THE ROLE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) TOWARDS ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS (MDGs) ON WATER AND SANITATION FOR WOMEN IN ZIMBABWE

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ABSTRACT

Clean, safe drinking water, sanitation and good hygiene are fundamental to health and survival. MDG 7 intends to halve the proportion of people without access to safe potable drinking water and basic sanitation by 2015. For many women access to safe water is still a luxury. According to UNICEF (2006), over 1.1 billion women do not use drinking water from improved sources, while 2.6 billion lack basic sanitation. Sanitation remains one of the most off-track Millennium Development Goals. Over 3,000 children die per day due to health risks associated with poor sanitation and lack of clean water. Safe drinking water and basic sanitation are essential to health. Lack of basic sanitation indirectly inhibits the learning abilities of millions of school-aged children who are infested with intestinal worms transmitted through inadequate sanitation facilities and poor hygiene. The Millennium Development Goals (MDGs) have set us on a common course to push back poverty, inequality, hunger and illness. The study explored the role of ICT in helping to achieve MDG 7. The study was qualitative in nature were a sample of 10 key informants from the 10 provinces in Zimbabwe were used and nominal group discussions were held over the internet. The study found out that ICT methods provided wider access and the acquisition of independent, lifelong skills for all women, which are relevant in the attainment of MDG 7. Based on the findings, it was recommended among others that programmes for attainment of MDG 7 utilise ICT and the views of women in both rural and urban areas. Use of ICT should also be relied upon because of their widest reach to the targeted individuals.

Keywords: ICT, Role, Women, Assessment, Millennium Development Goals.

INTRODUCTION

According to WHO (2009) health is at the heart of the Millennium Development Goals (MDGs). The current international target related to water supply and sanitation is represented in the MDG Target 7c: "to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation" (UNDESA, 2012). The indicator for measuring water supply and sanitation access is "proportion of the population using an improved drinking water source" and "using an improved sanitation facility" (UNDESA, 2012). The MDGs has health-related aspects, achieving it will not be possible without gender equality, the empowerment of women and proper management of the water resources and the environment.

This study was motivated by the potentially powerful role that information and communication technologies (ICTs) can play in the meeting of this millennium development goal 7c on water and sanitation for women in developing and underdeveloped countries especially in Africa. The study reviewed literature, on ICTs and how they can help women

access clean water and good sanitation. The findings developed in this study would be useful both for purposes of effective program development on mdgs and policy design.

Background to the Study

Water and sanitation safety in Africa affects gender relations and raises several social, cultural, institutional and economic questions. Bearing in mind that, global water is made up of 97% seawater, 3% freshwater and of this freshwater 87% not accessible, 13% accessible (which is 0.4% of the total) (IWSD 2012). As a result the cultural and social setting determines power, status, prestige, rights and obligations. It conditions women's access to land, water, education, health and employment compared to men. The increase in numbers of people from 6 billion to 9 billion will be the main driver of water resources management for the next 50 years. Today more than 2 billion people are affected by water shortages in over 40 countries. About 263 river basins are shared by two or more nations and 2 million tonnes per day of human waste are deposited in water courses yet in developing countries these are the main sources of water for women (IWSD2012). As a result more women of the developing world are exposed to polluted sources of water that increase disease incidence.

Water supply is linked to sanitation and eventually to human health. Water shortages seem to be rife in Zimbabwe. In particular urban areas are overpopulated due to people mainly women and children who have migrated from the rural areas fleeing economic woes and political violence. The women settle in low-cost backyard accommodation in high density suburbs to seek employment opportunities. However, migratory movements cause rapid population growth which, according to the World Conservation Union (1996), place unprecedented demands on water resources and sanitation facilities

According to Pearce et al (2013) global progress towards MDG 7c is officially monitored by the Joint Monitoring Programme (JMP) for Water Supply and Sanitation of the WHO and UNICEF. According to the JMP report in March 2012 the MDG on drinking water had been achieved, while progress on the MDG on sanitation was still lagging behind (WHO, 2012). The JMP's 2012 progress report detailed that, at the end of 2010, 89% of the world's population used an improved drinking water source, while only 63% had access to an improved sanitation facility (WHO and UNICEF, 2012). The report also highlighted important disparities across and within regions: in particular, it reported that more than 40% of the people

still lacked access to safe drinking water, lived in Africa in 2010, and that some African countries had, in fact, fallen behind the 1990 levels of coverage. The report also emphasised differences between urban and rural coverage of drinking water with 96% of the urban population using improved drinking water sources compared to only 81% of the global rural population (WHO and UNICEF, 2012); and drew attention to high rates of inequality between the highest and lowest population quintiles within a country (WHO and UNICEF, 2012).

