

UNIVERSITY OF CAPE COAST

SUSTAINING HYGIENE BEHAVIOUR CHANGE: A CASE STUDY OF THE
CENTRAL REGION RURAL WATER AND SANITATION PROJECT IN THE
KOMENDA EDINA EGUAFO ABIREM DISTRICT

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STUDIES

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DECLARATIONS

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I hereby declare that this thesis is a result of my own research and that no part of it has been presented for another degree in this university or elsewhere.

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Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

This study sought to find out whether improvements in hygiene behaviour during the implementation of the Central Region Rural Water & Sanitation Project (CRRWSP) from 1990 to 1998 was sustained. Eight communities in the KEEA district which benefited from the CRRWSP were randomly selected for the study. Questionnaires were administered to 20 randomly selected respondents in each community making a total of 160 respondents. Forty people were also observed for hygiene behaviour while 20 pupils each from two schools, which benefited from institutional latrines provided by the project were also interviewed. Focus Group Discussions (FGDs) were also held for the Water and Sanitation Committees (WATSANs) formed in the eight communities to see to the operation and maintenance of the facilities and also carry out hygiene promotion.

The findings from the field indicated that even though hygiene education was made part of the second phase of project the Water and Sanitation Committees (WATSANs) appeared to be weak and lacked sufficient knowledge to sustain hygiene education. Hygiene behaviours that had been sustained over the period included reliance on borehole water for drinking purposes (60.3% of respondents) and contributing towards operation and maintenance (68%). Some of the behaviours that could not be sustained included defecating in the bush, patronising unsafe sources of water, poor disposal of waste and poor environmental sanitation due to lack of consistent hygiene education.

The study therefore recommends that the use of WATSANs as the sole institution to undertake all follow up activities including hygiene promotion needs

to be examined critically especially with regards to their voluntary role. There will be the need to involve already existing structures like the Environmental Health Unit, Community Health Nurses and the School Health Education Programme (SHEP).

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DEDICATION

To my dearest husband and children.

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LIST OF ABBREVIATIONS

AFD	-	Agence Francaise de Development
BASNEF	-	Behaviour, Attitude, Subjective Norms and Enabling Factor
CBO	-	Community Based Organization
CFD	-	Caisse Francaise de Development
CIDA	-	Canadian International Development Agency
CRRWSP	-	Central Region Rural Water Supply Project
CWSA	-	Community Water and Sanitation Agency
CWSP	-	Community Water and Sanitation Project
DANIDA	-	Danish International Development Agency
DWST	-	District Water and Sanitation Team
EHA	-	Environmental Health Assistant
EHO	-	Environmental Health Officer
EHP	-	Environmental Health Programme
IRC	-	International Research Centre
KFW	-	Kreditanstalt Fur Wiederaufbau
PTA	-	Parent Teacher Association
NCWSP	-	National Community Water and Sanitation Programme

RWST	-	Regional Water and Sanitation Team
SHC	-	School Health Committee
SHEP	-	School Health Education Programme
SMC	-	School Management Committee
UNICEF	-	United Nations Children's Educational Fund
WATSAN	-	Water and Sanitation Committee
WHO	-	World Health Organization
WPC	-	Water Point Committee

CHAPTER ONE

INTRODUCTION

Background to the study

Until recently, behaviour change has not been given the importance it is due in health/hygiene programmes. For example, water and sanitation programmes, even those with health goals, have all too frequently focused mainly on provision of hardware-pumps, pipes, latrines and the most common indicator for such programmes has been the number of people with access (EHP, 1999).

However, it is the correct use of water and sanitation facilities that yields the greatest health impact. For example, many people have access to a latrine but do not use it either because it is too far, has a bad odour or for cultural reasons. Meanwhile, some of these reasons are not taken into consideration when the latrine is being built. For the greatest health impact, a number of behaviours must be observed regarding latrine use, for example: all members of the family, including children, must use the latrine at all times, they must wash their hands with soap after latrine use, and the latrine must be kept clean and functioning. In addition, the faeces of children too young to use a latrine must be disposed of properly (EHP, 1999). These activities can be carried out only when hygiene education is made an integral part of water and sanitation projects.

This study focuses on hygiene education promotion activities that were undertaken during the Central Region Rural Water Supply Project [now known as Community Water and Sanitation Agency (CWSA)] and how hygiene behaviour change was sustained after the project wound up.

Before the inception of the National Community Water and Sanitation Programme, the Ghana Water and Sewerage Corporation (GWSC), (now known as Ghana Water Company Limited) had been established in 1966 as the sole government agency in Ghana responsible for water and sewerage services. It operated 208 water supply systems all over the country, the largest of which supplied the Accra-Tema Metropolitan Area. In addition, it oversaw about 7000 shallow wells equipped with hand-pumps (RWSP, 1989).

According to a survey report of the GWSC, while 93% of the urban population had access to water, only about 40% of the rural population had access to this service (GWSC, 1989). As a result of financial and institutional difficulties both within the Corporation and the general economy during the 1980s there was serious deterioration of service levels. Meanwhile, the United Nations General Assembly had declared the decade 1981 – 1990 as the International Drinking Water and Sanitation Decade throughout the world. The focus was to ensure that by the end of that decade, nations would have given priority attention to the delivery of water and sanitation facilities.

A five-year development plan was initiated to meet the water supply needs of rural communities with populations from 500 to 2,000 inhabitants in five piloted regions (Central, Volta, Upper, Northern and Brong Ahafo) through the

provision of boreholes and hand-dug wells. The drilling programme included 6,076 wells in different regions, serving a total population of 1,093,000. The Central Region benefited from 450 boreholes for 139 communities (UNDP, 1989). This programme was at this time being managed by GWSC under its Rural Water Department.

Other water projects that were on-going in the Central Region during this period as reported in the CRCWSA Business Plan were as follows:

KFW	-	352 BH/HDW
Catholic Archdiocese	-	35 HDW
UNICEF	-	80 BH
World Vision Int.	-	28 BH/HDW
AFD	-	816 BH

The Central Region Rural Water Supply Project (CRRWSP)

The Rural Water Supply Project (RWSP) in the Central Region, then under the Rural Water Department of GWSC began in 1989 with the main aim as providing basic water supply services to communities with populations between 200 and 2000 who have no modern water supply (RWSP, 1998). The project was sponsored by Caisse Francaise De Development (CFD) now known as Agence Francaise de Development (AFD). It was implemented by Burgeap Consulting Engineers supported by Ghanaian counterparts comprising animators, socio-economist, hydrogeologists and engineers most of whom were seconded from the Ghana Water and Sewerage Corporation (GWSC).

Phases of the Central Region Rural Water Supply Project (CRRWSP)

The project went through three phases. The first phase started from January 1991 and ended in 1994. It started with a feasibility study followed by community mobilization and sensitisation to promote the project and educate people on how to access the facilities being provided. This was basically the provision of potable water to communities that had requested for the service. This phase ended with the drilling of 376 boreholes for 285 communities. The second phase started in 1994 and ended in 1996 with the drilling of 317 boreholes for 274 communities while the third phase ended in 1998 with 107 communities benefiting from 123 boreholes. In all 816 boreholes were drilled and fitted with handpumps. To ensure uniformity and easy maintenance of the system, the consultant promoted only one type of pump, which was the Vergnet foot pump.

Eleven of the boreholes which had high yields were mechanized and are currently serving 18 communities. Five impounded catchment water supply schemes were also provided on pilot bases. Though sanitation was not very much highlighted during the project period, a total of 20 institutional latrines and 1080 household latrines were provided at the end of the project. A total of 41 million French Francs were disbursed during the project (RWSP, 1998).

Objectives of the Central Region Rural Water Supply Project (CRRWSP)

The main objectives of the first two phases of the project were to:

- provide basic water supply services to communities with population between 200 and 2000 who have no modern water supply facility;

- ensure real involvement and commitment that will induce in communities a sense of ownership and empower them to manage, operate and maintain their water facilities;
- institute a decentralized maintenance structure that would shift dependency on government towards self-reliance by rural communities (RWSP, 1996).

Based on recommendations made after the first and second phases, the third phase had the following objectives:

- To ensure real involvement and commitment that will induce in communities a sense of ownership and empower them to operate and maintain their water facilities;
- To consolidate the operational efficiency achieved by Water Point Committees (WPCs) that were formed during the first two phases and;
- To utilize accumulated experience gained through their monitoring, to streamline and enhance the operation of new committees to be formed (RWSP, 1998).

These objectives were to be pursued through participatory animation meetings, more practical WPC training, regulation of WPC operation by a mutually agreed constitution, closer monitoring, greater involvement of women, promotion of water vending as the most efficient financing system, and a greater involvement of the District Assemblies (RWSP, 1998).

The animation process of the Central Region Rural Water Supply Project (CRRWSP)

In order for community members to be aware of the existence of the project, what it could offer them, the need to partake in it, how they could have access to it, and their responsibilities, there was a need for animation to be undertaken to sensitize community members. Animators were thus employed by the project to undertake the animation exercise. The animation followed the same phases as the project, and emphasis on the animation messages differed in each phase of the project as and when the need arose. For example, the first phase emphasized the proper operation and maintenance of the facilities and the decentralizing of the maintenance system to ensure the sustainability of the facilities. The main concern was to ensure that the facilities were maintained because many projects of its kind had had problems with the centralized maintenance system whereby community members always looked to the GWSC's maintenance unit to repair their broken down pumps, which led to the proliferation of unserviceable facilities.

This new approach of a decentralized maintenance system had a strong community participation component, which was necessary to achieve a Village Level Operation and Maintenance (VLOM) capacity building involving:

1. the sensitization of the rural communities through an extensive educational programme. This is achieved by organizing several meetings aimed at a clear understanding by the communities of their

responsibilities in the proper operation and maintenance of their water facilities.

2. the institution of financial contributions of 70,000 cedis by each community towards operation and maintenance in order to ensure real commitment of the communities.
3. the setting up of a decentralized network of maintenance, which included local pump repairmen/area mechanics and spare parts dealers identified, trained and equipped by the project (RWSP, 1989).

The ultimate objective was to increase the feeling of ownership so as to ensure effective maintenance during project implementation and operation. Hygiene education was also emphasised during project implementation and operation.

Institutional development

The CRRWSP established various institutions at the community, district and regional levels. These were made up of Water Point Committees (WPCs) who were to see to the day to day management of the boreholes; Water and Sanitation Development Boards (WSDBs), who were the managers of small towns mechanized systems; Caretakers at the community level who did regular maintenance and repair of the upper part of the pump; Pump repairmen who were private men trained to undertake regular maintenance and repair of the lower part of the pump on contract; and Spare Parts Distributors, private businessmen whose shops were used as distribution outlets to get the spare parts closer to the communities.

In addition to the work of the WPCs and WSDBs as managers they were also to ensure good hygiene practices so that they maximize the health benefits of the facilities provided. Thus, on each committee or board one person was elected to be solely in charge of hygiene education.

The hygiene education process

The overall goal of all the community participation activities carried out in all the three phases was to ensure sustainable water supply and practice of better hygiene that will lead ultimately to improved health and overall well-being of beneficiary communities (RWSP, 1994). This goal was to be realized through an interactive process of participatory education and formulation/implementation of health and sanitation action plans designed to influence hygiene behaviour (RWSP, 1998). By this arrangement, hygiene education was to play a major role in the implementation of the RWSP since it was identified as one of the means by which the health benefit of the facilities could be maximized.

The main hygiene behaviours targeted during the project were: Using clean/potable water; keeping drinking water free from contamination in the home and at the pump site, and personal and environmental hygiene (RWSP, 1998). These formed the basis for measuring behaviour change as well as the reduction in the incidence of sanitation diseases in the study area.

