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**THE IMPACT OF IMPLEMENTATING THE D-WASHE PROGRAMMES IN
CHANYANYA COMMUNITY- KAFUE DISTRICT, ZAMBIA: WHAT ROLE
HAS THE NATIONAL WATER POLICY (1994) PLAYED?**

A dissertation submitted to the University of Zambia in partial fulfilment of the requirements for the Postgraduate Diploma in Integrated Water Resource Management (IWRM)

By

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
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Declaration

I, Beatrice M. Kanyamuna declare that with the exception of the assistance acknowledged, this dissertation is the result of my own studies. This work has not been accepted for any degree, and is not being currently submitted in candidature for any other degree. Any ideas presented earlier by other authors have been acknowledged.

Candidate's signature


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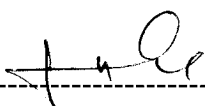
Approval

This dissertation of Beatrice Muchimba Kanyamuna (The impact of implementing the D-WASHE programmes in Chanyanya community- Kafue district in relation to the National Water Policy) is approved as fulfilling the full requirements for the award of the Postgraduate Diploma in Integrated Water Resource Management (IWRM) at the University of Zambia.

Supervisor

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21/7/10

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Abstract

The government of Zambia in 1996 adopted the WASHE (Water, Sanitation, and Health Education) concept as a national strategy for the delivery of Water Supply and Sanitation (WSS) Services. The strategy facilitates the involvement of the rural population in determining priorities, selection of affordable and sustainable technology, management, operation and maintenance of infrastructure, and Knowledge to improving health and hygiene practices in rural communities. The strategy is being implemented through the Local Authorities and District (D)-Water Sanitation Health Education (WASHEs), which are part of the formal district level planning process under the new institutional arrangements which mandate the local authorities with the responsibility of Water Supply and Sanitation Service provision.

This dissertation was looking at the “Impact of Implementing the D-WASHE Programmes in Chanyanya Community in Kafue District. The study involved both qualitative and quantitative methods of research to give both general and actual overviews of the water and sanitation situation in Chanyanya Community. Results from the study suggest that sanitation facilities in Chanyanya community were inadequate and many (27%) people opted to use open defecation (OD) to answer the call of nature. This has been seen as a source of contamination of unprotected surface water sources such as shallow wells. The poor sanitation situation can be attributed to the fact that, the use of latrines for safe and hygienically disposal of human waste is not a felt need by the rural population. Results also show that all samples collected had Coliforms and Faecal Coliforms that contained some presence of bacteria which was not healthy for human consumption if the levels exceeded the count of 10. In conclusion, the lack of proper sanitary facilities has been seen to have negative impacts on human health hence measures should be put in place to improve the situation. Unlike the 1994 National Water Policy, that concentrated its measures on improving mainly the water supply situation in rural areas, Millennium Development Goals on Water and Sanitation to concentrate on sanitation if health problems are to improve. There is need for

government to increase funding in the WASHE programs particularly those that improve access to clean water and sanitary services.

Dedication

I dedicate this thesis to my late father, Tyson Kanyamuna; my mother, Esnart Munali; my husband Charles Pole and my Children for making me who I am now.

Acknowledgement

I would like to appreciate and commend Department of Water Affairs for allowing me to do this program; DANIDA for sponsoring me throughout my studies at the University of Zambia under the Integrated Water Resources Management (IWRM) Centre hosted by the School of Mines, Mr. Josef Ngosa from Kafue District Council for the academic confidence he has given me, Mr. Webster Hamoonga, my supervisor Professor Imasiku A. Nyambe and the IWRM centre staff particularly Mrs Ingrid Kawesha, and my entire classmates for the support and encouragement they gave me during my studies.

Special thanks are due to the almighty God for giving me this precious chance to do this programme.

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Acronyms

ADC	Area Development Committee
AIDS	Acquired Immune Deficiency Syndrome
CCF	Christian Children Fund
CSO	Central Statistics Office
DANIDA	Danish International Development Assistance
DEBS	District Education Board Secretary
DHMB	District Health Management Board
D-WAHE	District Water, Sanitation, and Health Education
EHT	Environmental Health Technologist
HIV	Human Immune Virus
HODI	Local name meaning (a knock)
IMS	Information Management Systems
JSPRF	Justice Solidarity Poverty Reduction Fund
KDC	Kafue District Council
KDHMB	Kafue District Health Management Board
MEWD	Ministry of Energy and Water Development
NGO	Non Governmental Organization
NRWSS	National Rural Water Supply and Sanitation programme
NWP	National Water Policy
RWSS	Rural Water Supply and Sanitation
RHC	Rural Health Centres
STIs	Sexual Transmitted Infections
SHN	School health and Nutrition
TBA	Traditional Birth Attendants
V-WASHE	Village Water, Sanitation, and Health Education
VIP	Ventilated Improved Pit Latrine
WSPS	Water Supply and Sanitation Services

CHAPTER ONE

1.0 BACKGROUND INFORMATION

This Chapter introduces the study by giving the background information of Water, Sanitation, and Hygiene Education (WASHE) concept in Zambia and later adopted in the rural districts. The research has six chapters and each has an introductory remarks. Chapter two will discuss on the literature review; Chapter three will discuss on the methodology; Chapter four will deal with the research presentation of the research findings; Chapter five will discuss the research findings; and lastly, Chapter six will give conclusions and recommendations.

Kafue District lies between longitude 25 degrees and 30 degrees east and between latitude 12 degrees and 15 degrees south of the Equator. The District shares borders with Chibombo and Chongwe in the north, Mumbwa in the west, Mazabuka, Siavonga districts in the south and besides this, the district shares an international boundary with Zimbabwe in the south east.

The Government of Zambia began policy and institutional reforms of the water sector in the late 1980s. This culminated in the development and adoption of the first National Water Policy of 1994 which provided some guidelines for the sector reform process. This policy (1994) provided the overall policy framework for the water sector, covering water resources management, urban and rural water supply and sanitation, water quality and water tariffs. Furthermore, it was guided by the seven key sector principles mentioned below:

- Separation of water resources management from water supply and sanitation
- Separation of regulatory and executive functions.
- Devolution of authority (from central government) to local authorities and private enterprises.
- Achieved of full recovery for the water supply and sanitation services through user charges in the long run.
- Human resources development leading to more effective institutions.

- The use of technologies more appropriate to local conditions.
- Increase Government priority and budget spending to the sector (MLGH, 2007)

The Water Supply and Sanitation policy framework emphasizes more on Community Based Projects, requirements for the sector investment programme, appropriate technology, cost recovery and capacity building. However, it lacks policy direction on sector coordination that result from in varied development approaches, duplication of effort aid ineffectiveness. Furthermore, the policy is silent on investment support for individual or household sanitation facilities; and roles and responsibilities for rural sanitation. Hence, the most significant strategy to Rural Water Supply and Sanitation (RWSS) is the WASHE (Water, Sanitation, and Health Education) concept which was adopted in 1996 to delivery of Water Supply and sanitation (WSS) services. The strategy facilitates the involvement of the rural population in determining priorities; selection of affordable and sustainable technology; management, operation and maintenance of infrastructure; and Knowledge to improving health and hygiene practices in their communities. The strategy is being implemented by the Local Authority at district level through the District Water, Sanitation, and Health Education (D-WASHEs) committees which are part of the formal district level planning process under the new institutional arrangements (MLGH, 2010).

The concept was implemented in Kafue with the formation of the D-WASHE in May 1997 with the help and advice from Africare in line with the water sector development programme that was being implemented by government at that time. The idea of integrated water, sanitation and hygiene education had been incorporated into the national policy since 1995 and is known throughout Zambia as WASHE. In 1998, Water Aid partnered with the Kafue District WASHE and funded the activities of that year and started assisting both financially and materially in the planning and implementation of work plans that followed, (Kafue D-WASHE Committee, 2001).

The activities are planned and executed in a holistic and multi-sectoral approach in a bid to achieve the most towards finding a sustainable and lasting solution to the problems of water and sanitation affecting the district. WASHEs' task is to supervise, monitor activities, community mobilization, and supervise rehabilitations and maintenance of

infrastructure. The role of local Government is to Lobby resources from Government and Donor Communities and to fund the WASHE projects. Different Government Departments compose the D-WASHE Committee and participate in the planning process and implementation of the activities. The members include Heads of Departments from Department of Water Affairs, Community Development, District Health Management Team, Zambia Information Services, Education, Agriculture, Kafue District Council and an NGO (Non Governmental Organization) called Children's Fund (Zambia).

This dissertation was assesses how the National Water Policy 1994 had an impact on the implementation of D-WASHE programs in Chanyanya Community of Kafue District.

1.2 PROBLEM STATEMENT

The 1994 National Water Policy provided the overall policy framework for the water sector, covering water resource management, urban and rural water supply and sanitation, water quality and water tariffs.

The directive from that policy gave rise to the formation of District (D) – Water, Sanitation, Health and Education (WASHE) in 1996. District Situation Analysis document produced in 1996 by the D-WASHE indicated that Kafue District had a deplorable prevailing water supply and sanitation conditions. This situation had not improved as outlined in CSO (2000) report which indicates that water supply in rural areas is at 45litres/capita/day and sanitation at 13%. The Ministry of Local Government and housing in conjunction with the Danish government are working tirelessly to improve the water and sanitation situations in the rural area and Chanyanya is one of the benefiting communities. The water sector programme support through the National Rural Water Supply and Sanitation programme has also highlighted on the poor water and sanitation situation in the district as contained in its report of 1997. Both documents give testimony to the poor water supply and sanitation coverage in the rural areas (MLGH, 2010). The district has a combination of being urban, semi-urban and rural and has several systems of water supply. Most people in the urban and peri-urban have piped water supply with coverage of 18.8%. The majority of the rural populations get their

water from protected and unprotected sources representing coverage of 35.8% and 25.3% respectively. The remaining 20.1% of the population gets its water from the Kafue and Zambezi Rivers (Kafue D-WASHE Committee, 2009). Chanyanya community draws its waters from unprotected wells, boreholes as well as direct from the Kafue River. Sanitation facilities are inadequate and force people in most areas to use the bush. This is a source of contamination of unprotected surface water bodies. The poor sanitation situation can be attributed to the fact that, rural population use of a latrine for safe and hygienically disposal of human waste is not a felt need. Since 1996, the following D-WASHE programmes have been implemented;

- (i) Borehole drilling by contracted companies.
- (ii) Training of pump minders in communities.
- (iii) Training of D-WASHE committee members on Water and Sanitation issues.
- (iv) Formation of V-WASHE committees in the communities.
- (v) Introduction of WASHE activities in Schools and Clinics on sanitation and hygiene.
- (vi) Water quality sampling.