Statement of the Problem

What role will ICTs play to enable women in Zimbabwe achieve the MDG goal 7 on water and sanitation?

Objectives

1. Define ICTs in the water and sanitation spectrum.
2. Find out if ICTs empower women in accessing water and sanitation facilities in Zimbabwe.
3. Identify challenges unique to women in achieving MDG goal 7 in Zimbabwe.
4. Find out if ICTs facilitate the achievement of MDG goal 7 in Zimbabwe.
5. Recommend to the relevant authorities use of ICT in facilitating the access of water and sanitation facilities for Zimbabwe.

Research questions

1. What are ICTs?
2. Does ICTs empower women in access to water and sanitation facilities in Zimbabwe?
3. Which challenges are unique to women in achieving MDG goal 7 in Zimbabwe?
4. How does ICTs facilitate the achievement of MDG goal 7 in Zimbabwe?
5. Describe ICT strategies to achieve universal access to water and sanitation for women in Zimbabwe.

LITERATURE REVIEW

Status of water and sanitation in Zimbabwe

Zimbabwe is experiencing challenges in attaining MDG WASH targets by 2015 (UNICEF 2010). According to UNICEF (2010) the proportion of people with access to safe drinking water marginally increased from 78% in 1990 to 83% in 2010, while sanitation coverage stagnated at 66% to 65% over the same period. In rural areas only 42% of people currently have safe sanitation facilities, in comparison to 47% in 1990, and open defecation stands at 42%.

As a response Zimbabwe and UNICEF came up with the Emergency Rehabilitation and Risk Reduction (ER&RR) designed against the backdrop of the 2008/2009 cholera outbreak. The programme led coordination efforts of more than 20 partners involved in urban rehabilitation of WASH programmes. ER&RR has since evolved into a national rehabilitation programme and foundation for national sector recovery in WASH programmes. Through the programme new boreholes and rehabilitated boreholes benefited approximately 500,000 households (UNICEF 2010).

Construction of over 3,000 latrines benefited approximately 20,000 people and water treatment chemicals were procured for 20 urban councils and 130 towns and growth points, resulting in no reported shut downs in 2010 due to chemical shortages. Sector-wide learning and information-sharing improved with more robust partnerships and the establishment of the WASH Sector task force on knowledge management.

Defining ICTs

The range of technologies under this acronym ICTs are, communication devices and applications which include cellular phones computers and network hard ware and software, print media, radio, television the Internet and many others (UNESCO 2002). According to UNDP (2002) ICTs are both traditional (such as radio, television, print and fax) and new devices such as the mobile phone, laptops and desktops.For the purpose of this study, ICTs is

defined as any communication device and application, that enables the universal access to water and sanitation resources. For women to be able to use and benefit from ICTs there is need for computer literacy which can be defined as "the knowledge and ability to use computers and related technology efficiently". It can also refer "to the comfort level someone has with using computer programmes and applications" (UNESCO 2002). ICTs allow increased information which facilitates technology diffusion, adoption and innovation at a much faster pace.

ICTs are increasingly promoted as a key solution for comprehensive development, poverty eradication and the empowerment of historically disadvantaged groups, such as women and minorities in Africa (Hafkin and Huyer, 2006).

Empowering access to water and sanitation using ICTs

ICTs if applied in line with local conditions can be promising instruments towards improved and more effective management of water and sanitation facilities. ICTs are consistently hailed as one of the most effective tools for economic development. An ITU study (2005) describes ICTs as potentially powerful "development enablers:" they are cost-effective with significant transformative power, allow developing countries to leapfrog several stages of the development process and, in furnishing individuals directly with tools for self-empowerment (Heeks, 1999) Communities in most peri-urban surroundings live in environmental conditions characterised by risk, vulnerability and susceptibility to diseases and contaminations. Their choice of habitat has also been traditionally associated with such practices as, garbage disposal and environmental degradation associated with exploitation of environmental assets like water, sand, wood, to name a few, all extracted for the 'best' utilisation by the 'big city' dwellers (Walt, 1994).