Evaluation of the Central Region Rural Water Supply Project (CRRWSP)

The animation team conducted a survey in the last two quarters of the third phase using the following factors to determine the level of success of the animation programme:

- Pump and pump site state
- Patronage of borehole
- WATSAN committee membership
- Means of raising funds for operation and maintenance
- Money left at bank and in safe for operation and maintenance
- The use of accounts book
- WPC/ Community meetings
- Stocks of spare parts held

In all a total of 406 pumps were surveyed. The following were the results for the state pumps/water point: 351 pumps, representing 86.5% of the pumps visited, were functioning as was expected. They had good output and were in good condition. Thirty-five (8.6%) were functioning poorly; 20 (4.9%) had broken down (many "broken down" pumps had actually been abandoned for quality, quantity or other reasons); 310 (76.4%) pumps had clean concrete platforms while 96 (23.6%) had dirty concrete platforms. The results of the survey pointed to the fact that the overall performance of the WPCs or WATSAN committees was satisfactory (RWSP, 1998).

An independent study was also conducted by the Regional Water and Sanitation Team (RWST), of the Central Region Community Water and

Sanitation Agency (CWSA) between March and August 2001 to update its district profiles and also to monitor activities of the Water and Sanitation Committees, the performance of the facilities and also to assess how behaviour change has been sustained over the years.

The study revealed that hygiene and sanitation practices in most (about 80%) of the communities visited, especially those with water facilities, were poor. (RWST, 2001) Most of them had very dirty pump sites, weedy and with algae. Some of the troughs constructed as drinking points for animals were choked with filth. Containers used to fetch water were not very clean whilst some people came to the pump site to clean their dirty containers making the pump site very dirty. Others were found fetching water from the stream in which people were bathing or washing, even though they had a borehole. Some of the reasons given were that the borehole water did not taste well, had a peculiar smell or that they were used to the old source, which was discovered by their ancestors.

The above findings were contrary to the results of the survey that was conducted by the animation team at the end of the project. This was an indication that though hygiene behaviours improved during the project period this was not sustained over the years.

Statement of the problem

Surveys conducted by the Rural Water Division of GWSC in the Central Region before the onset of the Central Regional Rural Water and Sanitation Project (CRRWSP) indicated that the health conditions in the Central Region

were poor even though some intervention in the form of provision of potable water had been in place for some time (RWSP, 1989). Only ten percent (10%) of villages had access to health facilities, about 70% of surveyed villages declared having bilharzia and diarrhoea, while 30% had had guinea worm (with the highest occurrence in the Asikuma District). Bilharzia was also found among all the communities along the Offin, Sweet Pra, Kakum, Ayensu, Akora and Ochi rivers. Outbreaks of cholera were also reported in Anomabu, Elmina, Abura Dunkwa, Moree, Senya Breku and Dominase. The incidence of onchocerciasis was about 60% among the population of Lower Denkyira district. The medical costs for treating these illnesses were estimated to be ranging between ₵15,000 and ₵45,000 per household in 1989 (RWSP, 1989).

Based on these findings hygiene education was to play a major role in the implementation of the Rural Water Supply Project. However, the first phase of the CRRWSP concentrated more on the provision of safe water for its beneficiary communities, an approach which was also necessary because for behaviour change to occur there should be the facilities. Thus an evaluation conducted after the end of the first phase indicated that though some facilities had been provided the hygiene behaviours had not improved significantly. As a result hygiene promotion formed one of the components of the second and third phases (RWSP, 1994).

Though there was marked improvement of hygiene behaviours at the end of the third phase another survey conducted three years later indicated that the hygiene behaviour change had not been sustained with some communities going

back to fetch the traditional sources of water. Data from the Disease Surveillance Unit of the Ministry of Health also confirmed that the incidence of cholera, typhoid and all forms of diarrhoea and dysentery, which are water and sanitation related in the region as a whole have not decreased significantly over the years. Table 1 gives cases reported to health institutions in the Central Region over a five-year period between 1995 and 2000, while Table 2 gives that of the KEEA district from 1997 to 2002.

Despite these many investments with their added hygiene promotion by External Support Agencies with the support of Government there seems not to be much improvement in hygiene behaviour.

Objectives of the study

The general objective of this study is to assess how improved hygiene behaviour can be maintained within project communities after the introduction of hygiene behavioural interventions.

The specific objectives are to:

1. present and assess the hygiene interventions made during the CRRWSP;
2. examine institutional structures put in place to ensure sustainability of the behavioural change;
3. assess follow up activities carried out after the project
4. assess whether improved hygiene behaviour has been maintained or sustained over the years;
5. make recommendation for future hygiene interventions in the region.

Table 1. Reported Cases of Communicable Diseases in the Central Region (1995 – 2000)

Disease	1995		1996		1997		1998		1999		2000	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Cholera	397	20	660	31	118	6	80	6	1821	64	364	9
Enteric Fever	1006	4	2198	5	2212	5	2246	2	3208	0	3998	0
Yaws	10006	0	4373	0	6192	0	8258	0	8351	0	6654	0
Malaria	128660	0	130696	0	156975	23	155325	9	167071	0	181753	2
Bilharziasis	1362	0	1082	0	1164	0	1034	0	993	3	1001	0
Ochocerciasis	17721	0	11641	0	1773	0	1703	0	1087	0	976	0
Burulu Ulcer	0	0	112	0	57	0	121	0	93	0	73	0

Source: Facts and Figures, Central Regional Health Services Cape Coast. July 2002

Table 2: Reported Cases of Communicable Diseases in the KEEA District (1997 – 2002)

Disease	1997		1998		1999		2000		2001		2002	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Cholera	39	3	21	10	21	0	4	4	270	0	58	0
Tuberculosis	133	6	115	7	115	7	157	11	140	0	58	0
Pertusis	4	0	6	0	6	0	7	0	1	0	4	0
Tetanus	0	0	0	0	0	0	1	0	0	0	0	0
Measles	259	0	94	0	94	0	181	0	68	0	4	0
Enteric Fever	12	0	9	0	9	0	16	0	15	0	11	0
Viral Hepatitis	0	0	12	0	12	0	37	0	17	0	8	0
Yaws Infections	260	0	575	0	1,048	0	982	0	305	0	872	0
Malaria	8,751	0	6,945	0	10,255	0	11,853	0	21,707	0	25,416	0
Bilharziasis	18	0	0	0	6	0	7	0	14	0	8	0

Source: Facts and Figures, Central Regional Health Services Cape Coast. July 2002

Table 2: Reported Cases of Communicable Diseases in the KEEA District (1997 – 2002) cont'd

Disease	1995		1996		1997		1998		1999		2000	
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Onchocerciasis	182	0	403	0	257	0	179	0	247	0	35	0
Guinea Worm	1	0	0	0	0	0	0	0	0	0	0	0
Intestinal parasite	615	0	357	0	473	0	428	0	1,260	0	1341	0
Chicken Pox	122	0	111	0	92	0	80	0	110	0	93	0
STD/Gonorrhoea	2	0	8	0	33	0	17	0	59	0	24	0
HIV/AIDS	5	0	14	0	16	0	13	0	55	0	55	0
Other Diarrhoeal Diseases	304	0	562	2	658/1	0	506	0	1,230	0	1535	0
Neonatal Tetanus	0	0	0	0	0	0	1	0	0	0	0	0
Burulu Ulcer	0	0	0	0	0	0	0	0	0	0	0	0

Source: Public Health Unit, Elmina Urban Centre, Ghana Health Service. 2003

Research questions

The research questions that the study attempts to address are:

1. What were the hygiene interventions made during the CRRWSP?
2. What institutional structures were put in place to ensure sustainability of behavioural change?
3. What follow up activities were carried out after the project?
4. Were the improved hygiene behaviours obtained during the project period maintained/sustained after the project ended?

Justification for the study

It is estimated that approximately 1,311 boreholes and Hand Dug Wells (HDWs) have been provided by various external support agencies such as Agence Francaise de Development (AFD), Kreditanstalt Fur Wiederaufbau (KFW), United Nations Children's Educational Fund (UNICEF); NGOs such as, World Vision, Plan Ghana and religious bodies such as Catholic Archdiocese, Islamic Humanitarian Relief Agency and Adventist Relief Agency (ADRA). Despite these investments made with the support of the Government of Ghana and its added hygiene education there seems not to be much improvement in hygiene behaviour. For example the incidence of cholera and other water and sanitation related diseases in the Central Region are still on the increase despite interventions made. This study is to help to identify ways by which hygiene education interventions can be made more inclusive and comprehensive to ensure

sustainability of hygiene behavioural changes so as to ensure maximisation of the full health benefits of investments made.

Organization of the study

Chapter One is the introduction to the work where the background to the study is given as well as a brief history on the Hygiene Education Programme by the CRRWSP, statement of the problem being studied, its objectives and the justification of the study. Chapter Two reviews literature relevant to the study and gives the theoretical and conceptual framework on which the research is based. Chapter Three introduces the methodology of the study including the study design, study population, sampling procedure, method of data collection and analysis of the data. Chapter Four gives a history/evolution of the Central Region Community Water and Sanitation Programme and the hygiene interventions that have taken place. The general profile or background of respondents, which includes their social, educational and professional life, are analysed and discussed in Chapter Five. Chapter Six deals with how far hygiene behaviour has been sustained over the years. Chapter Seven gives a summary and conclusions of the study and also makes recommendation for future hygiene interventions.

CHAPTER TWO

LITERATURE REVIEW /CONCEPTUAL FRAMEWORK

Introduction

In this chapter the literature related to the subject matter was reviewed. Issues discussed included what constituted hygiene behaviour; the kind of behaviours targeted; hygiene education interventions; the models and concept of behaviour change; and the question of sustainability of projects – level of participation of beneficiary communities to ensure sustainability; technology being used to implement projects and mechanisms put in place for project monitoring.

Hygiene behaviour

Hygiene derives from the Greek word “hygieinos” meaning healthful. It is also the practice of keeping oneself and one’s surroundings clean, especially in order to prevent illness or the spread of diseases. Behaviour on the other hand according to Boot and Caincross (1993) is the way people act in general, especially in relation to the situation they are in or the people they are with. In the context of this study both individual and group/community behaviour will be the main consideration.

Good hygiene behaviour according to Kendie (2002) covers a wide range of actions that promote health, from eating a healthy diet to washing hands after

defecation. The components of hygiene behaviour have been identified as safe disposal of human excreta, adequate personal hygiene especially hand washing, the safe handling of drinking water in collection, storage and drawing; safe disposal of liquid waste; safe disposal of solid waste, including disposal and management of animal waste and good home sanitation and food hygiene (IRC, 2001).

Hygiene behaviours in the context of this study are divided into four clusters or "behavioural domains". These are:

1. Disposal of human faeces
2. Water and personal hygiene
3. Food hygiene
4. Domestic & environmental hygiene

Burgers, Boot & van Wijk (1988) define hygiene education as all activities aimed at changing attitudes and behaviours in order to break the chain of disease transmission associated with inadequate sanitation. For this study the definition is taken to include activities such as campaigns to reduce fly breeding, latrine construction programmes and the promotion of desirable behaviour, including hand washing. Though hygiene promotion and hygiene education are two different interventions, for the purpose of the study they will be used interchangeably.

Behaviour change is defined by Hubley (1993) as a process comprising several steps, from wanting to change and deciding what change to make to deciding to try it out and if positive, maintaining the change. According to him it

is assumed that different considerations composing of personal beliefs and values, developed attitude, influence of others and enabling factors play a role in the process.

Hygiene education/promotion

According to the IRC, poor hygiene and sanitation is largely responsible for the global burden of diseases, such as schistosomiasis (with an estimated current global prevalence of 200 million cases), typhoid fever (16 –17 million cases), intestinal helminthic infections (1500 million people infested), various diarrhoeal diseases (over 2 million infant and child deaths annually) including cholera (endemic disease now in Africa), and trachoma, the second most important cause of blindness world-wide (IRC, 2001).

The most effective interventions against diarrhoeal diseases are those that interrupt the transmission of infectious agents in the home. Almedon, Blumenthal & Manderson (1997) came out with the Faecal-oral routes of disease transmission or the F-diagram as below.