It is against this background that this research was assessing the effectiveness of D-WASHE activities through the programmes mentioned above in Chanyanya taking into consideration of the policy directive of the National Water Policies (NWP), now replaced by 2010 NWP, in addition, that the D-WASHE programmes have been in existence for thirteen (13) years now in Kafue District.

1.3 AIM

To assess the effectiveness of the D-WASHE committee in its implementation of its planned activities in accordance with the National Water Policy of 1994 directive which was aimed at finding measures of achieving the accessibility of communities to adequate, safe and reliable community based water supply and sanitation services.

1.4 MAIN OBJECTIVE:

To assess on how D-WASHE have assisted to increase accessibility to safe drinking Water and Sanitation facilities for Chanyanya communities, coordination and investment

support with a view to facilitate an equitable provision of adequate quantity and quality of water for Water Supply and Sanitation in a sustainable manner.

1.4.1 SPECIFIC OBJECTIVES

To assess how D-, V- WASHE have assisted in:

- Development of infrastructure for the provision of wholesome clean water and sustainable sanitary facilities at household level.
- Increase access to wholesome and safe water and sanitation to 80 percent from current 67 percent.
- Increase water quality management and reduce incidences of water borne diseases.
- Support the provision of adequate, safe, and cheaper water supply and sanitation services.

1.5 JUSTIFICATION

The National Water Policy (1994) states that: there shall be universal access to safe, adequate and reliable Water Supply and Sanitation Services to be implemented through the devolved rural water supply and sanitation, and the D-WASHE committees. Kafue District has for the past years experienced inadequate investment in the Rural Water Supply and Sanitation sector and this was worsened by the severe droughts that befell the district after 2005. This reduced water accessibility for many rural communities.

With evidence from the previous researchers that show that the water supply and sanitation situations in Kafue are in a deplorable situation, it is therefore important for this dissertation to be carried out to find out how D-WASHE committee has implemented and supervised its activities in Chanyanya.

1.6 LIMITATIONS OF THE STUDY

The research had the following limitations:

1. It was limited to government subsidized activities and not community led total water and sanitation activities and hence there was no comparison with communities that implement water and sanitation programmes with no assistance from government.

1.7 DEFINATIONS OF TERMS

Adequate Water	Enough and readily available water supply challenges of poverty reduction.
Hygiene Education	Knowledge on how to maintain cleanliness in homes. Management and Endeavours to deal with the daunting
National Water Policy	A policy that embraces principles of Water Resources
Safe Water	Recommended quality of water by World Health Organization (between 0-10 bacterial content is okay)
Good Sanitation	The use of recommended toilets and dumping sites.

CHAPTER TWO

2.0 LITERATURE REVIEW

This Chapter was looking at other researches on issues on water and sanitation and the recommendations if any.

2.1 OVERVIEW

The adoption of the National Water Policy in 1994 resulted in tremendous reform progress in the water supply and sanitation sub sector. The legal framework for water supply and sanitation comprises of two main pieces of legislation namely, the Local Government Act No. 22 of 1991 and the Water Supply and Sanitation Act No. 28 of 1997. These with other Acts related to water provides for the management of sanitation and prevention of pollution to water supplies. however, the Water and Sanitation Act No. 28 of 1997 only specifies how Local Authorities may provide Urban Water Supply and Sanitation services but silent on Rural areas (MLGH, 2007).

The progress on improving the water supply and sanitation has been made in Zambia. In 1990, 50% of the population had access to an improved water source, and in 2004 this figure was 58%. The figure on improved sanitation had grown from 44% in 1990 to 55% in 2004 (MLGH, 2009).

In 1994, the government of Zambia adopted a National Water Policy which would ensure better water resource management and water supply and sanitation services. Nevertheless, access to safe and adequate water supply is still low. Statistics show that as of 2000, the average water supply was estimated at 49.1 %. Accessibility in urban areas is estimated at 86.1 % whilst in rural areas it stands at 29.5%. It is further estimated that domestic use per unit consumption rate in the urban areas is taken as 180 litres/capita/day for the large urban areas, 150 litres/capita/day for peri-urban areas, and 45 litres/capita/day for rural areas, (Central Statistics Office, 2000).

Similarly, the sanitation situation coverage was estimated at 37% for urban areas and 13 % for rural areas. In the peri-urban areas, where 50% to 70% of the urban population reside, water supply and sanitation services are poor, inadequate and unreliable: at least

56% of the population do not have access to safe water supply, and such as much as 90% do not have access to satisfactory sanitation facilities.

According to CSO's latest Living Conditions Monitoring Survey (CSO, 2000), 19% of rural households practiced open defecation in 2006, but with differences among provinces. Western Province followed by Southern and Eastern Province thus had the highest proportion of households with no toilet facility.

The district has for the past years experienced inadequate investment in the water supply sector especially in the rural areas, and this was worsened by the severe droughts of 2004. The short rainfalls received reduced accessibility to water for many rural communities. The majority of the population relies on streams, the Kafue and Zambezi River for their water supply and this source is supplemented by boreholes, protected wells, unprotected shallow wells in some areas. Drawing of water from un protected sources has contributed to the high incidences of diarrhoeal diseases. During the rainy season there are frequent outbreaks of water borne diseases like cholera and dysentery which are more prevalent in the rainy season.

The report from Kafue District Health Management Board (2009), states that, 20 cases of cholera were recorded at Chanyanya Clinic of which nine (9) were males and eleven (11) were females. From the same number of patients mentioned ten where children and ten (10) were adults. Malaria is also widespread during this period as it provides a breeding environment for mosquitoes.

It is against this background that this dissertation was assessing the Water Supply and Sanitation programmes being implemented and supervised by D-WASHE Committee through the Local Government in Chanyanya Community taking into consideration the adoption of the 1994 National Water Policy, and now succeeded by the 2010 NWP.

CHAPTER THREE

3.0 STUDY AREA

Kafue District (Figures 1 and 2) lies between Longitude 25 degrees and 30 degrees east of Greenwich Meridian and between Latitude 12 degrees and 15 degrees south of the Equator. The District shares borders with Chibombo and Chongwe in the north, Mumbwa in the west, Mazabuka, Siavonga districts in the south and besides this, the district shares an international boundary with Zimbabwe in the south east (Figure 2).

The District has a landmass area of approximately 6,000 square, Kilometres representing 3% of Zambia’s total surface area. The larger part of the District which is scantily habited is located in the North East. It is hilly and mountainous and forms part of the Zambezi Escarpment. The south-west (Chanyanya, Chikupi and Mungu) and North-west (Mwembeshi) are part of the Kafue flats. The south-east (Chiawa) is largely located in a valley of the Zambezi Escarpment (Figure 2).