It must be stressed that peri-urban interfaces in almost all the developing countries are places of possible disaster outbreaks. Not only are they so in terms of liability to disease outbreaks but there are also social vices and demeanours, which make the situation more acute and desperate (McIvor, 2001). Approximately 62% of sub-Saharan Africa's urban population lives in slums (DFID 2006), where conditions of slum are quite defined in the peri-urban sphere. The absence of planning for these places and general neglect by governments explains why these have a despicable character; as these have not been institutionally integrated as urban. Even when integration attempts are made, these are usually too choking for the existing cities' budgetary coffers because of the effective demand created by peri-urban dwellers. Often cities leave this new demand outside their ambit of operation.

UNICEF (2010) reported that the Water, Sanitation and Hygiene programme (WASH) introduced in Zimbabwe, contributed to:

- Access to safe water supply and sanitation in 20 urban centres improved,
- Proportion of households that use improved water supply and sanitation facilities increased by 20% and 10%, respectively, in 15 rural districts,
- 50% of the rural population and school children practice positive hygiene practices in 15 rural districts,
- 100% of emergency-affected population in rural and urban areas receive WASH-related emergency assistance within 72 hours

Sachs (2011) reported that the millennium villages project initiated in Ethiopia, Kenya, Rwanda, Uganda, Tanzania, Malawi, Mali, Nigeria, Ghana and Senegal had demonstrated how ICT and broadband can be used to enhance development through projects ranging from mobile applications for decision-making support in the health sector, to the use of mobile phones for data collection and systems management, to innovative technologies. Broadband connectivity helps to improve the access to online WASH resources. Information technologies such as mobile phones, internet connections in schools and community centres, and radio can enable training of water personnel.

The use of ICTs is credited in allowing better management of health and sanitation delivery systems, water programmes and aid by providing timely information on weather and water management and sanitation systems. Radio instruction and internet access can further education about WASH programmes, while better access to communications can empower and increase the impact of stakeholders' voices. As highlighted by Sachs (2011) with the millennium villages project ICTs provides a powerful platform for developing and implementing new solutions that demonstrate the transformational power of broadband and ICT for development and the achievement of the MDGs.

According to Sachs (2011) the Millennium Villages Project (MVP) focuses on using ICT in three crucial areas which are strengthening primary health systems though expanded mobile-health services, scaling up access to high-quality secondary education for girls through connectivity at schools, and providing access to renewable energy and safe water using smart metering and broadband-enabled systems. The three come as a package, with large economies of scope and scale. The Millennium Villages are broadband-enriched communities, and view ICT not as a stand-alone intervention, but as a new way of life and community development.

The MVP is now harnessing these ground breaking technologies to combat poverty, spur development, and ensure that even those in the remotest areas have access to health care, electricity and education. By deploying state-of-the art ICT applications in health, education and infrastructure, the Millennium Villages are demonstrating how ICT can and should play a central role in achieving the Millennium Development Goals.

Remote sensing technologies and communications networks permit more effective monitoring, resource management, mitigation of environmental risks. Increase access to or awareness of sustainable development strategies, in areas such as agriculture, sanitation and water management, mining, and so on. ICTs enable greater transparency and monitoring of environmental abuses or enforcement of environmental regulations.

Facilitate knowledge exchange and networking among policymakers, practitioners and advocacy groups. Water is an important environmental resource that is threatened in many parts of the world. ICTs improve access to safe water in a number of ways.

Computerized monitoring combined with geographical information systems and databases can measure water quality and pinpoint sources of pollution; satellites can locate new sources of water and information technology helps consumers use water more efficiently. These give rise to a number of indicators such as number of polluted water supplies found through the use of ICTs, new sources of fresh water discovered through ICTs and the amount of drinkable water conserved through ICTs.

Dzidonu (2010) highlighted that the deployment and exploitation of ICTs to facilitate government administration and service delivery has the potential for improving administrative efficiency and service delivery; enhancing and improving government responsiveness to citizens; reducing administrative, operational and transaction costs of governments administrative activities, service delivery functions and operations through the reduction of operating inefficiencies, redundant spending and unnecessary excessive paperwork.

The Millennium Villages Project (MVP) is a unique development programme that demonstrates the power of broadband for development. By deploying state-of-the art information and communication technology (ICT) applications in three key areas namely health, education and infrastructure, the Millennium Villages help the world appreciate the power of broadband to support the achievement of the Millennium Development Goals (MDGs).

METHODOLOGY

Research design

The study was qualitative. Strauss and Corbin (1990) argues that qualitative methods can be used to uncover and understand what lies beyond any phenomenon about which little is yet known. This enabled the researchers to collect rich descriptive data from the information rich participants.