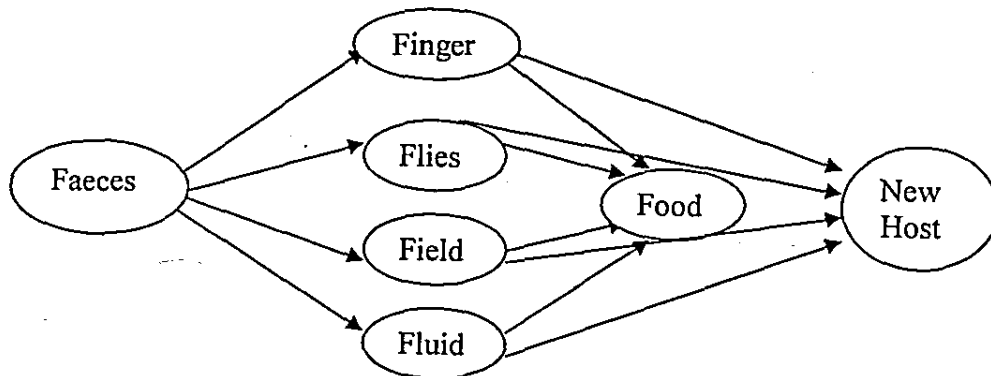


Figure 1: The F diagram/faecal-oral route of disease transmission

Source: Kendie 2002

Figure 1 explains the faecal-oral transmission routes with faeces being the main source of contaminating of our food. The means of transmission of diseases or contamination by faecal matter have been identified as through our fingers, flies, fields and fluids.

Esrey, Feuchem. & Hughes (1991) reviewed epidemiological studies on the relative effects of various prevention strategies in the reduction of diarrhoea and came out with the fact that the largest improvements were found for sanitation and hygiene. Improvement in sanitation and hygiene brought about 35% reductions in diarrhoea while increases in water quantity brought about 20% and safe water only 15%. The authors, therefore, suggested that sanitation acts as the primary barrier to reduce exposure to pathogens with food hygiene as the secondary barrier to further prevent transmission of pathogens.

Kendie (2002) also quotes Almedom et al (1997) as saying that improved hygiene practices such as handwashing with soap and water have a positive effect on the reduction of intestinal infections as well as conjunctivitis and trachoma.

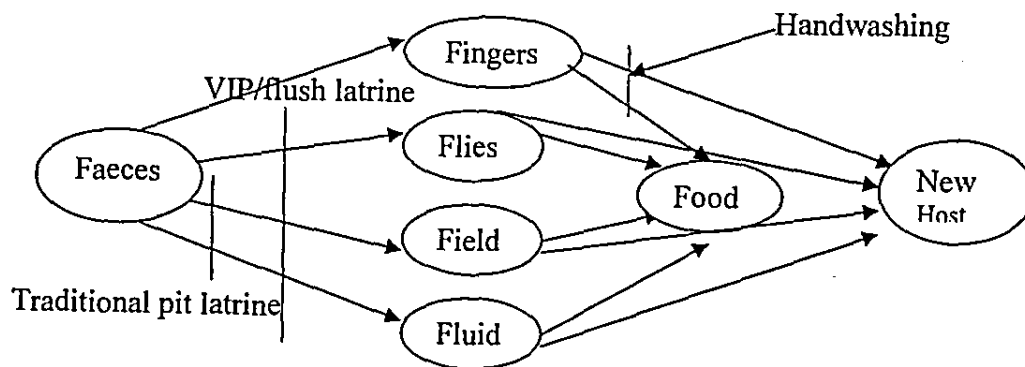


Figure 2: The F diagram/faecal- oral route of disease transmission with barriers

Source: Adopted by WHO (1997)

Figure 2 explains the barriers of contamination. There are various interventions that need to be made in order to prevent diseases. For example, to prevent faeces from getting on the hands there is the need to always wash the hands with soap after any contact with faeces or before eating. Though the use of traditional pit latrine for example prevents contamination of fluids and the field by faeces, it does not address the problem of flies from the latrine to homes. By using improved sanitation facilities like the Ventilated Improved Pit (VIP) or flush latrines all three sources of contamination, that is, contamination through fluids, the field or by flies can be prevented.

Studies by Henry and Rahim (1990), from different countries came out with the fact that the promotion of personal and domestic hygiene accounted for a reduction in diarrhoeal morbidity and this has accounted for the inclusion of hygiene education in water and sanitation interventions. Field research experience has shown that access alone typically brings little or no health impact. Access to water and sanitation must be accompanied by promotion of hygiene behaviour. Health benefits from water and sanitation programmes will not be fully realized unless hygiene behaviour is promoted and achieved. This is due to the fact that it is the correct use of the facility, which results in the greatest health impact (EHP, 1999).

Hygiene education has thus been recognized not only as an essential element in water and sanitation programmes, but also as an important effort in and of itself. Changing household hygiene behaviour is one of the most effective means not only to prevent many of the infectious diseases but also to create a real

demand for sanitation services, which will in turn lead to improved health. Some donor agencies support the integration of hygiene education in their water and sanitation programmes or integrate hygiene and sanitation activities in primary health care and nutrition programmes (Boot, 1991). Effective examples, however, remain limited on the field. To date, there has been no consistent hygiene education policy among donors or implementing organisations and worldwide still very little effective hygiene education takes place.

In Bolivia, for example, a baseline survey showed that diarrhoea prevalence was highly correlated with poor hygiene behaviour among mothers and caretakers and not with water source (e.g. rivers or dams) or type of sanitation. Also, in Bangladesh, an integrated intervention project installing handpumps and pit water-sealed latrines, together with promotion of hygiene behaviour on the proper use of latrines, resulted in 25% fewer episodes of diarrhoea in the intervention area (EHP, 1999). Water supply and sanitation projects have integrated health education programmes to induce changes in health-related behaviour to prevent disease, and some of such projects have led to behavioural change in the target groups in Burkina Faso (Curtis, Kanki & Cousens, 2001).

On the other hand, Caincross, Tao, Bayer, & Wang. (1999) also notes that many hygiene education programmes have failed to make the expected impact due to the fact that efforts are not based on what people know, do and want. They rather resort to increasing people's knowledge with the view that it will make them give up unhygienic practices and adopt improved ones. In sum, the

literature shows that the practical steps identified in the promotion of hygiene behaviour change include:

- identifying risk practices: understanding what people do and why;
- selecting practices for intervention;
- determining the positioning of the message: what is the source of motivation for those who currently use safe practices and what are the perceived advantages;
- defining the primary audiences: who employs the risk practices and who influences the primary audiences;
- selecting communication channels and making use of all available resources;
- developing a detailed behaviour-change programme jointly with the community;
- taking a gender sensitive approach and transferring skills by doing, not just talking; and
- monitoring and evaluating your work (Caincross et al., 1999).

Factors influencing behaviour change

Three factors have been identified by Green, Kreuter, Deeds, and Patridge (1980) as contributing to health behaviours and these are Predisposing, Enabling and Reinforcing factors.

Predisposing factors, which relate to a person's knowledge, attitudes, beliefs, values and perceptions as well as demographic issues such as socio-

economic status, age, gender and present family size, which are, however, beyond the direct influence of a health education programme.

There are also the Enabling factors, which include personal skills and resources as well as community resources necessary to perform health behaviour. The resources among others include personnel, community organization, money, water supply and sanitation facilities, health care facilities, transportation facilities, a special container for storing drinking water and, space to construct a latrine. These should be made available else it will be unrealistic to expect people to adapt their behaviours.

Reinforcing factors relate to the approval or disapproval of certain behaviours by people who are important to us. For example, if our best friend only accepts drinking from a protected source we are more likely to adopt this behaviour as well.

Cultural values

According to Boot (1991), behaviour is not only influenced by available resources, but also by how people think and feel and that hygiene education that is not based on the local culture cannot possibly be effective in changing people's behaviour and practices. For example, frequent diarrhoea may be taken as a normal occurrence, rather than as a disease.

Role models

Apart from the cultural values, another means by which behavioural change can gain an important impetus according to Boot (1991) is through the support and example of respected persons. If a respected key person is setting the example and promoting certain behaviour, it is likely that more people will follow. The role models could be official leaders such as religious leaders and community representatives, as well as individuals who are trusted and consulted for specific problems, or lead the life desired by many people. The key persons definitely differ from community to community.

Motivation

To encourage new behaviour, incentives may be used, such as gifts or prizes when people switch over to new behaviour. Examples are prizes awarded to the cleanest village, the village with the best-protected water source, or to the family with the best-constructed latrine in each village. A similar thing was done on the Volta Region Community Water and Sanitation Project where the winners were given trophies and some money.

Status and prestige may also act as incentives to the adoption of new facilities and practices even though they seem to be more helpful in getting the facilities (e.g. latrines) constructed than in getting them used.

According to Boot (1991), behavioural change can also be promoted through formal and informal regulations and agreements. For example, it may be decided that households which want extension of pipe lines to their homes could

only be considered when they make the necessary provisions for safe wastewater disposal. This could also be in the form of bye-laws which could be punishable or sued when defaulted. This practice used to be carried out by the Environmental Health Unit in the past, and were being referred to as “samansaman”.

Burgers et al. (1988) conclude by saying that facilities and practices are more likely to be adopted when they:

- make life easier and solve felt problems;
- are functionally appropriate;
- are affordable, and materials easily available;
- are based on people’s practical understanding of how water and sanitation-related diseases are transmitted in their own environment;
- are in line with the cultural values and behaviour of the users;
- appeal to a sense of modernity and status;
- are encouraged through incentives and regulations;
- are promoted through the example of key persons in the community

Approaches to hygiene education

The mode of communicating hygiene messages as already mentioned is very important. Srinivasan (1992) has identified three educational strategies: didactic teaching, growth-oriented education and education for societal growth. Didactic teaching equips people as quickly as possible with the knowledge and coping skills they are believed to lack. In didactic teaching, everyone learns the

same things. The educator chooses the content and methods, based on what he/she herself finds important and thinks the people need.

Growth centred education is primarily concerned with the development of human capabilities and an increased sense of human dignity. Many different group activities are used by which the participants acquire analytical, planning and problem solving skills. Here the groups make their own decisions and the facilitator keeps a low profile. Both principles help the group to identify their own priority issues and discover and exercise powers and talents available in the group.

According to Hubley (1993), a mix of different approaches is best to ensure behavioural change. The 'didactic mode' is best to transfer knowledge or facts to individuals or large groups. Mass media such as posters and radio messages can be used to convey simple facts to large audiences, but are usually not successful in changing behaviour. However, when messages are practical and concrete and conveyed in an entertaining manner, they can be used to start off discussions among family, peers and friends, and even lead to behaviour change.

The 'conscientisation' and 'growth-centered strategy' according to Srinivasan (1992) are better for acquiring decision-making and problem solving skills. Here participants are stimulated to think for themselves and to discover underlying principles, through group discussions, simulations, games and role plays in small groups and, through that to draw from their own experiences and be encouraged to think of possible solutions that are adapted to their beliefs and practices. From the above, therefore, it can be said that one particular method

cannot be said to be the most effective to make the required impact but rather a mixture of all, depending on what the education aims to achieve at a particular time.

Also, according to Boot (1991), many approaches to hygiene education are being promoted and these include: educational approach, teaching approach, social marketing approach, participatory approach, promotional approach, organizational approach and directive approach. All these approaches, according to Boot (1991), are found somewhere along the line between a fully community-based approach and a fully project-based approach.

For the community-based approach people are put in the centre of all actions. The hygiene educator acts as facilitator to help people to analyse their health problems and to define their own priorities for changing health conditions and practices. Through person-person discussions and group meetings, the hygiene educator stimulates people to take decisions and initiatives to improve their personal and environmental health. This means that people take on themselves hygiene education planning, implementation and evaluation.

