due to contamination by mercury chemicals from nearby mines is quite the opposite of the aim stated above. There is also disturbance to the ecological system, and environmental destruction. The Melela water problem integrates four national policies addressing water, land, agriculture, health, environment and livestock (National Water Sector Development Strategy [NWSDS], 2006). According to NWSDS (2006), operational targets focused on increasing the number of people who have access to clean and safe water from 53% in the year 2003 to 65% in the year 2010/2011. These people were envisaged to access water within 30 minutes of the time they would have to spend searching for same. The clean and safe rural water coverage in Tanzania was 56.6% in 2011 compared to 58.7% in 2009 (MoW, 2012). Unfortunately, the national projected water coverage was not met and only a 3.6% increase was achieved in eight years. Women in Melela have to walk for three to four hours to fetch water for domestic purposes, and this water is from the only water source which provides water for household and livestock purposes, in Melela.

Like in Melela, many communities in rural Tanzania are subjected to poor quality and insufficient water. Observation by Ngomuo (2005) revealed that good water quality and enough water quantity can only be achieved through the community by putting emphasis on safeguarding water sources; discouraging activities such as bathing, washing clothes and utensils in/around water sources; and preventing grazing animals around water sources or along river banks. Moreover, water treatment has to be done following World Health Organisation and Tanzania Rural Water Guidelines of water standards.

A study by Sud (2009) found out that due to the amount of time that women take at the water sources, conflicts between husbands and wives emerge, while fights between women and water vendors have also been reported. Women are more severely affected by climate change because of their social roles and because of discrimination and poverty. Some women walk up to 10 km one way daily in search of water for domestic use. Water in most rural areas is mainly obtained from shallow wells dug on dry river beds and most of these water sources are often unprotected and open to contamination.

The objectives of this particular study that was conducted in Melela village were to:

- gather information on water scarcity and the nature of women's life style in this pastoral area;
- find out the causes of water scarcity;

- investigate the effects of water scarcity on women; and
- recommend ways to reduce the problem of water scarcity.

In order to attain the said objectives, the research set out to find out whether the following questions could be answered satisfactorily.

- Is there any real water problem in the community?
- What is the current water situation?
- How do people manage to get water for domestic purposes?
- Who fetches the water, and when is fetching done?
- What is the current water quality?
- Are there any strategies for reducing the current water problems?
- Has there ever been any assistance/means of solving the current water problems?
- What could be recommended to solve the current water shortage?
- How does the community involve itself in solving its own water problems?

2.0 Water scarcity and its impact on development

Water scarcity can be put into two categories: economic scarcity and physical scarcity. Economic scarcity refers to the fact that finding a reliable source of safe water is time consuming and expensive. Physical scarcity simply means there isn't enough water (Water Scarcity, 2012). The community in Melela village is faced with both types of water scarcity – physical scarcity and economic scarcity. Reports from Water for Life (2005) showed that water scarcity is both a natural and human-made phenomenon. In the case of Melela, water scarcity is a human-made phenomenon. Melela is pastoral land where the community does not settle in one place and take care of the land, for example planting trees, or practising shifting agriculture. Pastoralists of Melela move with their herds of cows from place to place and there have been reports of farmers complaining about herds of cows destroying agricultural products. Moreover, the new activities of mining that have been started in the uplands have compounded the problem of water scarcity. These consequences can be linked to reports from the *Management Options to Enhance Survival and Growth* (2012) which showed that human-made phenomena significantly impacts the availability, quality and quantity of water due to reduced river flows and reservoir storage, lowering of water tables and drying up of ditches.

Studies related to *Water Scarcity* (2012) revealed that the majority of sub-Saharan Africa suffers from economic hardship that exists because of people's lack of the necessary monetary means to operate adequate sources of water. This problem is linked to Melela community where the community cannot afford permanent houses that are roofed with corrugated iron sheets, to enable them to harvest rain water. Moreover, according to the nature of pastoral life, shifting agriculture is difficult to practice. This kind of agriculture helps to prevent soil erosion and by having settled life, people could plant trees to save the environment. From the study, it was established that out of the two forms of water scarcity in Melela ward, economic scarcity could be addressed quickly and effectively with simple infrastructure to collect rainwater from roofs and dams, but with the kind of roofing that exists, water cannot

be collected. The locally operated mining in the uplands has to be improved to ensure that the associated activities do not further contaminate the water, which is already polluted by animals and other human activities. The following sections describe the effects brought about by water scarcity.