Sample

A sample of ten key informant women in the Water and Sanitation sector were purposively selected, one from each of the ten regions of Zimbabwe. The small but focused sample was used since there was need for comprehensive investigation of the impact of the use of ICTs by the women in achieving universal access to water and sanitation in Zimbabwe.

Data collection

The on line focus group discussions enabled the researchers to collect in-depth understanding, experiences and perceptions of the participants on the use of ICTs in achieving universal access to clean water and sanitation by 2015. Emphasis was on emergent discovery, exploration, and description.

The study used key informant interviews through social chats, nominal group discussions technique through social chats. The analysis explored three themes; access, freedoms, and resources to communicate, which are analytical categories.

RESULTS

Respondents

Identity	Sex	Province	Designation
A	Female	Mashonaland West	Town Engineer.
B	Female	Harare	Politician.
C	Male	Mashonaland East	NGO Director Water project.
D	Female	Manicaland	Peasant Farmer.
E	Female	Mashonaland Central	Rural House Wife.

F	Female	Matabeleland South	University Lecturer.
G	Female	Bulawayo	NGO Director WASH projects
H	Female	Masvingo	WASH projects
I	Female	Midlands	City Resident
J	Female	Mashonaland Central	Farm resident

Whats are ICTs?
A

"ICTs in WASH represent the mobile network, and the mobile tools used for data collection and analysis, and the technology that expedites the data flow. ICT e-services are electronic processes and communications that have been developed or adapted to support development practices in WASH programmes".

C AND F

"Computer and accessories used for data collection and analysis"

Do ICTs empower women in access to water and sanitation facilities in Zimbabwe?
A

"Most women in this town are owners of mobile phones and are in social chat forums e.g. whatsapp, facebook. They share information on sources of water and sanitation facilities available. I have seen the advent of new ICTs helping contribute to the MDG 7c by improving communication and the exchange of knowledge and information about WASH programmes among women in Norton."

C

"The use of production-based technologies including those used in computer integrated production systems and operations, robotics technologies, biotechnology-related equipment and systems have enabled the monitoring of water supply systems. These can predict the amount of water left, consumption rate and suggest mitigation strategies. The safety of the water can also be determined. This as a result allows for women to get clean and safe water."

F

"Approximately half of the phone calls I made were for water related purposes such as obtaining information on which boreholes were functioning, length of the queues and number of boreholes or watering points in the area operating and water borne diseases related deaths. The information enabled us women to share and utilise our time effectively rather than spend time in water queues."

Challenges unique to women in achieving MDG goal 7c in Zimbabwe
A

"Most women in my community are moderately educated especially the middle aged and the younger generation. They are able to use mobile phones and are on social chat platforms though they rely on their husbands to buy them the mobile phones. The majority though do not have computers at home. Most women in my community are not formally employed and

cannot afford buying ICTs. During water meetings with residents women complain of not involved in the planning of water projects. They are also not in the local water and sanitation committees within the community. For example, boreholes are put at sites convenient to men who do the planning and the men are involved in the maintenance of these boreholes. This is despite the fact that these boreholes are mainly used by women and children. Another problem is that there are no sanitation facilities at water points yet women spend long times queuing for water."

B

"ICTS are expensive and most women do not have access to capital to purchase these. Community women lack the skills in use of ICTS."

C

"Women are mere spectators in WASH programmes; they are not involved in planning of these programmes. They are regarded as second class citizens. This is despite the fact that they are the main users of water. Women have unique sanitation needs different from those of men and children"

D

"Most women in this community are peasant farmers .Their need of water differs with that of men. Our challenges are that of accessing clean and safe water. We walk long distances to go to communal watering points. These watering points are highly mechanical and require A STRONG MEN to operate. As a result we at times are at the mercy of Water point attendants and have to pay them to access clean water. We now have access to mobile phones though these are still expensive but generally most households have such devices. The use of solar power has also enabled us villagers to have access to mobile phones. Most residents though do not have access to toilets and do not have proper waste disposal systems. Most women still practice open defecation and domestic waste is not properly disposed."

E

"Our challenges are that of accessing clean and safe water. We walk long distances to go to communal watering points and instead we end up using unsafe sources. The boreholes which were put by NGOs are difficult to draw water from besides being very far away. I once read a book that these could be solar powered or wind powered. At times when we reach these boreholes especially in summer they are dry. If we had devices that would tell us while we still at home we would not waste time and actually go to the next watering point with water that is available." The dry on site waste disposal systems that were constructed by an NGO at our homes and the local clinic are smelly and have a lot of mosquitoes inside. There are also too small for some women to enter."