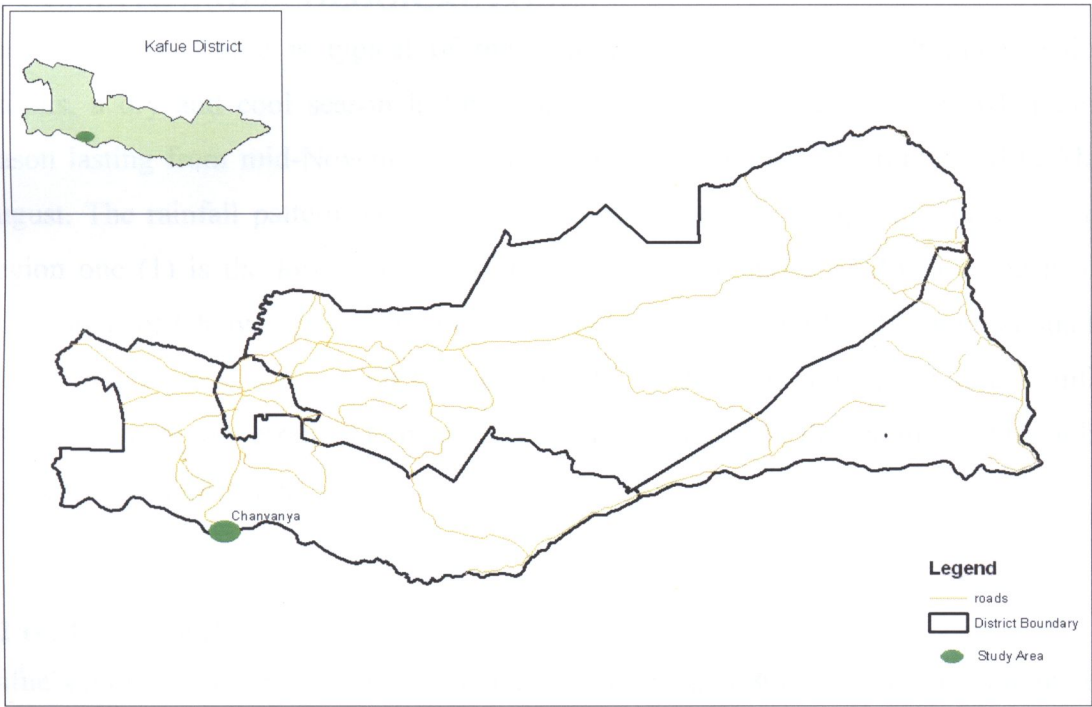


Figure 1: Map of Kafue District showing study area

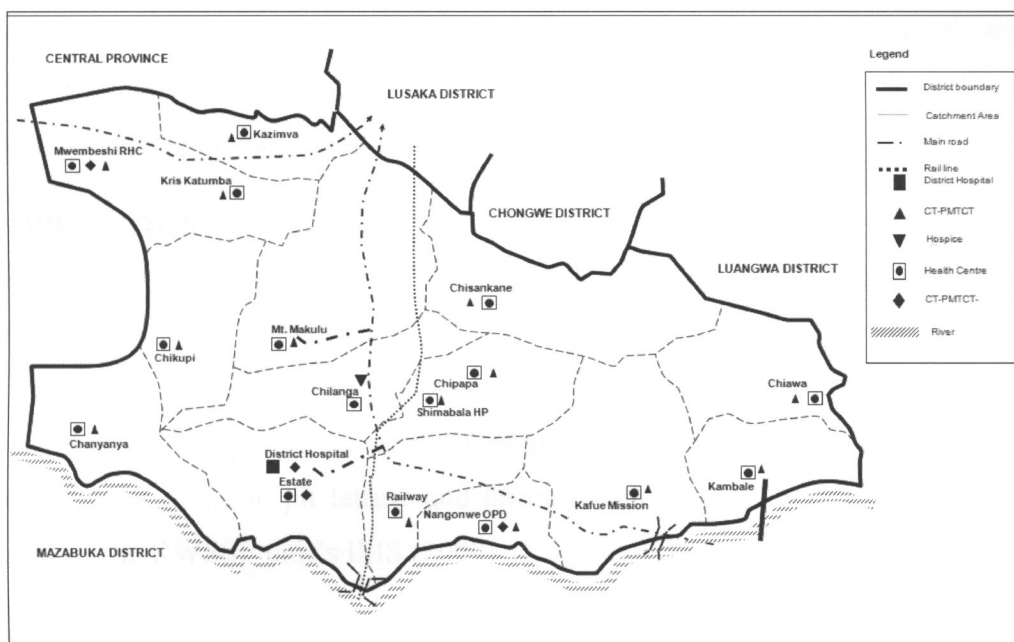


Figure 2: Detailed map of Kafue District showing Chanyanya's Clinic Location

3.1 CLIMATE AND ECOLOGICAL ZONES

The climate of Kafue is typical of the Central African Plateau with three distinct seasons, a dry and cool season lasting from mid-August to October and a hot rainy season lasting from mid-November to early April and cold season from April to Mid-August. The rainfall pattern has divided the district into two Agro-ecological regions. Region one (1) is the low rainfall region (Less than 800mm annually) located in the valley areas of Chiawa. Region two (2) has moderate rainfalls (800-1200mm annually) and is on the plateau, of which Chanyanya falls in. In each subsequent year, rainfall distribution is highly erratic and most of the rain falls between the months of December and February of each year.

3.2 HYDROLOGY

Kafue's ground water resources are abundant, estimated at 800,000million cubic meters with the ground water recharge estimated at 160,080 million cubic meters per year (Kafue District Council, 2007). The district has two major rivers of Kafue and Zambezi running through the district. Within the district you also find the Mwembeshi River,

Mungu stream, Shimabala stream and a sizeable number of perennial streams. Chanyanya is located on the banks of Kafue River in Kafue District. It is on the Kafue flats and the area is mostly flooded during the rainy season.

3.3 POPULATION

The area under study lies west of the administrative town of Kafue in the flood plains of the Kafue with 1,557 households and if we are to go by the rule of averages the population is approximately 10,000. Their source of water is from boreholes (19) and protected hand dug wells (11). The common sanitation technologies for human waste disposal are the tradition pit latrine and latrines with san plats. This information is as provided by the RWSSP unit's IMS (2009).

3.4 HUMAN SETTLEMENT STRUCTURE OF THE DISTRICT

Human settlements are a major part of land use in the urban areas. It is believed that at least 51% of the district population lives in the urban areas, mostly in the formal settlements. In terms of size, the total land area covered by urban centres of the district is less than 1%. Chanyanya is a rural area with grass thatched houses and few brick houses which are closer to the harbour as shown in Figures 3, 4 and 5 in Chapter 5. The houses are clustered around a headman or somebody with traditional leadership.

3.5 ECONOMIC ACTIVITIES

Chanyanya Community is generally involved in fishing, small-scale farming and a few people are in the formal sector and a few business men and women.

CHAPTER 4

4.0 METHODOLOGY

This chapter looks at the sources of data collected; target population; study sample; research instruments used; observation schedules; structured questionnaires; unstructured questionnaires; validity of instruments; and data collection.

4.1.0 TYPES AND SOURCES OF DATA

The type of data collection methods and sample sizes are outlined below:

4.1.1 RESEARCH DESIGN

Both primary and secondary data collection methods were used in the collection of data.

4.1.2 DATA COLLECTION

Primary data was collected from the field surveys by using research instruments known as structured questionnaires targeting the community (Appendix 1), health staff and school manager (Appendix 3). A closed door discussion was done with the health inspectors at Chanyanya clinic and unstructured questionnaire (Appendix 2) was presented to them to give their view on the water and sanitation situation in Chanyanya. The School Manager was also interviewed. The data was collected qualitatively and quantitatively. Qualitative data was gotten to give general overview of the water and sanitation situation in Chanyanya and quantitatively by getting actual figures of water points, scientific results on water quality as well as the population involved. Five (5) water samples were also collected from different water points in Chanyanya Community and tested from Kafue District Council and Department of Water Affairs Laboratories. Secondary data was collected from the previous research reports. The information collected was on water and sanitation situation in the country as a whole and later singled to Kafue District (MLGH, 2009).

4.1.3 OBSERVATION AND FIELD SURVEYS

There were also some physical check-ups by the researcher to physically check on the water points and the sanitation situation in the area. This was done to find out how the water and sanitation facilities are in Chanyanya.

4.1.4 SAMPLE SIZE

The sample size of 30 respondents out of the 250 Households were chosen using judgmental method. This method involves choosing of the respondents with typical characteristic of the required information. In addition, two government institutions (School and Clinic) were chosen in Chanyanya Community, Kafue District.

CHAPTER FIVE

5.0 DATA ANALYSIS AND RESULTS OF RESEARCH FINDINGS

This chapter looks at the presentation of the research findings according to the information from the field and later be analyzed.

5.1.0 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

Figure 3 shows the different types of houses in Chanyanya community. The houses are different depending on the occupation of the Heads of the house.



(a)



(b)



(c)

Figure 3: Infrastructure in Chanyanya Community, Kafue District (a) Brick House, (b) Grass thatched House, (c) Grass thatched house with toilet in front

5.1.1 EDUCATION BACKGROUND OF THE RESPONDENTS

According to the research 3 (10%) have reached secondary education, while 15 (50%) have the basic education and 11 (40%) have not attended any form of education at all.

5.1.2 EMPLOYMENT LEVELS OF THE RESPONDENTS

From the research findings, 2 (7%) are in formal employment, 20 (67%) are in non - formal employment and 8 (26%) are not doing anything.

5.2 AWARENESS OF D-WASHE PROGRAMMES IN CHANYANYA

The D-WASHE’s involvement in Water and Sanitation education is known by a number of residents in Chanyanya Community. According to the research carried out, of 30 respondents, 20 (67%) of the respondents are aware of the D-WASHE activities of digging protected wells, sensitizations on water and sanitation, participation in Water Day celebrations, repairing of defunct boreholes, etc in Chanyanya while only 10 (33%) are not aware of it (Figure 4). Out of the 20 respondents who are aware of the D-WASHE programs, 6 (30%) got this information from the Community Development Officer, 12 (60%) from visits by the D-WASHE members and 2 (10%) from the Area Councillor (Figure 5).

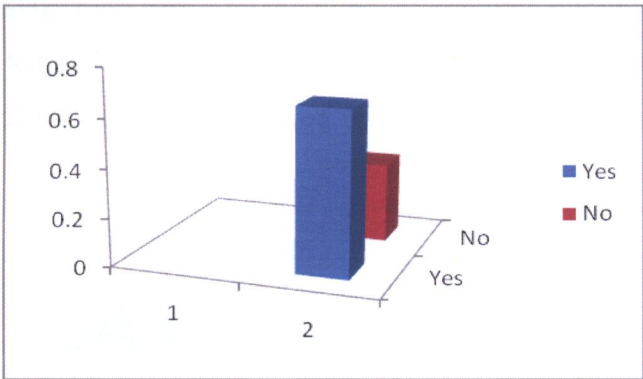


Figure 4: Awareness of DWASHE programmes by Chanyanya Community, Kafue District

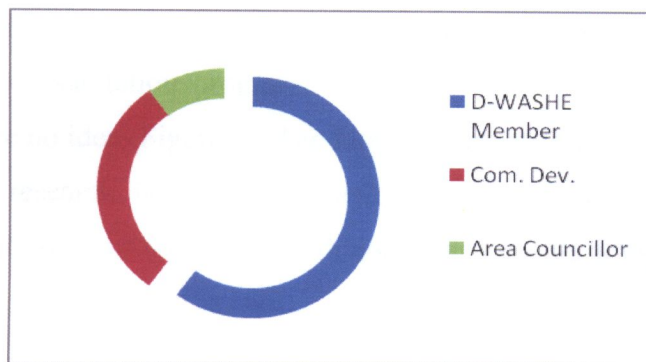


Figure 5: Source of Information on DWASHE Activities in Chanyanya Community, Kafue District

5.3 WATER AND SANITATION INFRASTRUCTURE AND ACTIVITIES IN CHANYANYA

D-WASHE has introduced a number of activities in Chanyanya. According to the research findings, the following activities were carried out in Chanyanya (Figure 6). The activities carried out are Toilet construction and Hygiene promotion. This has been confirmed by this research which indicates that, out of the 30 respondents, 20 (67%) argued that D-WASHE has implemented and supervised the drilling of boreholes for supply of clean and safe water in the community. Two (7%) of the respondents further argued that D-WASHE members are involved in training pump minders. From the interviewed respondents, 20 (100%) who are aware of the presence of D-WASHE programmes in the district said it is involved in Educating the community on water and sanitation issues.