2.1 Health

World Water Day (2012) documentation showed that the most immediately apparent impact of water scarcity in Africa including Tanzania is on community health. It is documented that scarcity of water forces those living in water deprived regions to turn to unsafe water resources, which then might lead to the spread of waterborne diseases including malaria, typhoid fever, cholera, dysentery and diarrhoea, trachoma, plague, and typhus. Additionally, water scarcity forces many people to store water in their households, which increases the risk of household water contamination and incidents of malaria and dengue fever spread by mosquitoes. These waterborne diseases are not usually found in developed countries because of sophisticated water treatment systems that filter and chlorinate water, but also natural, untreated water sources often contain only tiny disease-carrying worms and bacteria. Globally, 2.2 million people die each year from diarrhoea-related diseases, and at any given time 50% of all hospital beds in the world are occupied by patients suffering from water-related diseases (World Water Day, 2012). Infants and children are especially susceptible to these diseases because of their inexperienced immune systems, which lends to elevated infant mortality rates in many regions of Africa. Infection of infants with waterborne diseases due to water scarcity prevents women from contributing effectively to their communities' productivity and development, because they have to attend to their sick children. Most of the reported cases from Melela showed that the people suffer from diarrhoea, schistosomiasis and cholera. Thus, with safe drinking water, conditions in Melela will improve and the burden on healthcare would be lessened, creating a bigger and healthier workforce which would stimulate economic growth and pull many people out of poverty.

2.2 Women, children, and education

Women's Life (2012) documented reports on water scarcity showing that African women are disproportionably burdened by scarcity of clean drinking water. In most African societies, women are seen as the collectors, managers, and guardians of water, especially within the domestic sphere that includes household chores, cooking, washing, and child rearing. Because of these traditional gender labour roles, women are forced to spend around 60% of their time each day collecting water, which translates to approximately 200 million collective work hours by women globally per day. For African women, this often means carrying the typical jerry-can that can weigh over 40 pounds when full, for an average of six kilometres each day. As a result, many women are unable to hold professional employment.

Additionally, this burden prevents many young girls from attending school and receiving an education. This is because the young girls of Melela assist their mothers in fetching water and helping with the household chores that are made more time-intensive because of a lack of readily-available water. Furthermore, lack of clean water

means the absence of sanitary facilities and latrines in schools, and so once puberty hits, this has the largest impact on girls. In terms of lost educational opportunity, as a result of spending a lot of time looking for water, school girls lose quite a number of potential school days. The end result is that subsequent generations of African women are going to break out of the cycle of equal opportunity for gainful employment. Taking these facts into account, availing clean water for women and children will translate to Africans with potential for education, prosperity, power, literacy, hygiene, security, and equality (Women for Water, 2012).

Below we provide a framework that shows how the question of gender relates to, and affects community health.

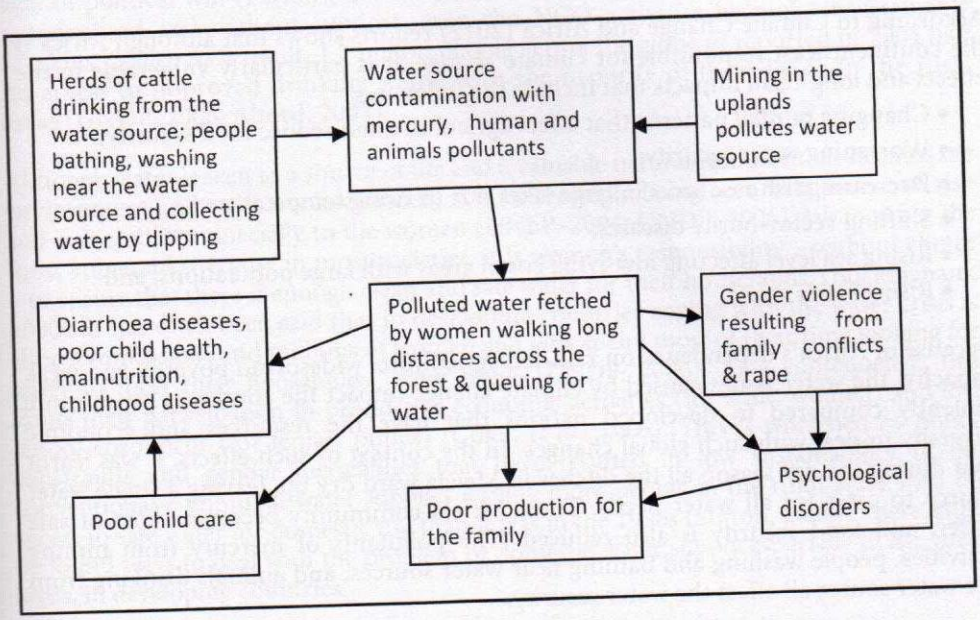

Figure 1: ***Framework on contaminated scarce water and aggravation on gender violence and community healthy***

Source: Constructed by authors

2.3 Agriculture

The majority of Africa remains dependent on an agricultural lifestyle and so water scarcity translates to loss of food security. At this point, the majority of rural African communities are not tapping into their irrigation potential, and according to the UN Economic Commission for Africa and New Partnership for Africa's Development (NEPAD), "irrigation is key to achieving increased agricultural production that is important for economic development and for attaining food security". But for many regions, there is lack of financial and human resources to support infrastructure and technology required for proper crop irrigation. Because of this, the impact of

droughts, floods, and desertification is greater in terms of both African economic loss and human life loss due to crop failure and starvation. Additionally, lack of water causes many Africans to use wastewater for crop growth, then causing a large number of people to consume foods that can contain chemicals or disease-causing organisms spread by the wastewater. Thus, for the extremely high number of African areas suffering from water scarcity issues, investing in development means withdrawing from clean freshwater sources, ensuring food security by expanding irrigation areas, and effectively managing the effects of climate change.