The main advantage of this approach is that hygiene education is based on people's immediate interest and needs, and that people feel committed to taking health improvements in their own hands. This, according to Boot (1991), will greatly influence the chance of long-lasting improvements in health conditions and practices. The main constraint is the fact that the approach requires a reservoir of well trained staff who have sufficient social and technical skills to work through dialogue and who are prepared to establish longer term

relationships with community groups. The approach also requires considerable flexibility in project planning and management, as the people will be the main decision makers on the timing, type and content of activities.

The project-based approach on the other hand has the hygiene education planning, implementation and evaluation being largely determined by project staff with the people being simply recipients of what the project has to offer. The hygiene educator will decide on the needs and priorities for hygiene education, and what conditions and behaviour need to change, taking into account available manpower, budget and time. This implies that hygiene education based on the project approach will be mainly concerned with advocating changes desired by the project by trying to convince people of the benefits involved.

The advantage of this approach is that the hygiene education programme is easier to plan, manage, evaluate and integrate with technical activities, especially with large-scale water and sanitation projects, since the project will have all the main factors under its control. The main limitation here is that it can only be successful when the changes advocated are relatively simple, correspond to the urgent needs of the people, and are easily within their means. However, as behavioural changes are usually more complicated, and as needs and available means are usually local, these conditions are rarely met (Boot, 1991).

Also, when people have the feeling that the changes in behaviour and conditions are imposed from outside, they may easily reject them. According to Boot (1991), people frequently complain that they feel blamed by the hygiene educators for having an unhygienic way of living. Also, project-based approach

is directed to knowledge transfer about how to reduce health risks, whereas it has been argued that knowledge is only one of the considerations through which people adapt their behaviour.

The CRRWSP adopted the project-based approach where the hygiene education planning, implementation and evaluation were determined by the project with the people being simply recipient of what the project had to offer. Project staffs were employed on contract and so had a limited time to deliver. Thus the animators being led by a socio-economist decided on the needs and priorities for hygiene education and what needs to be changed, taking into account the available manpower, budget and time. Though some kind of behaviour change was attained at the end of the project, this was not sustained as the study hopes to establish.

It would appear, therefore, that the best approach to adapt is the mixed approach where there is a little of the project-based and the community based but a lot of people advocate for more of the community approach as against the project-based. The community-based approach is also currently being experimented by Afram Plains Development Organisation (APDO), an NGO, into water and sanitation based in the Afram Plains in the Eastern Region of Ghana. Through this approach they have been able to promote household latrine without subsidies and have achieved 100% coverage in two communities in the Afram Plains.

Identifying hygiene behaviours

According to Caincross (1999) and the WHO (1993) many hygiene education programmes have failed to make the expected impact due to the fact that they do not target a few key feasible hygiene behaviour changes and tend to turn off potential audiences with talk of dirt, death and diarrhoea without offering positive, attractive solutions. Also, objectives set for such interventions tend not to be realistic and measurable.

It could be assumed that the identification of a set of key hygiene behaviours would help water and sanitation hygiene education programmes to choose how to intervene and would enable them focus staff training, materials development and the development of appropriate technologies in order to support the most relevant behaviours (WHO, 1993).

The main hygiene behaviours that were identified by the CRRWS Project were: Using clean/potable water; keeping drinking water free from contamination in the home and at the pump site, and personal and environmental hygiene (RWSP, 1998). These hygiene behaviours though not exhaustive were determined solely by the CRRWS Project without the involvement of the communities concerned.

Gender roles in hygiene promotion: audience targeting

In rural areas of developing countries where modern technology is rarely available to the poor, the tasks of water carrying, gathering firewood and grinding grain are borne mostly by women in addition to their vital participation in other

agricultural work. ESCAP and ECA estimate that women provide 60-80% of agricultural labour in Asia and Africa. According to Biswas (1977), the work performed by women relates to both farm and non-farm activities, with domestic duties being carried out almost exclusively by them. From numerous anthropological and social studies as well as from reports of extension workers, the division of rural labour in Africa as between men and women and the description of the daily tasks of rural women are represented below by Biswas (1977) as reproduced in Table 3.

Elmendorf and Isely (1981) and Roark (1980) also confirmed that in areas of domestic chores and hygiene the women (56.4%) are most involved. According to them women do the works, take management decisions in and around the house, educate the children and are change agents in contacts with other women. Taking account of the central role of women in health and hygiene, it is logical that most hygiene education programmes work mainly with women. Unfortunately, this means that in hygiene changes men are seldom involved. Meanwhile, it is expedient that all hygiene programmes address men as well as women (van Wijk, 1985).

There is, thus, the need for a gender approach in hygiene behaviour programmes. One reason for a gender approach is that for some decisions and changes, women also need the cooperation of the men. Decisions for improvements, which require monetary investments, for example, or building of latrines are in many cultures taken by male head of the household, or by male and female heads together.

Table 3: The division of labour in rural Africa between men and women

Activities	% of total labour in hours	
	Men	Women
Cuts down the trees; stakes out the field	95	5
Turns the soil	70	30
Plants the seeds and cuttings	50	50
Hoes and weeds	30	70
Harvest	30	70
Transports crops home from the fields	20	80
Stores the food crops	20	80
Processes the food crops	10	90
Markets the excess (including transport to market)	40	60
Trims the tree crops	90	10
Carries the water and the fuel	10	90
Cares for the domestic animals and cleans the stable	50	50
Hunts	90	10
Feeds and care for the young, the men and the aged	5	95
Average	43.6	56.4

Source: Biswas (1977)

Thus, according to van Wijk (1985), if men are not well informed about the benefits of these improvements they often give a low profile to issues related to hygiene in comparison with other needs. A gender approach, also, ensures that women do not shoulder extra work and responsibilities in hygiene alone, but that

such responsibilities are better shared between men and women. Moreover, for an impact on public health, male hygiene practices also have to change. It is, however difficult for women in many cultures to influence male health behaviour.

It follows that the target audience for disseminating information is also important. Targeting women or men in their traditional roles may achieve specific and short-term hygiene and sanitation behaviour objectives, but it may also have seriously limited results as already discussed above. For example, counting on women alone for changes in hygiene and sanitation behaviours considers their traditional role, but does not address the stereotyping that accompanies it. Nor does it include the important role of men and the youth in behaviour change that would lead to healthy hygiene and sanitation practices. Thus, a more balanced gender division of labour needs to be considered.

Socio-economic conditions

Esrey et al. (1991) have shown that improved hygiene practices have an impact on public health only when they can and are being adopted and sustained by the major part by women, men and the youth. Hence, both community managed hygiene programmes and public health communication programmes will have to promote those facilities and practices that solve the felt problems and are within the means of not one, but all socio-economic groups. In practice, however, many hygiene programmes reach only the higher-income groups because they have the time, education, economic means and sufficient independence to try and adopt new technologies, which facilitate improved hygiene practices.

For example, according to van Wijk (1985), hygiene programmes with women's groups often mean that only higher-class women are involved, because poor women are not members of these groups and have little time for meetings, nor the means to adopt the promoted practices. Also, subsidies and gifts, which enable lower income groups to practise certain hygiene behaviour are often temporary or only for a small group (Pinfold, 1990). For permanent changes which continue without external support it is essential that improved hygiene practices in project communities become as self-sustaining as possible.

Private sector participation

To achieve a greater impact in promoting hygiene behavioural change there will be the need also for private sector involvement. In some countries in Latin America, promising results are booked with mobilizing the commercial sector for public health objectives. The private sector like soap manufacturers, marketers and/or distributors undertake mass production as well as distribute and promote soaps. These businesses include messages on the health benefits of handwashing with soap for example, on their products and in their promotional materials. Also, the distribution infrastructures of these businesses often reach the most remote rural areas due to their marketing skills and so are able to make more impacts.

Models and concepts of behavioural change

Programmes to promote behaviour change are often based on the assumption that people react in standard and rational ways to new information they receive. Although differing in detail, many programmes follow the framework illustrated here: The individual practises unhealthy or unsafe behaviour. A programme “intervenes” by interacting directly with that individual. The individual is expected to move to practise only healthy, or safe, behaviour.

Some problems with this commonly-used framework are: it assumes behaviour change only has to happen once; that people change at the same time; it does not explain how people can adapt their “new” behaviour in response to changing circumstances; it assumes that others determine the most important decisions about behaviour change, not the people wanting to change. A move back to old behaviours is assumed to be a problem, and is often labelled “relapse” and a solution to this is having a better intervention, yet it is rarely clear just what other intervention might work; they often leave people uncertain about how to change and maintain their behaviours, or how to encourage others to change.

As a result of this, various models of behaviour change have been propounded. One of such model is the Health Belief Model (HBM). This model attempts to explain how individuals experience behaviour change, but is less effective at explaining how programmes can influence such experiences. The HBM is used to explain change and maintenance of health related behaviours and as a guiding framework for health behaviour interventions. It is a value expectancy theory. When value-expectancy concepts were gradually

reformulated in the context of health-related behaviours, the interpretations were as follows:

- (1) the desire to avoid illness or to get well (value)
- (2) the belief that a specific health action available to a person would prevent (or ameliorate) illness (expectation).

The expectancy was further delineated in terms of the individual's estimate of personal susceptibility to and severity of an illness and of the likelihood of being able to reduce that threat through personal action (Dignam and Carr, 1992).

The HBM according to Dignam and Carr (1992) is based on three essential factors: (1) the readiness of an individual to consider behavioural changes to avoid disease or to minimise health risks; (2) the existence and power of forces in the individual's environment that urge change and make it possible; (3) and the behaviours themselves. They go on to explain that each of these factors is influenced by a complex set of forces that relates to the personality and environment of the individual, as well as past experiences with health service providers.

The readiness of the individual is influenced by forces that include perception of vulnerability to disease, potency of the threat, motivation for reducing vulnerability, and extent of the belief that behavioural change will be beneficial. Forces that influence behavioural change, according to Dignam and Carr (1992), are themselves influenced by the characteristics of the individual, the appraisal by the individual of the extent of the changes proposed, the effects of

interactions with the health professionals recommending change, and previous experiences with similar attempts at behavioural change.

The HBM model has, however, over the years ceased to motivate people to change. Research has proved that people are now not changing their health behaviour because of perceived threat of diseases but mainly due to aesthetic reasons (Curtis et al., 2001).

There is also the Behaviour Change Spiral proposed by Parnell and Benton (1999), which is sometimes used to explain the process of behaviour change. According to them behaviour change is a process that takes place over time. It is never uni-directional, nor is it a single event. People go through various stages before final changes are made, and a lot of events take place after changes are made.

The “stages of change” model which focuses on the stages of behaviour change and processes that influence people’s progression through those stages. The stages are: pre-contemplation; contemplation; preparation; action and maintenance. At the pre-contemplation stage the individual might not realise that change is possible, desirable, or relevant to him/her. The individual has not yet begun to contemplate change or the need for change. Later, something happens to prompt the person to start thinking about change. It could be upon hearing that someone else has made changes (demonstration effect) or maybe something else has changed, resulting in the need for further change. It is at this point that the person begins to consider change (Parnell and Benton, 1999).

The next stage is preparation for change. The person prepares to undertake the change. This will require gathering information about the change, finding out how to achieve the change, learning what skills are necessary to acquire for action, and deciding when to take it. Action may include talking with others to assess how they feel about the likely change. There might be intense feelings associated with the change, and the person might need time to reflect on those feelings. The person may consider what impact the change might have and who will be affected. The preparation stage may occur quickly and easily or it may take some time.

Eventually, the person will vary his/her behaviour. This is the action stage. The person is acting on previous decisions, experience, information, new skills and motivations for making the change. A new behaviour has been adopted.

Once a new behaviour has been adopted, practice is required for the behaviour to be consistently maintained. Maintenance occurs when the behaviour has been incorporated into the rest of the person's life. It becomes just one of a whole range of behaviours the person undertakes. Once behaviour becomes familiar, and occurs without requiring active thinking, it can be said that the behaviour has been maintained.