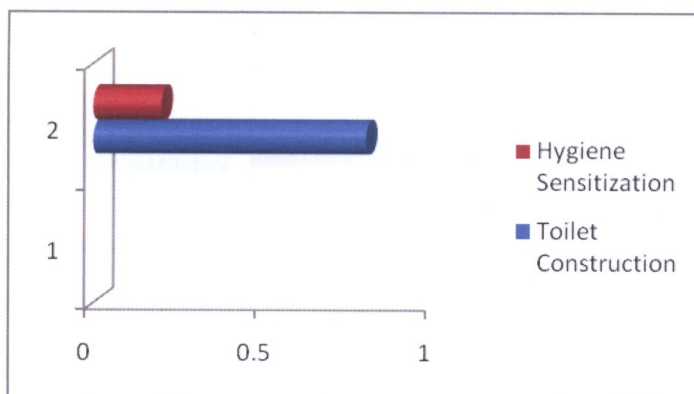


Figure 6: Sanitation Activities in Chanyanya Community, Kafue District

In terms of capacity building, 11 (55%) argued that the V-WASHE members where trained in water and sanitation programmes, 2 (10%) are not aware of their training while 7 (35%) have no idea (Figure 7). The total number of trained V-WASHE members according to the research is ten (10). However, ten (33%) of the 30 interviewed respondents are not aware of this D-WASHE committee and its activities in Chanyanya.

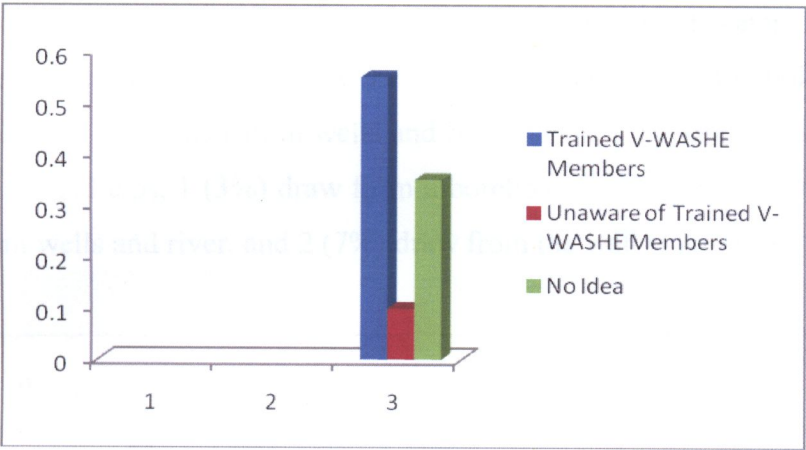


Figure 7: Capacity Building in the Chanyanya Community, Kafue District

The defunct boreholes according to the research are repaired by D-WASHE members and Pump minders (found in the community). The respondents argued that 2 (7%) defunct boreholes are repaired by D-WASHE members, 20 (67%) by pump minders, and 8 (26%) are not aware. Figure 8 shows infrastructure maintenance in Chanyanya community.

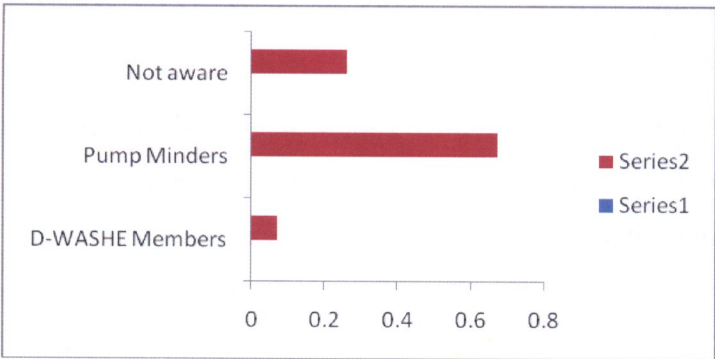


Figure 8: Infrastructure Maintenance in Chanyanya Community, Kafue District

Under sanitation, only 20 of respondents that were aware of the D-WASHE were interviewed. So, of the 20 (100%), of all the respondents who are aware of D-WASHE activities argued that D-WASHE is involved in the education and supervision construction of VIP toilets.

5.4 SOURCES OF WATER AND WATER QUALITY

Chanyanya Community uses both natural and artificial sources of water. From the 30 interviewed respondents, 16 (53%) draw the water from the River, Boreholes, protected wells, 5 (16%) draw their water from wells and boreholes, 2 (7%) draw their water from boreholes, wells, and taps, 1 (3%) draw from a borehole, 2 (7%) draw from the river, 2 (7%) draw from wells and river, and 2 (7%) draw from the well (Figure 9).

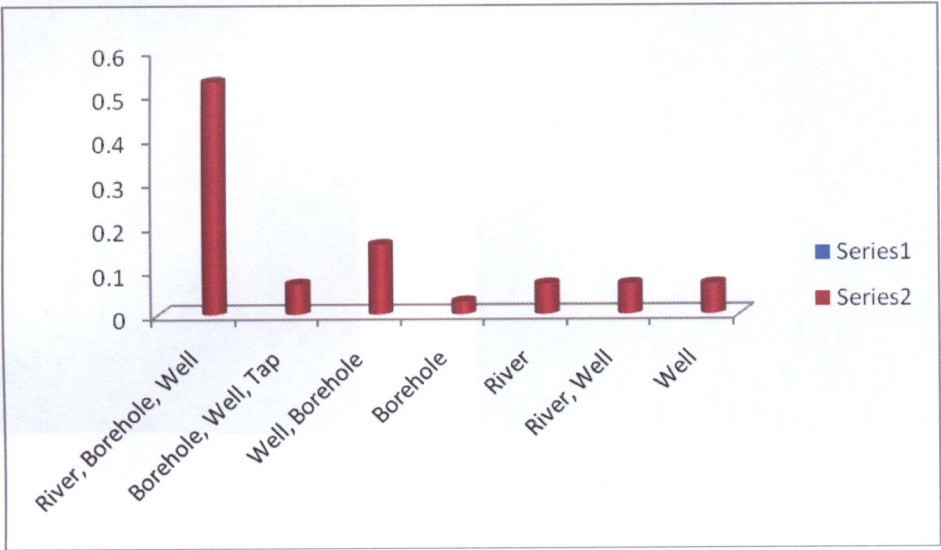


Figure 9: Sources of Drinking Water in Chanyanya Community, Kafue District

These water sources are in different locations with 7 (23%) within 0 – 50 meters, 9 (30%) within 51 – 100 meters and 14 (47%) 101 – 150 meters of walking distance. Figure 10 shows the different water points tested for water quality and different water points in Chanyanya community.



(a)



(b)



(c)



(d)

Figure 10: (a) Unprotected Well (b) Protected well with lid and (c) Protected well with a hand pump (d) Kafue River where people draw water for drinking, Chanyanya Community, Kafue District

5.6 WATER QUALITY

Water samples were collected from different water points in Chanyanya using bacteriological H_2S strip test kits (Figure 11) to test for the presence of Escherichia Coli and Faecal Coliforms. The water points that were found to be contaminated were the

unprotected well at Tukunka village and river water at the harbour village. (See table 1 below showing the results from the field on water quality rapid tests):

Table 1: showing location of water samples and results

S/No.	Place	Sources (Wells, Boreholes, or River)	Results Pass	Results Fail	Remarks
1	Harbour Village	River		E. Coli present	Need to boil water before drinking
2	Tukunka Village	Unprotected well		E. Coli present	Needs to be chlorinated
3	Chanyanya School	Protected well with borehole	E. Coli absent		
4	Clinic	Borehole	E. Coli absent		
5	Mashikili Village	Protected well with a cover	E. Coli absent		

Figure 11 shows the five samples that were collected in the bacteriological H₂S strip test kits. This test was aimed at testing for the presence of Escherichia Coli and Faecal Coli forms bacteria.



Figure 11: Water Samples in Bacteriological H₂S strip kits for testing from Chanyanya water sources in Kafue District

The table 2 shows the laboratory results from the sampled water points.

Table 2: Quantitative Laboratory Results on Water Quality

Sample ID/No	Total Coliforms per 100ml	Faecal Coliforms per 100ml
1. Chanyanya Clinic	TNTC	3
2. Tunkunka Village	TNTC	TNTC
3. River at harbour	TNTC	TNTC
4. Chanyanya Basic School	2	1
5. Mashikili Village	1	1

Source: Department of Water Affairs (19/05/2010) and Kafue District Council (27/04/2010)

Key

TNTC stands for Too Numerous to Count.

Note: According to the World Health Organization (WHO), the recommended standard for drinking water requires that both Total and Faecal Coliforms stay at below 10.

5.7 WATER TREATMENT BY THE COMMUNITY

On water treatment, respondents were requested to indicate whether the water they use is treated before usage. According to the research findings, 12 (40%) of the respondents indicated that, they boil their water for drinking and use chlorine, 3 (10%) use chlorine, 2 (7%) boil the water, add chlorine and use solar purification, and 1 (3%) boils the water while 12 (40%) do not treat their water (Figure 12). Out of the 17 that use chlorine, 12 (71%) get the chlorine from the clinic while 5 (29%) buy on their own. The education on water treatment is gotten from the health centre and sensitization by V-WASHE members.

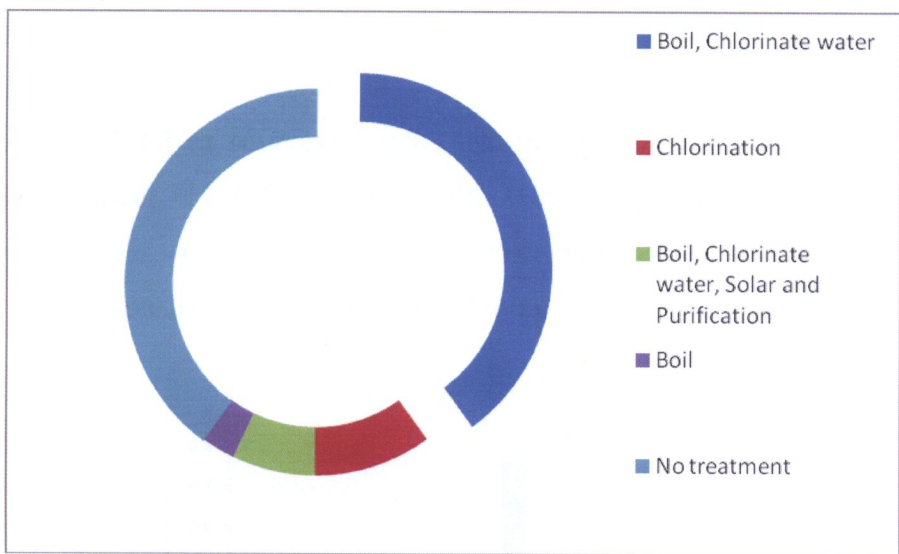


Figure 12: Water Treatment in Chanyanya Community, Kafue District

5.8 SANITATION AND HYGIENE AWARENESS CAMPAIGNS

Some of the interviewed respondents in Chanyanya are aware of sanitation and hygiene awareness campaigns carried out by D-WASHE through V-WASHE members. Of the interviewed respondents, 17 (57%) are aware of the sanitation and hygiene awareness campaigns while 13 (43%) are not aware (Figure 13).