3.0 Causes of water scarcity

3.1 Climate change

According to Climate Change and Africa (2012) reports shows that although Africa is the continent least responsible for climate change, it is particularly vulnerable to the effects and long-term impacts that include the following:

- Changing rainfall patterns that affect agriculture and reduce food security;
- Worsening water security;
- Decreasing fish resources in large lakes due to rising temperature;
- Shifting vector-borne diseases;
- Rising sea level affecting low-lying costal areas with large populations; and
- Rising water stress.

Because of Africa's dependence on rain-fed agriculture, widespread poverty, and weak capacity, the water issues caused by climate change impact the continent much more violently compared to developed nations that have the resources and economic diversity to deal with such global changes. In the context of such effects, it was learnt that during the dry season all the ditches in Melela ward dry up, leaving a single water source to cater for all water needs. Thus, Melela community becomes short of safe water, and food security is also reduced. The pollutants of mercury from mining activities, people washing and bathing near water sources, and animals drinking from the water source all affect the water security.

3.2 Productivity and development

Water Scarcity (2012) revealed that the social and economic consequences of lack of clean water penetrate into realms of education, opportunities for gainful employment, physical strength and health, agricultural and industrial development, and thus the overall productive potential of a community, nation, and/or region. Because of this, the UN estimates that sub-Saharan Africa alone loses 40 billion potential work hours per year collecting water. This observation corroborates what is happening in Melela ward where women walk miles and miles to fetch water; also school children queue for many hours fetching water for their school.

The mining activities in the uplands pollute the water draining to the sources from which the community fetches water. Sometimes women have to walk to the water points after dark as the water is relatively cleaner during this time because animals will have stopped stirring the mud and less people would be doing their washing after sunset.

It is necessary to enhance the awareness and understanding of the impact of water scarcity and its linkage with violence, conflict and victimisation of women, and identify any opportunities that may arise to reduce the identified problems.

4.0 Water crisis in developing countries

The cause of the global water crisis is believed to be far from a scarcity problem but rather a result of poverty, inequality, unequal power relations and flawed water management policies evident in most of the developing countries (UNDP, 2006). However, the fact that the voices of the marginalised groups especially women are rarely heard by the policy makers, illustrates another truth behind the water crisis, i.e., lack of political will (Perkins, 2008). Governments do not prioritise the needs of the marginalised and without support, even the NGO activities become unsustainable (Perkins, 2008). As a result, 1.1 billion people across the globe as reported in 2004 had no access to improved drinking water, with the majority of these living in the rural areas (UNDP, 2006; Alford, 2007).

Although water is seen as a source of life and a valuable natural resource that sustains the environment and supports livelihoods, it is increasingly being seen as a source of risk and vulnerability especially to the women (UNEP, 2004; UNDP, 2006). Women are the most vulnerable because in most societies, it is women's responsibility – without choice – to ensure that there is enough clean and safe water for their households. (Buckingham, 2000). It has often been said that in developing countries coping with the water crisis is almost impossible, and millions of women and girls spend most of their time looking for water to meet their households' water needs (UNDP, 2006). As a consequence, this limits their participation in productive economic activities (for adult women) and low school enrolment (for female pupils) (Coles, *et al.*, 2005). This is worsened by policy constraints and gender inequalities that have resulted in low sustainability of the conventional communal water supplies leaving more people in the rural areas with no access to safe water for domestic use than it was in the 1990s (Sutton, 2008). There must be found ways to deal with the problem of domestic water supply especially in the rural areas, in developing countries.

4.1 Domestic rural water supply improvement

One of the critical components of the Millennium Development Goals (MDGs) is increasing access to domestic water supply coupled with improved water resource management and development in rural areas (Lenton *et al.*, 2008). According to WHO domestic water is water used for all domestic purposes which include drinking, cooking and bathing. Therefore, when measuring adequacy of water in the household all such uses should be considered (WHO, 2003).