According to Parnell and Benton (1999), maintaining behaviour means that a person might have to go through some of the same stages more than once. This movement will not be exactly the same each time. The person might think about the change again, but in different ways. He/she might decide to alter behaviour but not exactly in the same way as the first attempt, make a change, but

not exactly the same one first tried. Once a person reaches the action stage again, there might still be a return to the processes of the earlier stages. The person continues the new behaviour, or at least continues to move through his/her own "spiral-like" process. Generally, it can be said that people will continue to act in ways that make sense to them. They will respond to other influences, but long-term behaviour change will have occurred.

According to the model, programmes can contribute to behaviour change when the different components of the stages of change are put together in one framework. It must, thus, be noted that for hygiene behaviour change to be maintained or sustained, for example, the individual might have to go through some of the same stages more than once.

Behaviour change is different for every person, and does not occur in one step. People move through stages of change in their own ways and in their own time. The enabling environment influences people's process through the stages of change. People adapt and improve the enabling environment through individual and collective capacity development. The crucial goal for any programme, then, is to enhance people's capacity to modify their environment so that it enables movement through the various stages of change and also to ensure that they go through the stages more than once. This can only be achieved if projects incorporate follow up activities at the end of the project.

According to Parnell and Benton (1999), people will only use their existing capacities to respond to hygiene practices if they know about the hygiene behaviours being promoted, reflect on how they relate to their own lives, and

decide that they are important to them. They will then decide to take action to modify the environment, or to start moving through their own behaviour change spirals and then work together to build consensus when there are different options available to them.

Parnell and Benton (1999), thus, suggest the following four questions as ways of understanding how programmes can be used to facilitate sustainable behaviour change:

- How does change usually come about in the programme setting?
- What aspects of the existing environment are likely to enable or hinder change?
- What capacities do people already use to influence their environment?
- What is already being done through other hygiene education programmes?

Sustaining projects/hygiene behaviour change

Sustainability as defined by the BBC Dictionary is the ability for a project or a plan to be continued at the same level of activity or pace without harming its efficiency and the people affected by it. In the present context, the text of sustainability is whether the hygiene behaviour change achieved during the project period continues to improve over the years.

The conventional belief or view is that all development projects go through a cycle. Kamara (2003) for example, has reviewed a range of participatory development projects and has suggested the following distinctive

stages in the process: promotion/mobilization phase; first action; expansion and stabilization phases.

The promotion/mobilization stage is expected to be undertaken by the community with or without an external facilitator. It involves the mobilization of the members of the community to reflect on their situation, to formulate objectives and to set up a coordinating mechanism through the natural emergence of an appropriate local organization. At the first action stage the community or group, after reflection and/or sensitisation by a facilitator, mobilize themselves to initiate action on their own. Gaining confidence from their successful action, they prepare plans for project expansion and open contacts with outside organizations.

The third stage, which is the expansion stage, is where the community fosters external relationships for their project expansion. The expansion plans are jointly appraised, implemented and evaluated.

The final stage, which is most often eliminated by most projects but very important to ensure sustainability, is the stabilization stage. Here the outcome or assets created from the project implementation are put to use by the community. As a result the community establishes a base, gains autonomy and thereby sustains its livelihood processes.

The distinctive feature of this process is its bottom-up approach where the project is initiated or evolved in the community and priorities and objectives are set by its members with or without an external facilitator, and it is only after this that the community fosters a partnership for project expansion. The stabilization phase also deals with the use and/or operation of the assets generated from the

project implementation. Cusworth and Franks (1993), also, observed this limitation in conventional project management saying it only highlights the various stages related to planning and implementation but often fails to include the operational stage for which the project is initiated in the first place.

Hygiene education/promotion interventions also seem to go through the stages enumerated above. However, just as in most projects (as was the case of the CRRWSP), the stabilization stage is most often ignored. More inputs are made into the planning and implementation of projects and, thus, everything seems to go on smoothly and temporal results are achieved during this stage. However, the challenge comes when the project phases out.

Some of the reasons given for ineffective follow ups after projects are that most of the projects are not participatory and do not employ the bottom up approach where the project goes to address the identified needs of the people. Instead the projects assume to know what the needs of the people are and work from that angle.

Most projects undertaking hygiene intervention do not also use the existing institutional structures in carrying out similar programmes. For example, the Environmental Health Unit, now under the District Assemblies and the Public health unit of the Ghana Health Services, are known to be carrying out health/hygiene education in communities. They have been given the requisite training to undertake hygiene promotion in communities, thus, using them will be more advantageous since it will only need giving them refresher training to reinforce their capacity to carry out the specific assignment. They are also more

likely to stay on after the project since they are permanent staff of the district assemblies.

Instead, projects like the CRRWSP employ project staff that might not be familiar with the environment and the culture of the people. Due to the fact that the project staff or consultants are contracted for a brief period they move out of the community when their contracts end and no structure is left to ensure continuity or follow up to ensure the achieved behaviour change is maintained. Their contract is also time bound; hence, they do not make time to build the capacity of the existing structures like the WATSANs to take over in their absence.

An example can be cited of an evaluation which was done by researchers at the International Centre for Diarrhoea Research, Bangladesh on the sustainability of hygiene behaviour change following the implementation of the Sanitation and Family Education (SAFE) pilot project in rural Chittagong by CARE Bangladesh. The intervention focused on diarrhoea prevention by improving hygiene behaviours related to water and sanitation. Priority interventions of the SAFE Project were based on initial qualitative and quantitative studies which addressed a small number of key behaviours associated with diarrhoea transmission. For intervention dissemination, SAFE used the "multiple channel approach", which included children, tube well caretakers and community opinion leaders in a number of baseline surveys in May 1993. A final project survey was carried out in May 1994 (nine months into the implementation of the intervention) and a post project sustainability survey in May 1995.

The survey found that ash or soap was available for hand washing in the households: 3 per cent in the baseline, 96 per cent in the final, and 79 per cent in the sustainability survey. Similarly, households where no faeces were observed to be lying inside the latrine or the yard remained at high levels. For a few of the intervention indicators, the results showed a negative trend in the sustainability survey. For example, the statistics on children between the ages of 3 and 5 years having access to a hygienic latrine or place of convenience dropped.

The SAFE approach to hygiene behaviour change demonstrated sustainability of certain behaviours which led to lower diarrhoea prevalence one year after conclusion of the intervention. The approach can be adopted by other organizations working in hygiene education programmes. The success of the project could be attributed to the fact that few hygiene behaviours were targeted, and also the use of the "multiple channel approach" to disseminate information.

Evaluation of projects

Every hygiene education intervention being promoted is aimed at improving the health status of the beneficiaries. According to Boot (1991), health education programmes can be evaluated in terms of process, impact, and outcomes. A process evaluation assesses how well a health education programme is being implemented while impact evaluation focuses on the immediate impact of the health education programme, or part of it. It involves an assessment of the changes in knowledge, attitudes, beliefs, and especially behaviour that comes about as a result of the educational programme. At the level of outcome

evaluation, benefits of the health education programme are measured in terms of increased survival and reduced mortality and morbidity as in the Health Belief Model. An impact evaluation was carried out at the end of the CRRWSP and the overall conclusion was that hygiene behaviour had generally improved.

Conceptual framework

It is known that new technologies do not necessarily bring the kind of benefits that users look for and that merely promoting these benefits from the view point of outsiders does not make people change. Subsequently, it is demonstrated that besides individual processes, community action will lead to behaviour change and that, to be successful, these processes must begin at the stage where people see the need themselves.

Insights into why individuals change, or do not change their hygiene practices have also come from evaluations of completed water supply and sanitation projects. As depicted in the left-hand part of Figure 3, planners and implementers of water and sanitation projects originally had a very simplified idea about the relationship between these installations and people's health. They assumed that just designing and constructing better facilities would lead to improved health. When they found that after installations, many people did not use the new facilities, but continued to use their traditional water sources and practise open space defecation, the technologists called for health education, to teach people the health benefits of installed facilities and get them accepted and used.

However, when social researchers began to investigate why the people did not use the new facilities, they invariably found that from their own point of view, the people have very good reasons for their behaviours. It is not the users but the approach of the technical projects that had to be changed to make general acceptance and hygienic use possible. (Melchoir, 1989 and Boot, 1991)

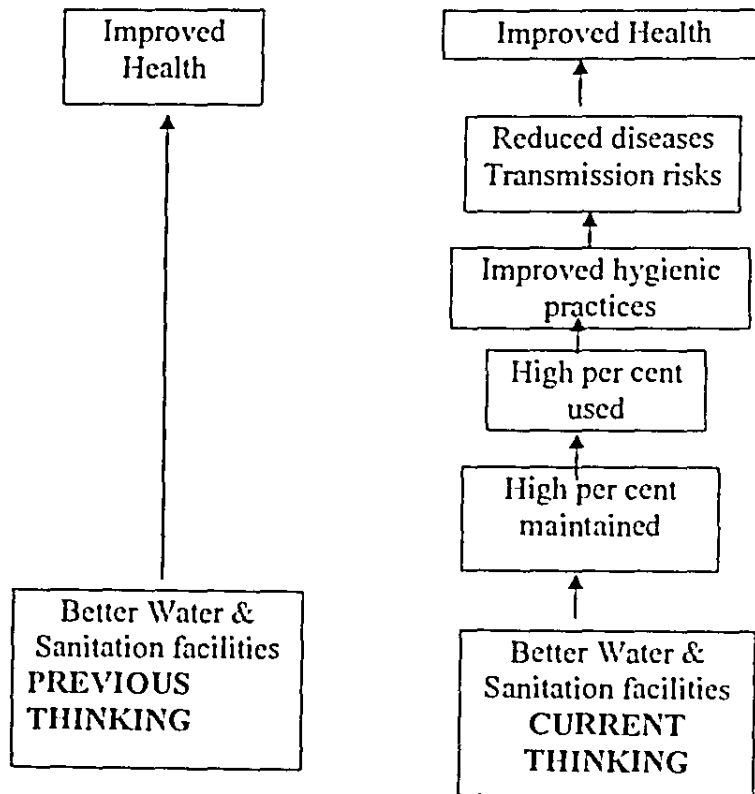


Figure 3: Trends in conceptual thinking on how water and sanitation projects contribute to improved hygiene and health

Source: Adopted from Melchoir (1989)

Studies on water and latrine use have also indicated that hygiene education cannot convince people to use facilities that do not function properly. What hygiene education programmes can do is support participatory projects that install

facilities which are used and maintained. This can be done by assessing if water, sanitation and hygiene have a high priority among the various groups in the community and create understanding of the implications of existing conditions, technical options and maintenance for community and family health. Also, before and after facilities are installed, there is the need for user education and follow up visits in order to provide feedback to planners as well as ensure that community members maximise the health benefit of the facility provided.

Authors like Baranowski (1992), Hubley (1993) and White (1981) look at the reasons why individuals change their health behaviour. They stress that new hygiene practices being promoted do not fall on empty ears. People who are exposed to hygiene education programmes already have their own knowledge, beliefs and values. These not only come from their own experiences, but also through social learning channels (i.e., from parents, friends and opinion leaders in the community). Often there are special networks for social learning and in many cultures women play an important role in these networks as protectors and conveyors of local knowledge (Roark, 1980). Hence, before adopting a new hygiene practice, people will ask themselves how the new practices fit into their ideas and affect their lives.

Hubley (1993) calls the process by which individuals change their health practices the BASNEF (Belief, Attitude, Subjective Norms and Enabling Factor) model (Figure 4). According to this model, an individual will take up new practices when he or she believes that the practices have net benefits, for health or other reasons, and considers these benefits as important. The person will then

develop a positive attitude to the change. Positive and negative views (subjective norms) from others in his or her environment will also influence the person's decision to try the new practice. Skills, time and means (Enabling Factors) then determine if the practice is indeed taken up, and when found to be beneficial, is continued.