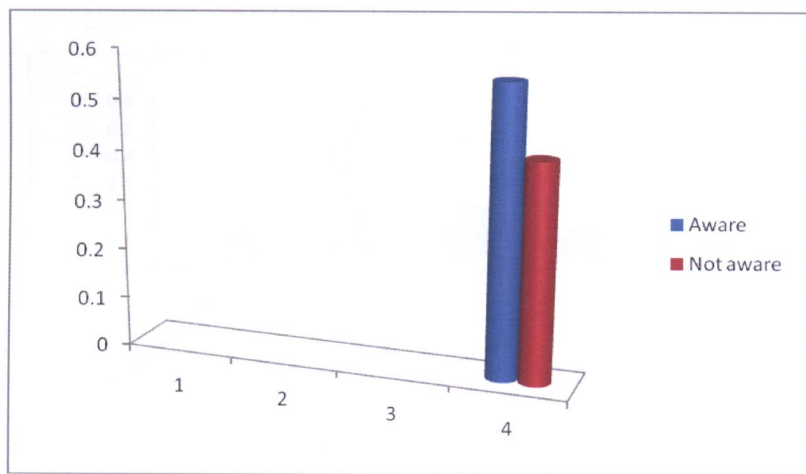


Figure 13: Aware of Sanitation and Hygiene Campaign in Chanyanya-Kafue District

In addition 22 (73%) are aware of a water committee formed of V-WASHE members while 8 (27%) are not aware (Figure 14). The respondents got this information on water committee from different sources. 2 (9%) got the information from the Community Development Officer, 12 (55%) from health talks, neighbourhood and Community Development officer, 4 (18%) from health talks and 2 (9%) are not aware of the sanitation and hygiene awareness campaigns (Figure 15).

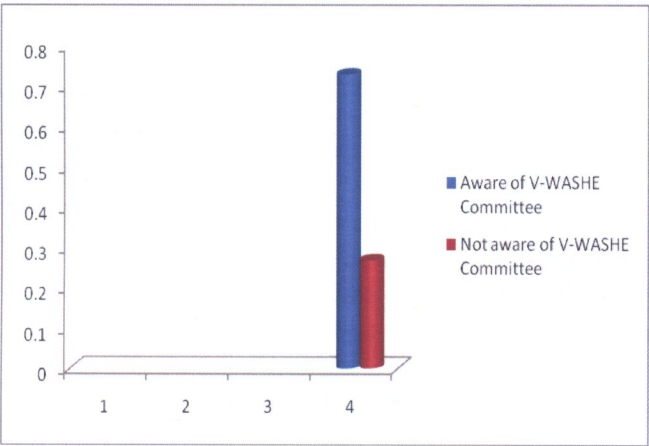


Figure 14: Awareness of V-WASHE Committee in Chanyanya Community, Kafue District

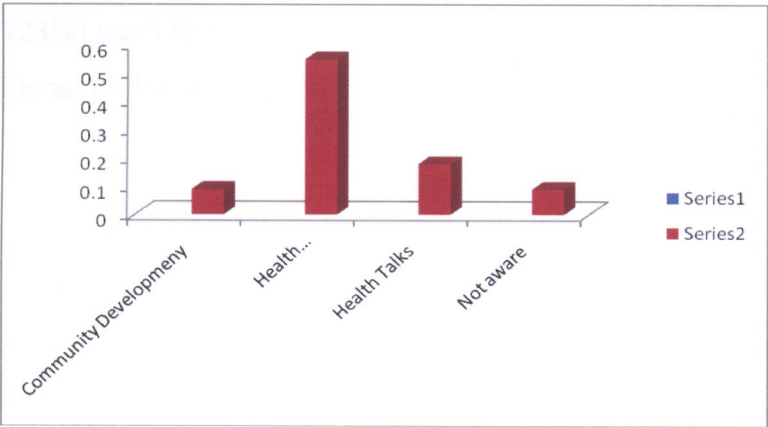


Figure 15: Source of Information on the existence of a water committee in Chanyanya, Kafue District

Further, 18 (60%) of the respondents are involved in sanitation and hygiene programmes while 12 (40%) are not involved. Table 3 shows respondents' participation in sanitation and hygiene awareness campaigns in Chanyanya Community, Kafue District.

Table 3: Showing Respondents Participation in Sanitation and Hygiene Awareness Campaigns in Chanyanya Community, Kafue District

No of respondents	Percentage (%)	Type of activities
1	5.6	Safe use of toilets and safe water
5	28	Health talks and cleaning of water point surroundings
1	5.6	Distribution of lime and chlorine
4	22	Health talks
1	5.6	Cleaning of their surroundings
1	5.6	Boiling water, Cloth/solar water purification
4	22	Safe use of toilets and safe water, Digging of refuse pits, Health talks and cleaning of water point surroundings, Distribution of lime and chlorine, hand washing campaigns
1	5.6	Repair hand pumps
Total = 18	100	

5.9 TYPES OF TOILETS

The interviewed respondents use different types of sanitation facilities. Out of the 30 respondents, 7 (23%) use VIP toilets, 2 (7%) use pit latrine with sanitation platforms, 13 (43%) use traditional pit latrines, and 8 (27%) use the bush (Figure 16).

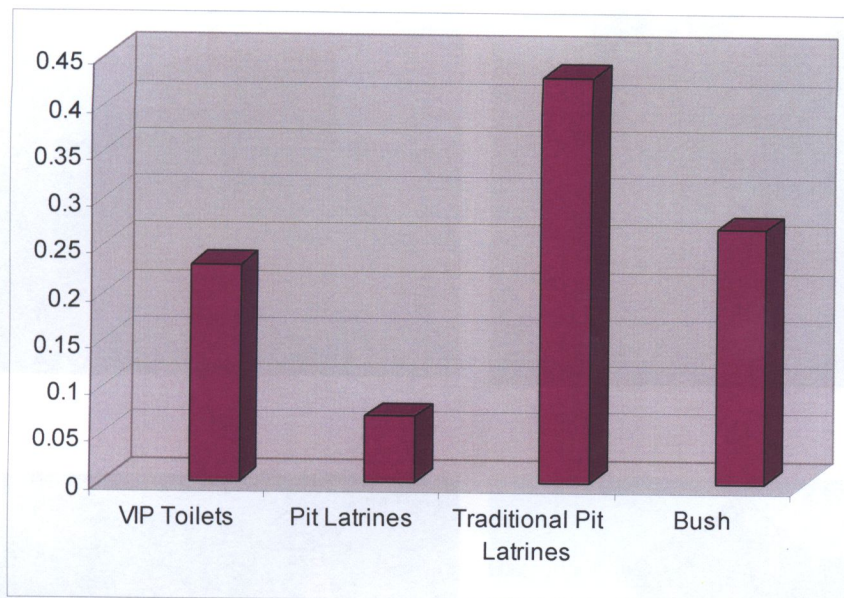


Figure 16: Types of toilets in Chanyanya Community, Kafue District

On sanitation facilities, the respondents mentioned of different types of toilets that they use in Chanyanya community of Kafue District (Figure 17).



(a)



(b)



(c)



(d)



(e)



(f)

Figure 17: (a) Open concrete toilet, (b) Unfinished building acting as a toilet, (c) VIP toilet, (d) Bathroom (e) Garbage and shit site and (f) Grass thatched toilet in Chanyanya Community, Kafue District

The community targeted in Chanyanya had different sources of information on toilet construct and the research shows that, out of the 7 respondents who use VIP toilets, 3 (43%) got the help for constructing these toilets from D-WASHE facilitators, 1 (14%) from an NGO (Africare), 3 (43%) from individual Knowledge (Figure 18).

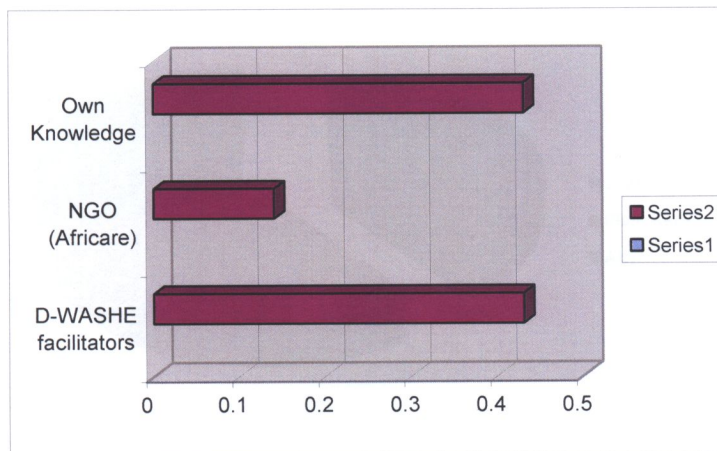


Figure 18: Sources of Information on Toilet Construction in Chanyanya Community, Kafue District

The interviewees respond to hygienic standards after using the toilet differently and according to the research findings, 13 (43%) wash their hands every time they use the toilet, 8 (27%) do not wash their hands while 9 (30%) wash their hands sometimes (Figure 19). Twelve (40%) wash their hands with soap after using the toilet, 9 (30%) use plain water and 9 (30%) uses ash (Figure 20).