F

"Women in villages are often illiterate and distrust information through ICT devices transactions over the computer and as a result it takes considerable time and effort to build trust and confidence in relating WASH information over ICT devices. Some women even fear using the mobile devices"

G

"Women are often discouraged, both at the family and village levels, in their entrepreneurial efforts. The fear is mainly by men that empowerment of women may change or shift the power structure and as a result men create barriers."

H

"Juggling household responsibilities and work responsibilities can be very challenging and may result in women opting out of the ICT-driven developmental efforts."

How does ICTs facilitate the achievement of MDG goal 7c in Zimbabwe?

A

- Share information and data on water and sanitation
- Create water and sanitation networks and grids were women can access

B

- Facilitate and help coordinate WASH decision-making and management
- Alerts pending scarcity of water and water borne disease
- Informs on mitigation and management WASH.

C

- Makes access to information on water and sanitation by women easy.

D

- Help reduce and/or mitigate the impact of poor WASH services.

E

- Helps in research of water and sanitation solutions.
- ICTS help comparative analysis of water and sanitation.
- ICTS can be used as tools to manipulate and visualise environmental.
- Information on women water and sanitation.

F

- ICTs help observe water and sanitation situations.
- Describe water and sanitation issues.
- Record water and sanitation problems and solutions.
- Understand water and sanitation issues.

G

- Facilitate learning about Women water and sanitation problems.

H, I and J.

- Provide social platforms to share Water and Sanitation Information.
- Provide Easy access to Water and Sanitation provisions.

ICT strategies to achieve universal access to water and sanitation for women in Zimbabwe.

A	Mapping network system that facilitates the combining of indigenous community knowledge with ICTs to provide accurate information about the world's Water and sanitation.
B	Link water sources to the internet and global positioning systems (GPS).
C	Train and empower women in use of ICT. Develop policies that promote use of ICTs in Water and Sanitation.
D	Provide women with loans to purchase computers and cell phones and teach them computer skills and also electrify rural communities.
E	Create village ICT hub centres.
F	Women should focus on the "enabling" structures of culture, such as an emphasis on child rearing, their cooking skills or expertise in weaving or embroidery, to open opportunities for access to WASH programmes.
G	Educate women and recognise their role in WASH.
H	Use the participatory approach and let women and communities initiate indigenous water and sanitation programmes.
I	Involve women in all levels of water and sanitation planning, implementation and evaluation.
J	Workshops to train computer skills. Provide solar energy as source of power for ICTs

DISCUSSION

ICTs in water and sanitation

The study findings show that only three participants did not respond to the fact that ICTs in WASH represent the mobile network, and the mobile tools used for data collection and analysis, and the technology that expedites the data flow. ICT e-services are electronic processes and communications that have been developed or adapted to support development practices in WASH programmes. The fact that one of the participants was a water engineer, and the other two an NGO WASH director and the other a university lecturer explains the reason why they were able to give a clear explanation of what ICTs are as well as the link to WASH.

ICTs' empowerment of women in water and sanitation

The study found out that ICTS were very useful in empowering women. As women were the main users of water and even by virtue of the being the majority in the community. The mere fact that ICTS Improved the Administration and service delivery of Water and Sanitation within communities has the potential for enhancing and improving responsiveness to WASH needs of women. Findings concur with studies of Dzidonu (2010) who highlighted that the deployment and exploitation of ICTs facilitated government administration and service delivery.

Challenges unique to women in water and sanitation

The study found out that most women in the study area are moderately educated and are able to use mobile phones though they rely on their husbands to buy them the mobile phones because they are not formally employed and do no have source of income and therefore cannot afford buying ICT gadgets. The women expressed that these gadgets are expensive

and most women do not have access to capital to purchase these. Another challenge is that community women lack the skills in use of ICTs.

During meetings for water with residents, women complain of not involved in the planning of water projects and were simply spectators. They are also not in the local water and sanitation committees within the community. This is despite the fact that these water points are mainly used by women and children and that they are the main users of water. Another problem is that there are no sanitation facilities at water points yet women spend long times queuing for water**.** McIvor (2001) clearly states that without proper sanitation there is liability to disease outbreaks and there are also social vices and demeanours, which make the situation more acute and desperate.

Women in villages are often illiterate and distrust information through ICT devices transactions over the computer and as a result it takes considerable time and effort to build trust and confidence in relating WASH information over ICT devices. Some women even fear using the mobile devices and this is actually contrary to Karake-Shalhoub and Al Qasimi (2006) who state that ICTs allow developing countries to leapfrog several stages of the development process and furnish individuals directly with tools for self-empowerment.