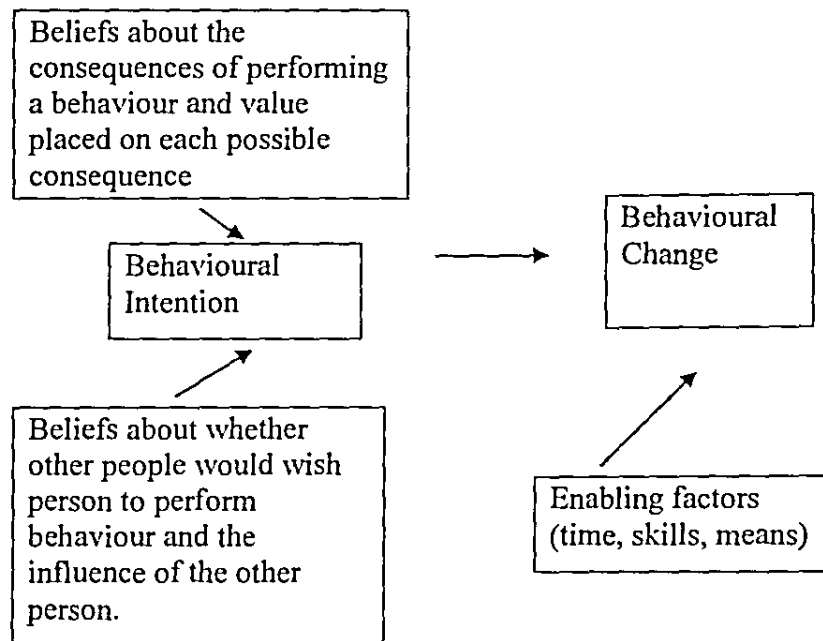


Figure 4: BASNEF model – How individuals change behaviour

Source: Hubley (1993)

The BASNEF model explains how individuals change their hygiene practices and start to use better technical facilities. To get an impact on health, such changes have to be adopted by a lot of people. For reduced diarrhoea diseases, for example, majority of the population should practise good sanitation and hygiene. Such behaviour change evidently requires much time and long-term efforts. Moreover, certain practices cannot be achieved by individual change

alone, but would require concerted action from larger groups and whole communities. A typical example is better sanitation practices in schools. Poor school sanitation is often a great risk to the health of the children. But using the toilets and keeping them clean requires more than the individual belief, willingness, time and means of the children themselves; getting good practices from children needs concerted efforts from not only children, but also teachers, directors, administrators and parents (WHO, 1994).

To reduce time requirements for large-scale behaviour change and to address changes that need co-operative action, Isely (1978) and White (1981) have advocated the community approach to hygiene behaviour change (Figure 5).

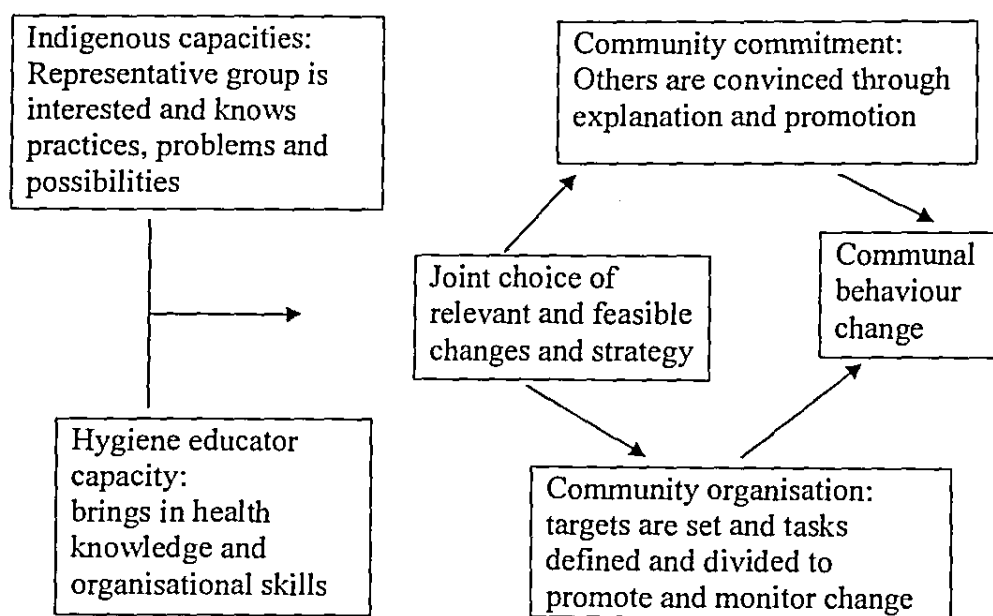


Figure 5: Community action model: How communities change hygiene behaviour

Source: White (1981)

The model combines local knowledge of community members about conditions, beliefs and resources with the more scientific knowledge of the hygiene educator. This combination according to the authors, results in a more complete insight for all concerned and leads to a better definition of changes and choice of strategies than when either party acts by itself.

Making joint choices, assigning responsibilities and monitoring action also increase the commitment of the members to achieve the agreed changes. The representativeness of the group for the various sections in the community ensures that the practices, views and capabilities of each section play a role when the programme of change is planned. It, also, facilitates getting commitment for the change from a wide cross-section in the community through explanation and promotion by the group's members, and ultimately a wider adoption of the change by the community (Figure 5).

For the present study, the Community Action Model is adopted as the conceptual framework because it represents a useful combination of what the educator knows with what the community members know and also believe in. With this model, community members/individuals feel part of whatever change is being initiated and so are committed to make it work. This should, however, be an on-going process and it should be noted that people will go through the process more than once and will be moving forward and backwards during the process that is to ensure that the behaviour change is maintained/sustained.

The basic premise of the model as demonstrated by empirical findings discussed above, is that where change agents introduce innovations (into a

community), which are tried, adopted and finally owned by members of that community then the chances for the sustainability of behavioural change would be greater than where both senders and receivers of the innovation diverge on important issues of perceptions, values and utility (Rogers, 1983).

It must however be noted that community based approaches rely on the strength of community spirit. While it is true that many developing countries, especially in more remote areas, traditional community organisations and loyalties are strong, many 'modernising' influences threaten this strength. Increase mobility, through infrastructure development; increased wealth, materialism, and individualism; all weaken the traditional structures and values which make community management of development projects possible.

Conclusion

Hygiene behaviour has been identified as all activities that go to improve the health status of the individual and also prevent the transmission of water and sanitation related diseases like diarrhoea, guinea worm, malaria, schistosomiasis, onchocerciasis, typhoid and cholera. These activities include safe disposal of waste, handwashing, keeping drinking water safe from contamination, and reducing fly breeding through the provision of household latrines.

Access alone typically brings little or no health impact. Access to water and sanitation must be accompanied by promotion of hygiene behaviour. Health benefits from water and sanitation programmes will not be fully realized unless

hygiene behaviour is promoted and achieved. This is due to the fact that it is the correct use of the hardware, which results in the greatest health impact.

Hygiene education has now been recognized as one of the most essential elements in water and sanitation programmes. Changing household hygiene behaviour has also been identified as one of the most effective means not only to prevent many of the infectious diseases but also to create a real demand for sanitation services, which will in turn lead to improved health.

When delivering the hygiene messages, a mixture of different approaches has been identified to be the best because even though the didactic mode, for example, has been criticized by many, it is known to be the best in the transfer of knowledge or facts to individuals or large groups. The mass media such as posters and radio messages can also be used to convey simple facts to large audiences, but are usually not successful in changing behaviour. However, when messages are practical and concrete and conveyed in an entertainment manner, they can be used to start off discussions among family, peers and friends, and could even lead to behaviour change.

Behaviour change has been identified as a process that takes place over time. It is never unidirectional, neither is it a single event. People go through stages before final behavioural changes take place, and many things happen in the interim or even towards the tail end of the process. But once a new behaviour has been adopted, practice is required for the behaviour to be consistently maintained. Maintenance occurs when the behaviour has been incorporated into the rest of the person's life. It becomes just one of a whole range of behaviours the person

undertakes. Once behaviour is familiar, and occurs without requiring active thinking, it can be said that the behaviour has been maintained. Maintaining behaviour means a person might have to go through some of the same stages more than once. One of the means by which behaviour can be maintained is by continuous hygiene education and sensitisation.

Hygiene education should also not target too many messages since they tend not to make much impact and the objective set should be measurable. The identification of a set of key hygiene behaviours would help water and sanitation hygiene education programmes to choose how to intervene and will enable them to focus staff training and develop materials and appropriate technologies in order to support the most relevant behaviours.

Finally, there is the need for projects to incorporate, or place more emphasis on, a stabilisation phase into their programmes to ensure sustainability of projects. Here, whatever knowledge and skills acquired are put to use by the community/individual. As a result the community/individual establishes a base, gains autonomy and thereby sustains the change in hygiene behaviour. These occurrences are what have been established by empirical evidence from other cultures. Whether or not the ideas operate in the same way (or differently) in the setting of a Ghanaian rural community is another matter and the reason for the investigation that follows.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter deals with the specific methodological procedure that was adopted for the collection, processing and the analysis of data and covers six subsections. The subsections cover the study area; sampling procedure, methods of data collection and tools; the plot study; the main study; data processing and analysis.

Study area

The Central Region is located in the southern part of the country, along the coast with a population of 1,580,047 and population density of 161 inhabitants per square kilometre (Ghana, 2000). The region has a population growth rate of 2%. It is, also, said to be the fourth among the four poorest regions in the country, including the three Northern regions (GPRS, 2002). The Ghana Poverty Reduction Strategy (GPRS) defines poverty as unacceptable physiological and social deprivation. One of the indicators of poverty, according to the GPRS, is Households with access to safe water (Urban & Rural). Meanwhile the coverage of water in the region according to Strategic Investment Plan (SIP) data for 2002 indicates that rural water coverage is 43.5% which is quite low (SIP, 2002).

The main economic activities in the region are farming, especially in the hinterland and fishing along the coast. The main food crops cultivated in the region include cassava, maize, plantain and yam. The region also has cash crops such as cocoa, oil palm, coconut and citrus as well as vegetables such as tomatoes, pepper, garden eggs, onions and sweet potatoes. The inhabitants in the Central Region mainly engage in petty trading, fish mongering and food selling.

Examination of the demographic characteristics of household heads in the Central Region reveals a slightly different pattern from the national norm. More than one-half of all household heads in the region are females compared with about 38 per cent nationally. Additionally, 73% of the female household heads never attended school.

In spite of the large number of educational institutions in the region, the adult literacy rate is slightly lower than the national average. The national literacy rate stands at 49.5% while that of the Central Region is 47.2% with significant gender disparities (literacy rate for males is 67 per cent and 32 per cent for females). The distribution of individual's economic activities by socio-economic group mirrors that of the national level. Approximately 59 per cent of all individuals surveyed during the 2000 census were employed, and nearly 80 per cent are self-employed agricultural workers. About two-thirds of the agriculture sector employees are unpaid workers (Ghana Statistical Service, 2000).

Komenda Edina Eguafo Abrem (KEEA) district

The Komenda –Edina-Eguafo-Abrem (KEEA) District (the study location) has a total land area of 1,372.45 square kilometres. It is bordered to the East by the Cape Coast Municipality, the West by Mpohor-Wassa East District in the Western Region and to the North by the Twifo-Hemang-Lower Denkyira District. It is one of the new districts created in Ghana in 1988 after being carved out of the old Cape Coast Municipal Council. KEEA consists of four paramount or traditional areas: Komenda (Akatekyi), Elmina (Edina), Eguafo and Abrem. Elmina is the district capital.

The population was estimated at 87,540 in 1995 and had increased to 111,985 in 2000. The district's annual population growth rate is said to be 1.23%, which is lower than the regional and national growth rate. The population is youthful in character, with a substantial segment under the age of 15 years. The male-female ratio of the district is about 100 males to 109 females. The district has three major towns. These are Elmina with a population of 22,098, Komenda 10,729 and Abrem Agona 4,983 (Ghana Statistical Service, 2000). Two other settlements, Kissi and Dominase are peri-urban towns with populations of 5,098 and 3,244 respectively. These five urban and semi-urban centres constitute about 43 % of the district's population. The main indigenous ethnic group, the Fantes, constitute about 90% of the population.