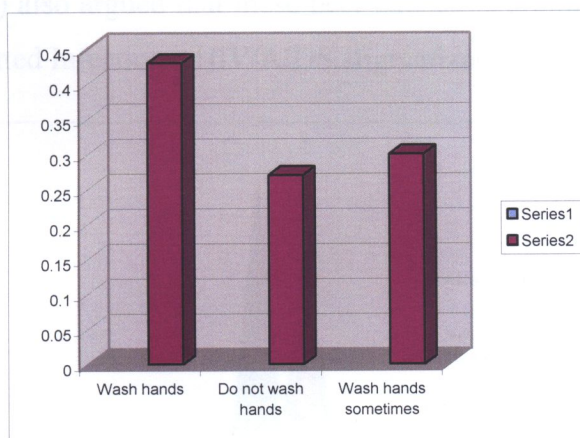


Figure 19: Disinfectant used after using the toilet in Chanyanya Community, Kafue District

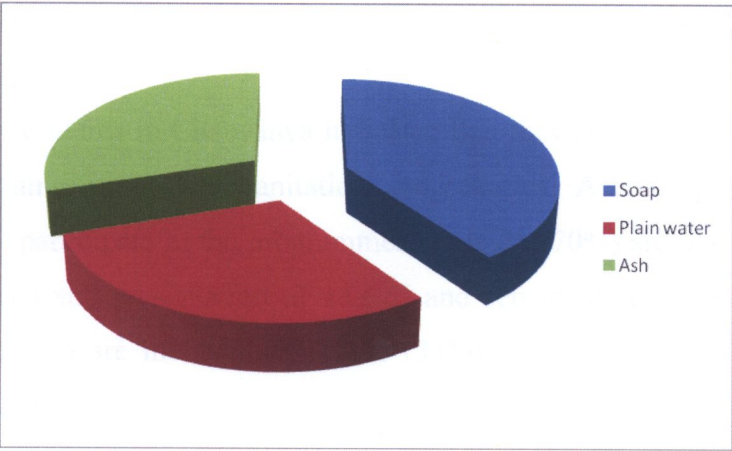


Figure 20: Level of Hygiene after using the toilet in Chanyanya Community, Kafue District

5.10 COMMUNITY PEER EDUCATORS

The respondents interviewed on the presence of Peer Educators indicated that, 17 (57%) agree that there are community peer educators in Chanyanya while 13 (43%) are not aware (Figure 21). Those who are aware of the peer educators say they teach the youth in hygiene promotion, prevention of diseases such as water borne diseases, participation in water related activities and joining clubs related to water like V-WASHE committee. In addition, 17 (57%) also argued that these peer educators are involved in sensitization on Sexually Transmitted Infections, HIV/AIDS stigmatization, and hygiene.

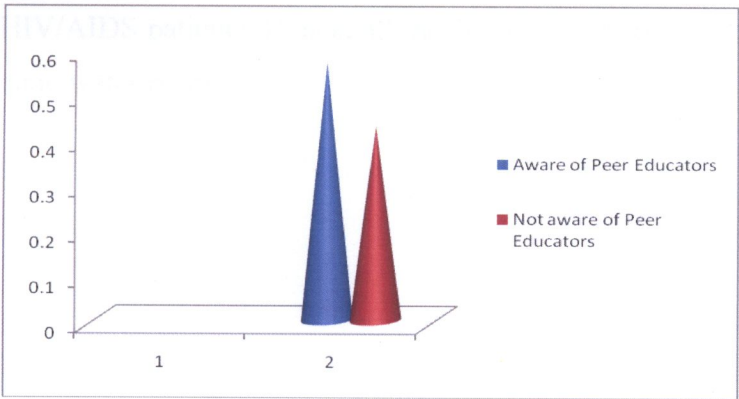


Figure 21: The Presence of Peer Educators in Chanyanya, Kafue District

5.11 COMMUNITY PARTICIPATION IN WATER AND SANITATION PROGRAMMES

The interviewed residents in Chanyanya indicated that they are involved in a number of activities concerning water and sanitation programmes. According to the research findings 9 (30%) participate in the programmes while 21 (70%) are not. These activities include match past and presentation of awards and sensitization on the importance of water where 6 (67%) are involved in. Three (33%) are only involved in sketches on water and sanitation.

5.12 NGO INVOLVEMENT

From the research findings, it was discovered that there are some Non Governmental Organizations (NGOs) that are involved in water and sanitation programmes (Figure 22). It was observed that 10 (33%) are aware of NGOs' involvement while 20 (67%) are not aware (Figure 21). The following are some of the NGOS involved; Turner Projects, WATER AID, USAID, and JICA. In addition, out of the 30 respondents 23 (77%) of the respondents agreed that they are taught by health specialist on health and hygiene issues, whereas 7 (23%) disagreed. Those who agreed said that they are taught on washing hands after using the toilet, use of chlorine, disposal of refuse and keeping of the surroundings clean. They are further taught on disease prevention and infection of T.B and HIV/AIDS. The respondents eventually stated that they do not have different water points with the HIV/AIDS patients. Hence, all the 30 (100%) respondents said they fetch water from the same water points.

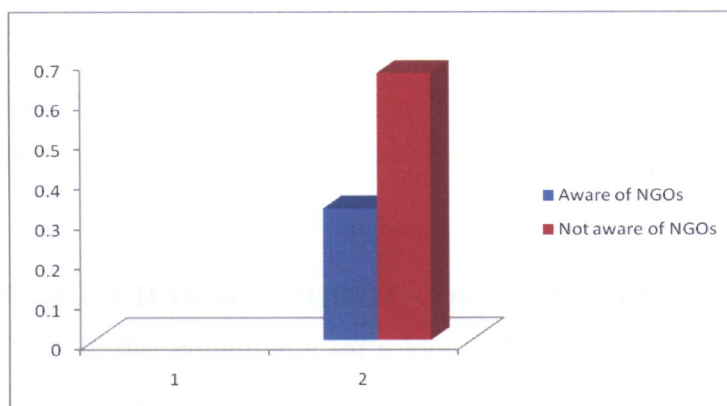


Figure 22: Involvement of NGOs in Water/Sanitation programmes in Chanyanya Kafue District

5.13 COMMUNITY PERCEPTION OF HIV/AIDS PATIENTS

From the 30 (100%) interviewed respondents, all stated that they do not discriminate people living with HIV/AIDS as they use the same facilities of water and sanitation together.

CHAPTER SIX

6.0 DISCUSSION OF FINDINGS

This chapter will discuss the research findings by interpreting the information collected in the field.

6.1 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

Many people have been in this community for a long time. The main activity occupied by this community is fishing as most of them claim to be from Luapula Province.

6.2 HOUSEHOLD SANITATION AND HYGIENE PROMOTION

Sanitation and hygiene issues are taken up during the Ante and post Natal sessions for expectant mothers and those under 5-years children and also during sessions with Traditional Birth Attendants (TBAs). There is a V-WASHE committee established in Chanyanya and (9) members have been trained and are active in promoting good sanitation and hygiene practices. These play an important role in the intensified sanitation and hygiene promotion, inter alias being important in the efforts to integrate communication on water supply, sanitation and hygiene.

Schools are often used as entry points for hygiene promotion in the wider community, using the peer-to peer education approach to the training of children, teachers and parents. Some peer educators were trained at Chanyanya School who in turn train other children, teachers and parents in the same school. These peer educators then work at community level, with communication from adult-adult and from child-child. These also encourage the V-WASHE committee members to encourage participants during community meetings to discuss hygiene, sanitation and water supply issues with their neighbour, friends and relatives.

6.3 SCHOOL PARTICIPATION IN WATER AND SANITATION PROGRAMMES

The Kafue council has the overall responsibility of seeing to it that all D-WASHE activities on water and sanitation succeed with little deviation from the main objectives. So far, council and the D-WASHE committee have tried to work together to coordinate the individual member line ministries in the Committee. It suffices to say that the council has received maximum cooperation from the members themselves as well as the Head of Departments in the line ministries in this Endeavour of enhancing coordination. The Ministry of Education through the District Education Board Secretary and the support staff has had the responsibility of facilitating and supporting school sanitation and water supply. Their role is to provide hygiene facilities and the development of the necessary knowledge, attitude, values and life skills for imparting in the pupils and the teachers alike so as to ultimately promote better sanitation, hygiene practices in families, schools and communities. Chanyanya School (Figure 23) teaches pupils on sanitation and hygiene and the goodness of drinking clean water as seen from the research. The D-WASHE through the District Education Board Secretary's Office and the established offices of the School Health and Nutrition (SHN) carry out a hygiene needs assessment so that schools can be aware of the programmes and access funding for construction of sanitary facilities at their respective schools where such needs are felt. The SHN Coordinator at Chanyanya School assists in the imparting of knowledge, attitude and skills in pupils that ultimately promote better sanitation and hygiene practices in the school, families and the communities at large. According to the sampled school, it was found that the school has 1, 200 pupils with 8 toilets (Figure 24). These toilets are segmented that boys and girls are using different toilets. The school was built in 1983 and has 1 protected well equipped with a hand pump acting as a major source of water. Two boreholes were drilled and equipped by JICA and Africare under the D-WASHE programmes. This water point is not enough to cater for the school requirements as well as the nearby community. Unfortunately, the school has no V-WASHE member known to them within its catchment area who is supposed to be a pivot individual in water and sanitation programmes. According to the research findings the school does not also participate in water and sanitation programmes in the community. It was also found that

just as other members in the community the school does not discriminate against HIV/AIDS patients, the physically disabled or pupils with any other disorders.



Figure 23: Chanyanya School where some WASHE activities are being implemented, Kafue District



Figure 24: Toilets at Chanyanya Basic School used by teachers and pupils, Kafue District

6.4 HEALTH SECTOR PARTICIPATION IN WATER AND SANITATION PROGRAMMES

According to the research findings, it was found that the health sector is also involved in the programmes of water and sanitation. In the study area these programmes are mainly done by Chanyanya Clinic. The health staff does sensitize the community on health and hygiene promotion as well as treating the sick. Kafue District Health Management Board (KDHMB), through the District Planning Office, has the responsibility over Health Centers' sanitation by provision of hygiene facilities for disposal of waste as is associated with a health centre. Their role is to support and facilitate the Water Supply Programmes and Sanitation/Rural Water Supply and Sanitation Programmes at health centres situation in the participating wards. KDHMB is in the D-WASHE committee and their member has actively participated in the awareness campaigns on water and hygiene and inspection of the surroundings at Chanyanya Clinic (Figure 25). The Environmental Health Technicians and other extension staff were trained in participatory hygiene and sanitation promotion. During borehole drilling and rehabilitations, they sensitise the communities and together they develop an action plan to change critical hygiene behaviour identified by the communities.