Juggling household responsibilities and work responsibilities were also said to be very challenging and resulting in women opting out of the ICT-driven developmental efforts.

CONCLUSIONS

The use of ICTs by women in water and sanitation can dramatically develop women. ICTs are increasingly becoming the key drivers for socio-economic development worldwide.
Women's capability and ability to accelerate in socio economic development depends very much on the extent to which it they can incorporate ICTS and indigenous knowledge to harness clean water and practice safe sanitation.
The study concluded that:

- ICTs can be used to support the scheduling of various water treatment and waste water treatment processes.
- ICTs can be used to design Water pumps and accessories using computer-aided and programmable machines.
- Use of GPS(geo-location) to enable women to access water and sanitation data and rich content from their cell phones and to locate watering points and sanitary points

RECOMMENDATIONS

1. A lot of advocacy in use of ICTS by women so that women do not have phobia in using ICTS in WASH.
2. Improve women's knowledge and skills on Water and Sanitation safe methods through the use of ICT.
3. The use of Skype a free Internet-based telephone system and MSN Messenger to improve discussion and participation on Water and Sanitation.
4. The installation of television sets, DVDs, decoders, and satellite dishes in women community centres and Ward meeting centres to allow women to get up date information on WASH and also participate in Water programme.
5. Installation of tracking devices on all watering and toilets points

6. Water monitoring devices at all watering points that can be used to monitor the level and cleanliness of water.
7. Water policies that have been crafted with full participation of women and other vulnerable groups.

REFERENCES

DFID (2006) r4d.dfid.gov.uk.uk/Output/193434/ accessed 24 November 2013.

Dzidonu C.K, (2010) www.ait.edu.gh Paper Commissioned by The Division for Public Administration and Development Management of the United Nations Department of Economic and Social Affairs (UNDESA) April 2010 accessed 18 December 2013.

Heeks, R (1999) Information and Communication Technologies, Poverty and Development asia.ifad.org/enrap/resources/documents/accessed 28 November 2013.

IWSD (2012) Water Supply and Sanitation. Harare: IWSD.

McIvor (2001) Understanding the implications of ICT adoption: insights from SMEs http;//www.emeraldinsight.com/journal:htm? Accessed 23 November 2013.

Pearce, P., Welle, K and Dickinson, N. (2013). Keynote paper for Topic 4 of "Monitoring Sustainable WASH Service Delivery Symposium", 9 to 11 April 2013, Addis Ababa, Ethiopia.

SACHS .G (2011) The Millennium Villages and ICT for Development. https://itunews.itu.int/...1683-The Millennium-Villages-and-ICT-for-Development.

The National Information Technology Strategy Plan (NITSP), National Computer Board, The World Bank, ICT and MDGs - A World Bank Group Perspective, The World Bank,

United Nations Department of Economic and Social Affairs (UNDESA 2012): A Gender Perspective on Water Resources and Sanitation, Commission on Sustainable Development Interagency Task Force on Gender and water background paper No.2

United Nations Economic Commission for Africa (UNECA), (1996). The Africa Information

UNDP (2002) Gender equality and empowerment of women through ICT. New York: UNDP

UNICEF (2002) The Millennium, Development Goals, Report. Washington: UNICEF

UNICEF (2006). Meeting the MDG drinking water and sanitation target, the urban and rural Davisenge of the decade. World Health Organisation and United Nations Children's Fund, pp. 41.

UNICEF (2010). Assessment of Water and Sanitation facilities in Four Urban towns. Chipinge Assessment report.

UNICEF (2012). Meeting the MDG drinking water and sanitation target - A midterm assessment of progress: United Nations Children's Fund and World Health Organisation.

Walt (1994). Reforming the Health Sector in Developing Countries World Bank.info.worldbank.org/etool/doc/…Reforming the Health Sector accessed 12 December 2013.

WHO (2009). Global Water Supply and Sanitation Assessment Report, World Health Organisation-United Nations Children Fund, Geneva, Switzerland.

WHO, (2012).Millennium Development Goal drinking water target met. Sanitation target still lagging far behind [online].Available at :<http://www.who.int/mediacentre/news/releases/2012/drinking_water_20120306/en/ > accessed 15 June 2013.

World Bank (2002). Monitoring and evaluation: Some tools, methods and approaches. Washington D.C World Bank Group http://www.worldbank.org/oed/ecd retrieved on 3 May 2013.