Inhabitants in the district engage in farming and agro processing, fish processing, tourism, real estate development, mining and salt production. The district is known to produce about fifteen per cent (15%) of the total fish output in

the country and these include herrings, shrimps, mackerels, tuna, barracuda and lobsters, among others. As a result of this, most of its youth and children are found engaged in fishing instead of being in school, hence, the low literacy rate in the district. For example, the district was reported to have recorded the worse result of the 2000 Basic Education Certificate Examination (BECE) in the region with some schools having none of their candidates passing (Komenda Edina Eguafu Abrem District Assembly, 2002). There is, thus, an Education Endowment Fund set up by the District Assembly to help boost education level in the district. The low literacy rate could be contributing to the poor hygienic conditions found especially along the coast where open defecation is the order of the day.

Sampling procedure

This study adopted a random sampling approach involving various sampling techniques. First of all a list of the 18 communities that benefited from the Rural Water Supply and Sanitation Project in the district was obtained from the CWSA office as the sampling frame. The 18 communities were involved in the final evaluation by the animation team at the end of the project. After this, eight communities were randomly selected by putting the folded names of the 18 communities in a basket and picking eight at random. The eight communities that were selected were: Simiw, Abeyee, Dominase, Mpehin, Anweem Kissi, Nyinaase, Anweem Kumasi and Krofofor. Twenty households each were

randomly selected from the eight communities making a total of 160 respondents for the interviews.

The selection of the households from the selected communities was done by dividing the communities into sections or using already existing sections out of which 20 were randomly selected for interviews. Out of the 20 respondents in each community, five were also observed for their hygiene practices. The five respondents that were selected for the observation were randomly selected.

Focus Group Discussions (FGDs) were also held for the WATSANs who had an average number of 6 people per WATSAN to obtain more information on their activities after the project ended.

The study also covered sanitation facilities provided by the project, which was made up of two institutional latrines for a cluster of schools at Komenda and Ntranoa. Twenty pupils were selected randomly from each school and interviewed. Respondents were from the Upper Primary and Junior Secondary School (JSS). An observation was also made of the school environment. In all a total of 240 respondents were selected for the survey. Details are in Table 4. The data collection started with a pilot study in August and ended in December 2002.

Methods of data collection

The techniques of data gathering included analysing secondary data, observations, the administering of interviews schedules and focus group discussions for the structures set up to carry out hygiene education in the various communities.

Table 4: Category of respondents

Category	No. of respondents		Total
	Male	Female	
Communities (HH interviews & FGD)	33	127	160
WATSANs (FGD) – 8 groups	22	18	40
Schools (pupils)	20	20	40
Total	75	165	240

Source: Field Survey, 2002

According to Boot and Caincross (1993:50) as cited by Kendie (2002), “many hygiene behaviours involve ingrained routines which people are hardly aware of, so that observation often reveals much more and more specific information than other methods”. Direct observation means that we can put the understudied behaviour into context and, therefore, understand it better (Kendie 2002).

The observational method was used with indicators to help verify actual practices such as handwashing with soap, pumpsite cleanliness and use of latrine as against free ranging. This is because most people will admit for example, washing hands after defecating but not with soap. Thus, the presence of soap in the house for example, may not automatically suggest that it is used for handwashing. There will be the need to observe so as to ascertain whether it will be used for that purpose. As a result early visits were made to the homes of five out of the twenty respondents in each of the sampled communities to observe some hygiene practices to compare with the responses from the interviews.

As part of the household survey/observation physical clues of good hygiene practices such as washing of the hands with soap after defecating, use of household toilets, covered water, clean environment and the use of different cups for drinking and fetching water were taken. This was to minimize the level at which interviewees would feign good behaviour to impress the interviewer. Some of the indicators used to assess the state of the pump sites and environment were as follows:

Pools of water around pumpsite, surroundings clear of weeds, surroundings free of animal faeces, signs of open defaecation, trough filled with weeds, pumpsite free of algae, washing around pumpsite, clean container to fetch water, covering water with leaves/rubber, fetching water from other sources, covering of drinking water and having a cup for fetching from drinking container. All positive hygiene behaviours attracted a positive mark while negative practices/behaviours attracted a negative mark. They were then summed up and the average sought. This helped to assess whether behaviour change was sustained after the project ended.

According to Kendie (2002), not all clues can be obtained from direct observation. Issues to do with people's perception of the way they behave, their knowledge about the relationship between sanitation and the incidence of disease, traditional beliefs, socio-cultural and economic status and how these affect behaviour change were obtained through structured interviews or questionnaire method. Questionnaires were used to collect the background information of respondents. A pre-coded questionnaire was developed for the purpose. Mothers

of the household were the first choice as primary respondents since they are the most appropriate persons to answer the questions relating to hygiene and the health of the family as well as other community members.

Focus Group Discussions involving the WATSAN committees were held to get the views of these groups on some of the cultural practices and beliefs associated with diseases. There was also discussion on how far hygiene behaviour change has been sustained and also to find out whether hygiene education was on-going. The WATSAN committee in all the eight communities did not have all the members up to the approved number which was seven. Some had either resigned and been replaced without training or were not replaced at all, others had travelled to seek greener pastures in the city while others were not active. In all the communities about two WATSAN members were absent.

Sub-topics covered under the various instruments for data gathering included: demographic characteristics of household, use of water by households, personal hygiene at home, sanitation facilities at home and school, waste water disposal, refuse disposal, hygiene and disease, gender relations, knowledge and level of acceptance of hygiene education messages, effectiveness of current hygiene education methods, and socio-cultural factors and sustainability of hygiene behaviour change.

The services of four field assistants were obtained for the data gathering exercise. These were graduates from the University of Cape Coast and who could speak the local dialect.

The pilot study

There was a need for a pilot study to ascertain whether the instruments developed would give the expected results and also whether the questions posed were easy for respondents to understand. The opportunity was also taken to train the field assistants. The pilot study also helped the researcher to make an estimation of the cost and duration of the main study and to get used to the research environment. Respondents for the pilot study were not included in the main study. The pilot study was carried out in the Aboransa community in KEEA which although had a facility from the project was not part of the selected communities.

The main study

It took the researcher six weeks to complete the fieldwork. First of all, the field assistants were taken through orientation based on issues identified during the pilot study. The respondents were given a brief on the background and objectives of the study before they were interviewed.

Two different interview schedules were developed. One was administered for households and the other for pupils in the institutions that benefited from the sanitation programme. A guide was developed to observe and record hygiene practices in the households; a Focus Group Discussion guide was also produced for special informants like the WATSANs.

Data processing and analysis

Data collected from the field were edited, recoded and fed into the computer. The SPSS software package was used to analyse the data. Commutative and frequency distribution tables and percentages were derived for data descriptions.

Comparison of percentages between results of evaluation done after the CRRWSP and the findings of the study was also made to ascertain whether hygiene behaviour change had been sustained after the project.

Conclusion

The chapter dealt with the methodology of the study, which includes the area of the study, sampling procedures, methods of data collection, the instruments used, and the techniques for analysis of the data. In all, the data gathering exercise went on smoothly although not all of the WATSAN members, for example, were present for the FGD. Some had gone to their farms, others had migrated to the city to seek greener pastures and while some others had either resigned from the committee or were not active.

CHAPTER FOUR
THE CENTRAL REGION COMMUNITY WATER AND SANITATION
PROGRAMME (CRCWSP)

Genesis, aims, objectives and strategies of the National Community Water and Sanitation Programme (NCWSP)

The United Nations General Assembly declared the Decade 1981 – 1990 as the International Drinking Water and Sanitation Decade. The focus was to ensure that by the end of the Decade, nations would have given priority attention to the delivery of water and sanitation facilities to their populations. The Ghana government being concerned about the well-being of citizens took a cue from the activities during the decade and reviewed its policies on water and sanitation provision to keep pace with the changing conditions in the country and on the international scene.

In 1987, a donors' conference on water and sanitation was held at the Ambassador Hotel in Accra, at which pledges were invited from donors. In February 1991, about 60 participants from sector institutions and External Support Agencies met at Krokrobite for a workshop to prepare the grounds for a Rural Water and Sanitation Sector Strategy.

After four years of consultations, a National Community Water and Sanitation Programme (NCWSP) was launched in 1994, in line with the

Government's decentralization policy. The policy thrust of the national programme is the sustainability of water and sanitation facilities. Sustainability is to be ensured through the adoption of the concept of Community Ownership and Management (COM). As a result of the fact that the NCWSP was to be rooted in the decentralisation programme of government, the CRRWSP had to also change its focus to be in line with the national strategy. The transition was not very easy though, especially with regard to working closely with the District Assemblies since the project had already instituted its implementation plan. Thus, for example, it was only at the end of the project that the District Water and Sanitation Teams (DWSTs) who were to see to the monitoring and follow up visits of the water facilities and WATSANs were formed.

The objectives of the national programme were to:

- provide basic, safe water and improved sanitation services to communities that would contribute towards capital cost and pay normal operations, maintenance and repair costs of their facilities;
- ensure sustainability of the facilities through community ownership and management (COM) and other strategies;
- maximize health benefits by integrating water, sanitation and hygiene education interventions (CWSA, 2002).

For the attainment of these objectives, the following key strategies were adopted:

- Demand Responsiveness Approach (DRA) by which communities decide to participate in the programme and then select their preferred service

level based on ability to pay an agreed initial capital cost and all of operation and maintenance cost;

- Decentralized planning, implementation and management of services by beneficiary communities and their District Assemblies;
- Private sector provision of goods, works and services;
- Public Sector (i.e. CWSA and District Assemblies) facilitation of the process;
- Design of intensive community development and training programmes;
- Active and full participation of women in decision-making at key levels in programme implementation;
- Adoption of basic technology and service level options for the delivery of water and sanitation facilities;
- Sustainable supply chain of goods and services, especially spare parts at affordable prices to users (CWSA, 2002).

Comparison between the National Community Water and Sanitation Programme (NCWSP) and Central Region Rural Water Supply Project (CRRWSP).

As mentioned earlier, the CRRWSP was designed in 1989, before the implementation of the National Water and Sanitation Policy in 1994 with its main concern being to provide easy, cheap and sustainable potable water to rural communities that will accept to take charge of all the operation and maintenance cost of their facility.

What these programmes had in common were:

- the use of an important information and training programme to let the communities understand their obligations towards the facility provided;
- the choice left to the communities to either accept or refuse the facility;
- a strong involvement of the private sector in the maintenance system to ensure its sustainability.

The differences were that:

- the sensitisation of the communities towards the ownership of the facilities in the CRRWSP was basically through recurrent meetings at the community level and not through contribution towards capital cost as in the case of the NCWSP. Beneficiary communities under the CRRWSP were made to pay only towards the normal operations, maintenance and repair costs of facilities;
- the CRRWSP was designed to supply potable water to the communities through boreholes fitted with handpumps. The communities did not have the choice of selecting from a list of facilities but had the option to decline if they were not prepared to pay the recurrent costs. The choice of one type of pump (that is, the Vergnet foot pump) for all communities was a deliberate action so as to make the decentralised maintenance system easy.
- the District Assemblies were not key actors in the designing and implementation of the project as is in the case of the NCWSP. The DAs were only informed of the activities being undertaken in communities

within their districts so they could follow up on progress of project as and when they felt was expedient which, they scarcely did;

- the requirements and demands of each community were assessed through an in-depth survey at the community level. This ensured efficiency and prompt response of the project to meet the expectations of the beneficiaries.

To the consultants implementing the project (Burgeap Consulting Engineers) their non-involvement of the District Assembly was an advantage because they “avoided extra cost into investments like material and human resources at the District Administration level to monitor the project”. The researcher is, however, of a different opinion because she believes the savings which were made were not commensurate with the damage caused as a result of the non-involvement of the District Assembly as this study will prove later (RWSP, 1998).