Chanyanya Clinic was built during the period 1992 to 1993 and opened on 12/05/94. The building of the clinic was facilitated by the community and the NGOs. The clinic also provides services such as water supply to the nearby residents. This water is got from the two major water points that are within the clinic premises. These water sources are the borehole and a tap. The borehole has been in existence since 1992 whereas the tap from 2005. These water sources are repairable and mainly done by the community trained pump minders through the V-WASHE committee. The water from these sources is enough to cater for all the households around Chanyanya Clinic.



Figure 25: Chanyanya Clinic where hygiene promotion and Sanitation knowledge is acquired from in Kafue District

6.5 CLINICAL SANITATION AND HYGIENE

It is important that public institutions, particularly schools and health facilities, which are visited by many people, have appropriate clean toilets with hand washing facilities with soap/ash. Patients and staff should have access to good and clean toilets and hand washing facilities at the Rural Health Centres (RHC). The toilets and hand washing facilities at RHCs act as demonstration facilities for replication at household level. Drama and music/song performances are often good ways of attracting people's attention, making them talk about sanitation, hygiene and water supply issues and make them interested in getting additional information. However, these take place during activities of short duration, i.e. World Water Day, World Toilet Day, and International Women's Day. Such events attract many people and are good opportunities for awareness campaigns. Drama and song/music performances are also entertaining ways of conveying messages on hygiene, sanitation and water supply. As a way of disseminating information, Chanyanya Community is also involved in drama/sketches. Research findings revealed that Chanyanya clinic has some sanitation facilities (Figure 26) within its vicinity built by the local community with some help from V-WASHE members. These include the VIP latrines and refuse disposal pits. There is further no discrimination in the use of these facilities. Hence workers, health personnel and patients at the clinic use the same facilities. The Chanyanya Community do not discriminate HIV/AIDS patients. The patients are treated the same whether positive or negative and

those positive are not stigmatized. Therefore they enjoy the same services just like the normal and health residents.



Figure 26: Toilets for Chanyanya Clinic used by health staff and patients in Kafue District

According to the research findings, it was discovered that through National AIDS Council, churches, schools and other stakeholders, the clinic has done a lot of sensitization campaigns on health and hygiene. In addition, an NGO by the name of Africare is helping the clinic in water and sanitation problems.

IWRM advocates for integrated approach in the water resources Management so does the WASHE approach. The WASHE approach's overall approach is integration of Water, Supply, and Sanitation and Hygiene promotion with focus on good hygiene. From the research, there is need for collaborating partners to integrate the implementation of Water Supply and Sanitation in order to meet the Millennium Development Goals, not only the goals 7 but also the other water related goals. There is also need to follow the IWRM triangle which looks at the Enabling Environment dealing with the ecosystem sustainability with policies, Legislature and Financial and Incentive structures in place; the Institution roles to deal with roles and functions that set the roles and functions of each stakeholder in the water sector, creating an Organization framework and capacity building; and Management Instruments in terms of capacity building and resources if water supply and sanitation activities are to be implemented effectively

From the research, it shows that there is integration in the water and sanitation activities as the community, Government and NGOs are seen to be working together with a view of achieving on goal (access to clean water and sanitation).

6.6 WATER QUALITY

The study outlines that the quality of water in Chanyanya is not too good as some samples showed that they have traces of bacteria in them or (water combination with faecal matter). There is need for more sensitization on water treatment using any cheaper means. Although there is evidence that people treat their water, there are still cases of water borne diseases meaning they could be not consistence with their methods.

6.7 EXISTENCE OF D-WASHE AND V-WASHE COMMITTEE

According to the research findings, health personnel are aware of the presence of the D-WASHE and V-WASHE committees in the area. These committees supervise a number of activities and services as mentioned earlier-on on water and sanitation in Chanyanya Community. They are involved in sensitization of the communities on water and sanitation issues, training communities on the construction of VIP latrines and boreholes. The committees also help the community in the repairing of water points and giving health talks on water and sanitation.

6.8 GENDER IN WASHE

From the study, Women, together with girls, have the majority of day-day tasks in relation to sanitation and hygiene, including fetching and storing water and cleaning the surroundings, organizing water for bathing, bathing children and educating children on sanitation and hygiene. Women therefore constitute an important target group for communication activities. It is, however, also important that the communication activities reach men, as in many rural Zambian families they make many of the major decisions within the family and often also construct household toilets, bath shelters, dig the rubbish pits and construct dish racks. Communication activities actively encourage that women participate in sanitation and hygiene related decision-making at household and community levels. Gender balance is being implemented in Chanyanya as a Water Committee (V- WASHE) that has applied for assistance from the WASHE programmes.

Chanyanya V-WASHE has a membership of 6 males and 4 females, and this form up the executive committee. These were trained in basic management of water supply facilities. However, gender balancing in the composition of the D-WASHE committee has not been possible due to ministerial guidelines on membership which restricts this to Heads of Departments only. It is therefore recommended that the selection should base on any technical position in each Ministry as long as that person has the qualifications.

6.9 CAPACITY DEVELOPMENT

The D-WASHE Committee that implements the Rural Water Supply and Sanitation programmes in the district have fifteen members of which ten (10) are males and five (5) are females. It draws its membership from different sectors, existing in the district and each playing a distinctive role in the management of RWSS because of member's line of specialization and profession. The DWASHE members do have trainings in hygiene promotion, basic skills in toilets and borehole drilling constructions, as well as borehole and well rehabilitations, to mention but a few.

As indicated earlier, the district has seventeen wards, with Area Development Committee (ADCs) members and Chanyanya falls under Chikupi ward. Chanyanya is one of the selected Communities in the WASHE programme. The ADC's executive members have been trained in the management of RWSS activities. They also help in facilitation on other developmental projects like dam construction. All communities participate in WASHE activities (borehole drilling) by contributing the 10% cash for operations and maintenance of RWSS facilities for example hand pump repairing.

6.10 THE NATIONAL WATER POLICY

According to the Rural Water Supply and Sanitation Policy (MLGH, 2007), states that, in as far as Rural Water Supply and Sanitation is concerned, the National Water Policy (1994) aims at increasing accessibility to safe drinking Water and Sanitation facilities for the rural population of Zambia so as to achieve the overall National Goal of Universal access to safe, adequate and reliable Water Supply and Sanitation services. However, statistics still show that rural areas as of 2005, only 37% of the population had access to safe water supply, and 13% on sanitation facilities. With reference from the

research findings, Chanyanya Community has 8 boreholes of which only 2 are working and the sampled one from the clinic show that the water has some Total Coli forms too numerous to count which is a danger to human life and the unprotected well showed the same characteristics. The researcher had some physical check on the sanitation situation and it was observed that only a few houses had some pit latrines which had no hand washing facilities seen near, there were faeces near some houses just lying about, no dump pits were seen around, and no dish rakes at all. This is enough to show that only a few people in Chanyanya Community have access to clean water and proper sanitation. This could be attributed to the shortfalls in the 1994 NWP terms of coordination and investment support. There is no clear indication on the ownership of the infrastructure and hence you find people not taking seriously whatever investment is there in their communities.

The 2010 NWP tries to fill in the gap by being principle oriented. There is much emphasis on the promotion of integrated development of Water Resources so as to improve health and sanitation in the communities, promote community management in order to ensure sustainability of services through financial support and operations and maintenance. Nevertheless, for the WASHE concept to be fully implemented in the rural communities, Government has to come with a strategy which will go hand in hand with the 2010 National Water Policy because the policy does strongly single out the problems in Rural Water Supply and Sanitation and bring out solutions to these problems.

CHAPTER SEVEN

7.0 CONCLUSIONS AND RECOMMENDATIONS

Chapter seven looks at conclusions on the research findings and summarizes them and later recommends on the way forward.

7.1 CONCLUSIONS

This Chapter will summarize the research findings on the assessment of D-WASHE programmes in Chanyanya and whether the 1994 NWP has achieved its objectives through the existence of WASHE Committees and more importantly through the implementation of their programmes.

According to the findings of the study, it can be concluded that D-WASHE has a positive impact on the lives of Chanyanya residents. This is because some residents are involved in the construction of their own sanitary services and digging protected wells with the guidelines from the V-WASHE members in their community. However, a sanitation programme called Community-Led Total Sanitation (CLTS) will soon be launched in Chanyanya community which will enable them participated in sanitary programs. This is a non subsidy programme where communities are aged to build local toilets using local materials and being sensitized on the effects of Open Defecation (OD). D-WASHE has assisted in the development of infrastructure as many boreholes and wells have been constructed by NGOs through D-WASHE programmes that have been put in place.

On water quality, according to the samples collected, water from the unprotected well, a borehole and from the river have some harmful bacteria which causes some water borne diseases and hence the need to encourage people to treat their water before drinking. Some samples tested showed traces of bacterial contaminated but minimal as the recommend state is anything below 10, more than that is harmful to human life. Some cases of Cholera and diarrhoea have been recorded at Chanyanya clinic. According to the report from Kafue District Health Management Board (2009), shows that, 20 cases of cholera were recorded at Chanyanya Clinic of which nine (9) were males and eleven (11) were females. From the same number of patients mentioned ten (10) where children

and ten (10) were adults. Most of these cases were recorded from Tukunka Village. The Government Institutions (Schools, Clinics) helped in the sensitizing of the community on the importance of having quality water and proper sanitation facilities such as boreholes, protected wells, and Ventilated Improved Pit Latrines. D-WASHE has assisted in the accessibility to clean water and sanitation as the communities are able to use different methods of water treatment and most people have atleast constructed a toilet to use. There is a reduction in the disease prevalence as no cholera cases were recorded in the last rainy season.