To ensure that rural households are water-secure, it necessary to evaluate the number, geographic location, yield, dependability, season and quality of the water sources (Kahinda *et al.*, 2007). Besides, equipping people in rural communities with appropriate technologies and skills to enable them harvest rain water and drill underground water together with effective management of these sources can provide

small fee, as a way of promoting social relations (Carter *et al.*, 2005). This is because water is seen as a natural resource and as a result payment for water in the rural setting is quite unacceptable (Shiva, 1989). However, this leaves the construction and maintenance costs in the hands of the households that initiated the construction of the self-supply sources (Carter, 2006). This can compromise access to water among the disadvantaged groups in society especially the women who do not have the capacity and ability to construct and/or maintain the domestic rural water supply sources (Alford, 2007).

4.3 Women empowerment and participation in water management

Women are increasingly being seen as active agents of change and the dynamic promoters of social transformation that can alter the life of all members in society (Sen, 1999). However, the manner in which decisions and choices on water resources are handled can have great implications on women who use the technologies to get water and are the end users of water resources in the households (Rydhagen, 2002; Rodda, 1993). Gender sensitivity which involves women participation in water management is important; however, instrumental gender mainstreaming in water management depends on how the main agenda can address the transformation of gender relations in water supply, use and management (Panda, 2007; Hombergh, 1993). This is because even in instances where women maybe involved in a water supply project, they are often not given a chance to influence the focus of the projects. Yet women's involvement in the planning of the water projects could actively enhance sustainability since they are the end users of such projects (Rydhagen, 2002). Access to clean water can change gender relations in the household and offer women the opportunity for productive use where their mobility is socially constrained (Sutton, 2007; Karl, 1995). But this is only possible if those responsible for making choices for the technologies for water supply, paying water bills at household level and those who attend water management meetings at community level are identified (Rydhagen, 2002).

5.0 Findings of the study

The findings of the study have shown that women have to cover distances on foot, sometimes for three to four hours, to look for water and queue for many hours waiting for their turn to fetch water in one source. They are accompanied by their children sometimes through thick forests, seeking water. Such occasions put them at risk because quite a number have been raped, and some wounded by wild animals. Moreover, their young children are left without care. Spending sleepless nights thinking of where to get water next, has psychological effects on the women. In addition, social conflicts occur between husbands, wives and children resulting to lack of peace in their families.

Moreover, the same sources with unsafe and insufficient water are also utilised by the school which is within the community. This widens the problem of water scarcity due to increased number of people utilising the water source.

Figure 2: *Melela water source*

It was also observed that the existing gold mining activities in the mountain contaminate the water with chemicals, in the lowlands. Such situation creates health hazards and in the long run it may lead to epidemics to the whole community.

The study has also shown that very few people (government and community leaders) are genuinely conscious about the magnitude of the prevailing water crisis and contamination, as well as the health risks involved. Nobody has ever been charged with the improper mining in the forested mountains, which contaminates the water with minerals and creates water scarcity that endangers the health of the community. Thus, the whole situation pulls down the development of the community.

6.0 Recommendations

After having established the extent of the water problem, we recommend the following steps that might be useful in reducing the crisis:

- The community should be sufficiently mobilised to look for alternative means to get safe, sufficient and sustainable water, within community reach. The idea is to have the community itself safeguard the available water source, by build a fence around it to prevent animals contaminating the water. It will be necessary to create awareness among the community about the kind of health hazards that might be caused by water contaminated with the gold impurities.

- A village water committee that involves both men and women should be established to oversee the water sources and set by-laws to control the water source area and the mining area, for better community health.

- The community should be motivated to contribute some money so as to construct a well in the primary school, which is the only place having a large building. This will help to harvest water during the rainy season. The community should also improve their houses and use corrugated iron sheets so as to harvest rain water. This might have to involve sensitising people to change their way of life and adopt a more settled life, as most of them are nomads.
- Where the community uses water from a well, it will be necessary to construct a furrow from the water source to a place where animals can drink. This will ensure less contamination by the animals.
- Each household of the Melela community has to be required to plant trees around their houses to help improve the water cycle. Again as the area is dry, people should use waste water from washing utensils and cloths to water their seedlings.
- The government and organisations fighting for the rights of women should help the Melela community to access safe water closer to home in order to minimise the risks associated with women and children having to walk long distances in search for water.

7.0 Way forward

Collecting water is taken to be the duty of women and children in developing countries. In areas with severe water scarcity it takes up to six hours walking seeking for water. Hence, immediate sustainable measures need to be created for pastoralist families to have defined settlements that can be served with defined water sources, for the sake of the security of women and children.

Household conflicts and violence related to water scarcity should be resolved immediately for women and children's security, through sensitisation and, if necessary, by forced measures.

Schools in pastoral areas should be served with their own water sources to avoid students having to queue for water in the community water sources, and wasting precious study time.

Moreover, policy makers, water providers, and local and central government should immediately take measures against contamination of water and water sources. They should realise that safe water for human life is a right; therefore, they should take the problem of water as their responsibility and not a question of charity.

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