There is a V-WASHE Committee at the community level which deals with Water and Sanitation problems in the community according to the information from the Chanyanya Clinic staff and the community. This Committee was trained in different areas in water supply and sanitation activities by D-WASHE members who are specialized in the recommended fields. The D-WASHE programmes in the study area have also spread in Government Institutions such as Schools and Clinics. These institutions are involved in the sensitization programmes on water and sanitation issues. They are further involved in the prevention and treatment of diseases such as water borne diseases like cholera, diarrhoea, malaria through quality health care provision.

The research showed that people were responding to D-WASHE activities in the study area which is in line with the 1996 WASHE concept adopted by the government. In addition the 2010 National Water Policy has a different approach in attaining the water and sanitation goal as it mainly emphasis on the seven principles of IWRM. However, for the WASHE concept to be fully implemented, government has to come with a strategy which will go hand in hand with the 2010 National Water Policy. Funding should also be made available to water and sanitation programmes if the current situation is to improve. From the research, it shows that the sanitation part is still under developed as much concentration seems to be on Water Supply.

In conclusion, D-WASHE has assisted in all the objectives mentioned in this dissertation as outlined above and Government is putting in all efforts to sources for funds from donors communities to fund the activities planned for the programme.

7.2 RECOMMENDATIONS

Based on the findings, the recommendations made for improvement of the water and sanitation problems in Chanyanya Community are itemized below:

- Decision-makers should propose an increase in the budget on water and sanitation to give priority to the affected areas such as Chanyanya and inter alia allocate sufficient funds for activities at both community level, health centres, and in schools.
- Water and sanitation facilities should be given equal priority in implementation not as is the case in the study area where more effort is seen to be towards safe water supply.
- The local communities should be encouraged to use cheap methods of water treatment such as solar purification, boiling and using a clean cloth because many people cannot afford to buy chlorine and moreover it sometimes runs out of stock at the clinic. Indicate to the community however the effects of consuming too much chlorine in a human body as this leads to tuberculosis (TB) in a long term.
- Local communities should be encouraged to dig pit latrines with concrete rather than using the bush as this has proved from the research that it contributes to ground water contamination.
- Government should allocate more resources to meeting the sustainable development goals on water and sanitation and more support from collaborating partners will be needed in order to meet its millennium goal targets.
- Community-Lead Total Sanitation (CLTS) programmes should be implemented in Chanyanya Community in a quickest possible time because the sanitation situation in this community is in deplorable state and may lead to many more cases which are water borne related.
- The D-WASHE Committees should be gender sensitive and not targeted to heads of Departments only but any other member in a department can be appointed as long as they have some knowledge on Water and Sanitation issues.

- The 1994 NWP and 2010 NWP should merge as one document to avoid overlaps and ownership of water facilities should be well outlined. Programmes should match with sufficient funds which should be coming on time.

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National Water Policy (1994), Ministry of Energy and Water Development, Lusaka, Zambia.

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National Rural Water Supply and Sanitation (2006-2015), Ministry of Local Government and Housing.

Kafue District Council (1997): **Kafue D-WASHE Situation Analysis Document.**

Kafue District Council (2000): **V-WASHE Committee Minutes.**

Ministry of Health Kafue District office (2009): **District Health Information Bureau.**

APPENDIX 1 QUESTIONNAIRE FOR THE COMMUNITY

Dear Sir/Madam,

I am a Postgraduate student at the University of Zambia carrying out a study on the National Water Policies – the impact of implementing the D-WASHE programmes in Chanyanya community- Kafue district. The information will be used for academic purpose as well as to suggest areas of improvement on the findings. You are requested to be truthful in your responses to this questionnaire.

PART A (PERSONAL INFORMATION)

1. What is your gender? a. Female () b. Male ()
2. What is your age range? -----years old.
a. 10-25 () b. 26-35 () c. 36-50 () d. 51-65 () e. 66 and above
3. What is your marital status?
a. Single () b. Married () c. Divorced () d. Widowed ()
4. What type of employment are you in?
a. Formal () b. Informal () c. Unemployed ()
5. How many children do you keep? I have -----girls and -----boys
6. State your average range of monthly income.
a. K0-K100,000 () b. Above K100, 000 ()

PART B

1. Are you aware of the existence of D-WASHE programmes in Chanyanya?

2. If yes to question 1 above, how did you know about them?

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3. What sanitation activities are provided by D-WASHE in Chanyanya?

4. What are your sources of water in Chanyanya?

Please specify

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5. Has there been any water quality testing done at your water points by the people who constructed them?

6. Have there been any Sanitation and Hygiene awareness campaigns implemented by the local authority in Chanyanya?

7. If yes to the question above, who does the awareness campaigns on water and sanitation? Please specify

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8. Is there a water committee that is in place to look at Water and Sanitation problems in your community?

9. Do you participate in Sanitation and Hygiene programmes in Chanyanya community?

10. If yes to question 9, in what activities do you participate in? List the activities below:

- (a) _____
- (b) _____
- (c) _____
- (d) _____

11. Are there any boreholes that have been sunk in your community through the D-WAHE programme?

- (a) Yes
- (b) No
- (c) Others specify.....

12. If no to question 11, who drilled the boreholes which are there?

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13. What type of latrine do you use in your home?
- (i) Ventilated Improved pit latrine
 - (ii) Eco San toilets
 - (iii) Pour Flush toilets
 - (iv) Septic Tank Toilets
 - (v) Pit Latrines with sanitation platforms or other concrete platforms
 - (vi) Traditional Pit latrines with a smooth floor surface
 - (vii) Bush Please tick (✓)
14. Do you wash your hands after using the toilet?
-
15. If yes to question 13 above, what do you use to wash your hands after using the toilet?
- Please specify...
-
-
-
16. If you are using a Ventilated Improved Pit (VIP) Latrine who helped you construct it?
- (a) D-WASHE members
 - (b) NGOs
 - (c) Individual knowledge
 - (d) Neighbours
17. Who repairs the defunct boreholes in your in community?
- (i) D-WASHE members
 - (ii) Pump minders trained by D-WASHE
18. How far is the nearest water point to home?
- 0-50 meters () 51-100 meters () 101-150 meters ()
- Please tick
19. How do you treat your water for drinking?
-
-

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20. Do you know of any V-WASHE member in your community?

- (a) Yes
- (b) No Please tick (✓)

21. If the answer to question 20 is yes, what does this person do in your community?

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22. Did this V-WASHE member under go any training in Water and Sanitation issues?

- (a) Yes
- (b) No
- (c) No idea Please tick (✓)

23. Do you have any Peer Educators in your community? If any what do they teach?

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24. Do you participate during World Water Day and World Toilet Day?

- (a) Yes
- (b) No Please tick (✓)

25. If yes to question 24 above, what activities do you see during these celebrations?

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26. Do you know of any Non Governmental Organizations that help you with water programmes in your community?

- (a) Yes
- (b) No Please tick (✓)

27. If yes to question 26 above, name them

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28. Do the health specialist teach you on health and hygiene issues? What do the teach you?

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29. Do you have separate water points with people who are HIV positive?

(a) Yes

(b) No

30. If yes to question 29 above, why are they separated from your water points?

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31. Is the water point near you accessible to the aged, physically disabled, and children?

Please explain.

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APPENDIX 2 QUESTIONNAIRE FOR CHANYANYA CLINIC

Dear Sir/Madam,

I am a Postgraduate student at the University of Zambia carrying out a study on the National Water Policies – the impact of implementing the D-WASHE programmes in Chanyanya community- Kafue district. The information will be used for academic purpose as well as to suggest areas of improvement on the findings. You are requested to be truthful in your responses to this questionnaire.

1. I would like to have the background information of Chanyanya Clinic.
2. What kind of assistance do you offer to the community?
3. Does your clinic have a water source, if any, what kind of water source?
4. For how long has these water sources been in existence?
5. Is the water source repairable?
6. Who does the repairing of the water source?
7. Is the quantity of water supply enough to cater for your usage at your clinic?
8. Are you aware of the D-WASHE and V-WASHE committees in your area?
9. What do the two committees mentioned above do in your catchment if at all they are their?
10. Do the WASHE committee members help you in any way in terms of Water Supply and Sanitation? How?
11. What kind of Sanitation facilities do you have at your clinic?
12. Do you the same Sanitation facilities with your patients?
13. Who helped you construct the Sanitation facilities that are in your premises?
14. Who repairs the toilets when they breakdown?

15. How do you conduct your sensitization campaigns on Health and Hygiene in your catchment?
16. Is there any NGO that help you in Water and Sanitation problems? Name them.

APPENDIX 3 QUESTIONNAIRE FOR CHANYANYA SCHOOL

Dear Sir/Madam,

I am a Postgraduate student at the University of Zambia carrying out a study on the National Water Policies – the impact of implementing the D-WASHE programmes in Chanyanya community- Kafue district. The information will be used for academic purpose as well as to suggest areas of improvement on the findings. You are requested to be truthful in your responses to this questionnaire.

1. Background information for your school.
2. Where does the school draw its water for use from?
3. Who draws the water that you use in your school.
4. If you are using a borehole, or protected well, unprotected well or a dam, who constructed it?
5. Do you have any V-WASHE members in your catchment? If any, what do they do?
6. Do you as a school participate in any of the Water and Sanitation programmes in your area?
7. What kind of sanitation facilities do you use in your school?
8. How is the Sanitation situation like in your school?
9. How many toilets does your school have?
10. Who does the cleaning of the toilets, if any, in your school?
11. How many pupils do you have in your schools?
12. Do you use the same Sanitation facilities with your pupils?
13. Do you have a hand washing facility in your and if any do you use soap?
14. Do the girls and boys use the same toilets?

15. Do you have separate toilets for pupils who are HIV positive, physically disabled or any other disorder? Please specify.
16. Is there any Sanitation, Hygiene and Nutrition (SHN) programme in your school?
17. What activities are carried out in your SHN programme?
18. If SHN program is there, who initiated it?
19. Do you think the water that you receive in your school is enough?
20. Do you think the D-WASHE and V-WASHE committees have had any impact in your school in terms of Water and Sanitation programmes?