Apart from the provision of potable water the CRRWSP also undertook a sanitation programme at the latter part of its third phase. The sanitation facilities promoted included KVIPs, VIPs and Mozambique latrines. The conditions were that beneficiaries should pay 50% of the cost of construction while the project also would bear 50%. Though the sanitation programme was aimed at benefiting the poor and vulnerable in society many of them could not benefit from it due to its cost-sharing nature. Thus, majority of the beneficiaries were in peri-urban areas that could afford to bear the cost involved.

Community participation programme

The community participation programme of the CRRWSP dealt mainly with the animation, sensitisation and capacity building of institutions. This formed an integral part of the project due to the fact that it was to build into the community members a sense of ownership and ensure their active participation in the programme. It was, also, to enable them operate and maintain the facilities after it had been handed over to them.

Pump maintenance and animation

The Rural Water Department of GWSC (now CWSA) had been mainly involved in operation and maintenance (O&M) of handpumps through its maintenance units. These units were equipped with cars, trucks and motorbikes to undertake regular inspection, maintenance and repairs. The units were set after the completion of the 3000 Wells Programme, financed by KFW between 1987 and 1989.

Community members were made to pay monthly tariffs of up to 500 cedis per household. The tariff system, however, posed many problems and this affected the sustainability of the facilities. For example, communities were not sensitised on the project, neither did they participate in the KFW project so did not understand their roles and responsibilities with regard to the operation and maintenance of the water facilities. Thus, most were fetching water freely till an accumulated bill/tariff was sent to them to pay. Most could not pay tariffs, the

maintenance unit refused to continue with the repair and this led to many non-functioning boreholes (RWSP, 1994).

Principles of the animation process

The purpose of animating communities prior to the drilling of boreholes was to ensure real involvement and commitment on the part of community members who are to benefit from the CRRWSP. Communities which do not express interest towards the proposed boreholes in the course of animation are not included in the project, because it was demand driven.

Feasibility studies were initially done to assess the socio-economic status of the communities so as to identify what mechanism to adopt to ensure proper operation and maintenance of the facilities provided and also to identify who the beneficiaries are. Only those demanding the pump and accepting to contribute towards the future maintenance were to be considered for the Project.

Communities did not contribute towards the capital cost like other projects being sponsored by the World Bank. Their financial participation was only towards the operation and maintenance of the pump. The social participation of the community was done through the attendance of meetings and the nomination of a Water Point Committee (WPC) which was to operate and manage the facility (RWSP, 1994).

Phases of the animation process

The animation process of the CRRWSP went through three phases namely the Mobilization phase, Planning and design phase and the Construction phase. The community participation activities that were carried out under these phases were as follows:

Mobilization phase

This phase begins with district information meeting. Here, the project is introduced to the concerned village authorities by the district assemblies. A presentation of works that would be carried out by the Project is made so as to sensitise interested communities to apply to benefit from the project. The discussions centred on what the project was about and the part to be played by beneficiary communities.

There is then the village familiarization meeting where the communities were introduced to the project, the works to be carried out, their advantages and constraints and the conditions to be fulfilled. The objective of the meeting was to give the community all the necessary information for the community to decide whether they accepted or rejected the proposed water point(s), whether they were ready to contribute 70,000 cedis towards the operation and maintenance of the pump and also willing to care for the future maintenance of the facility.

Though time was taken to discuss water borne diseases and the possible ways to eradicate them, it was not the main emphasis. No special programme was

laid done to follow up on hygiene activities and to ensure that behaviour change is sustained.

There were also decision and information meeting where communities made their final decision either to be part of the project or not and also nominate and elect their WPC. The aim is to guide them in constituting their water committee as well as help them identify the private sector that will be assisting in providing goods and services e.g. pump repair men, spare parts dealers, site selection and drilling etc.

Planning and design phase

A meeting is organised to verify the elected WPC members for their representativeness and how much money had been realized as community contribution towards the project. The Committees meet regularly to check monies collected so far and prepare the committee for the training session.

Construction phase

The WATSAN or Water Point Committees were given 3 days training session in accountancy, management of the facilities and hygiene education.

Hygiene education under the Central Region Rural Water and Sanitation Project (CRRWSP)

Hygiene education also formed part of the interventions of the CRRWSP with the aim of ensuring that the health benefits of the project are maximised to

its fullest by incorporating hygiene education to the implementation of the project. The hygiene education took the form of interactive sessions by animators with community members. Most of the activities carried out were in the form of group discussions, role-plays and the use of posters for demonstration. At the latter part of the project the Jar Test was added whereby some amount of their traditional sources were fetched and alum added to it to distinguish the dirt in the water. It was a practical way of demonstrating how unclean their traditional sources were. This made quite an impact on the way they viewed their traditional sources as clean.

Personnel for animation/hygiene education

The sensitisation/animation exercises were made possible through extension personnel or animators made up of sociologists, community development and environmental health officers headed by Socio-economists who had been employed by the project. The animators supervised the formation of Water Point Committees now known as Water and Sanitation Committees (WATSANs) who were responsible for the operation and maintenance of the facilities as well as hygiene education. At the district level no structures were put into place to ensure the promotion of hygiene while at the community level only the WATSANs were trained to carry out hygiene promotion.

The structure of the Water Point Committees (WPCs)

The WPCs/WATSANs were a five-member committee made up of a chairman, secretary, treasurer, a woman in charge of cleanliness, and a pump caretaker. These were elected by the community members and were supposed to be permanent residents of the community.

The role of the committee

They were solely in charge of everything concerning the pump and its surroundings. They were to manage the use of the pump and its maintenance by:

- seeing to the sale of the water to generate income for maintenance and repair works on the pump;
- depositing money collected from the sale of the water regularly in the bank. There were supposed to be two signatories to the bank for any withdrawals;
- informing the repairman about any repair works to be done when necessary;
- organizing the buying of spare parts needed for repairs;
- paying repairman;
- rendering regular accounts to community members on what the money raised from the sales of the water is being used for;
- ensuring that the water point always remains clean, and educate community members on the advantages of potable water;
- meeting regularly to discuss issues concerning the water point;

pans, calabashes, and cans used for the transport of water, as well as other utensils that may get in contact with water and also to cover them and avoid the use of leaves and rubbers when transporting the water. She was also to advise against washing close to the pump site and pay regular visits to mothers to educate them on hygiene especially on keeping water safe.

Though the WPC/WATSAN committees were to assist the woman in charge of hygiene education to promote hygiene, it became more of a responsibility for the woman than the entire committee.

There was also the pump caretaker who was responsible for the everyday-care of the pump. He/she was however not allowed to work on the underground part of the pump. He/she is equipped with the necessary tools for the repairs and maintenance of the upper part and also assists the pump repairman when necessary.

Hygiene education messages

As already mentioned the focus of the hygiene education messages was on using clean/potable water; keeping drinking water free from contamination in the home and at the pump site, and personal and environmental hygiene. The highlights of the messages were as follows:

1. **The Necessity of Clean Water.** There is the notion that every water is clean and potable so this was to create awareness on what constitutes clean water. Community members were asked the diseases gotten from drinking dirty water, the effects of the diseases in their lives, benefits derived from using potable water,

how they could keep the potable water free from contamination from the fetching point, during transportation, storage and usage.

2. Water and Health. This topic aimed at avoiding contamination of borehole water from the source to the point of being used and also on the need of using only borehole water. This was very necessary because having the facility did not necessarily mean its proper usage. They were, therefore, taken through how to keep water safe for drinking as well as the need to drink only the borehole water.

3. Sanitation. Here principal problems with regard to sanitation were discussed especially on the need to own a household latrine. They also went through preventive measures to take to avert the cycle of water and sanitation related diseases.

Impact assessment of the Central Region Rural Water supply Project (CRRWSP)

An impact evaluation was carried out just before the project ended in 406 pump communities. The results indicated that: Three hundred and fifty one pumps representing (86.5%) of the pumps visited were functioning as was expected. They had good output and were in good condition. Thirty-five (8.6%) were functioning poorly; 20 (4.9%) had broken down (many "broken down" pumps had actually been abandoned for quality, quantity or other reasons); 310 (76.4%) pumps had clean concrete platforms while 96 (23.6%) had dirty concrete platforms. The results of the survey pointed to the fact that the overall performance of the WPCs was satisfactory (RWSP, 1998).

Conclusion

The CRRWSP, which started before the institution of the NCWSP though had a different approach with different structures, had some similarities. Some of the similarities were its emphasis on sustainability of the facilities by instituting means of raising funds for the operation and maintenance of the facilities as well as promoting community ownership and management by establishing Water Point Committees at the community level to manage the facilities.

The differences were in their mode of animating community members and conducting hygiene education by the use of consultants or project staffs. The major setback was with the fact that these project staffs were temporary so there was no continuity of hygiene education for example and monitoring of the work of the WATSANs when the project ended. Though WATSANs were established to conduct hygiene promotion they stopped when the animators' contract ended and there was no one to follow up.

Also, the less involvement of the District Assemblies in the implementation of the project made it difficult for the assemblies to follow up on the facilities and structures that were put in place since they were not even aware of the facilities in their districts and where they were located. As a result a study conducted for the CRCWSA during the latter part of 2003 indicated that 40% of its water facilities as well as the WATSANs were not functioning.

This is an indication that the use of consultants or project staff to implement projects though ensures quicker results do not bring about sustainability and a successful project in the long run. Also, not involving DAs in

the implementation of projects does not help the DA to be at the driver's seat to ensure the sustainability of the project.

It is, therefore, very important to be involving the existing structures like the EHAs, CHNs, Community Based groups etc in community animation and hygiene education so as to ensure that continued follow up is made even after the end of the projects. Also, involvement of the DAs makes them take up full responsibility of the project and so ensure its sustainability even after the project.

CHAPTER FIVE

PROFILE/BACKGROUND INFORMATION ON RESPONDENTS

Introduction

This chapter deals with the background and hygiene behaviours of respondents. Issues discussed include their sex, marital status, occupation and family size. It is assumed that these variables have implications for hygiene behaviour.

Social background of respondents

Esrey et al. (1991) have shown that improved hygiene practices only have an impact on public health when they can and are being adopted and sustained by the major part of the users. Hence, both community managed hygiene programmes and public health communication programmes will have to promote those facilities and practices that solve the felt problems and are within the means of all socio-economic groups. The study, therefore, considered the socio-economic backgrounds of respondents in order to ascertain whether they have effect on improving hygiene behaviour.

According to Roark (1980), women are mostly the controllers and purveyors in local learning systems regarding water, health and sanitation (Roark, 1980). Also, Amsyari and Katamsi (1978) investigating the health knowledge of

female traditional midwives in Java showed that they had better knowledge of food hygiene, sanitation and insect and rodent control than male heads of households. As a result of this women were the main respondents because it was expected that they would be in a better position to observe any hygiene behaviour in the homes. Thus, during the survey 127 (79.4%) of respondents were females (Table 5).

Table 5: Sex of respondents

Sex	Frequency	Percentage
Male	33	20.6
Female	127	79.4
Total	160	100.0

Source: Field Survey, 2002

Eighty-four (52.5%) of respondents had household sizes of between 6 and 15. The large family size could be due to the fact that farming is the main source of livelihood for the area under study and so a large family serves as a source of labour for the family. Meanwhile having a large family size has its implications since it will mean a lot of work for the mother or care giver in catering for the upkeep of the family, which is likely to affect their hygiene practices.

Table 6: Number of people in household

No. of people	Frequency	Percentage
No response	5	3.1
1- 5	67	41.9
6 –10	72	45.0
11 – 15	12	7.5
16 – 20	3	1.9
21+	1	0.6
Total	160	100.0

Source: Field Survey, 2002

The majority of respondents (76.3%) were farmers with 23% engaged in petty trading and 15% in hairdressing. They mainly engage in subsistent farming and on a small scale so do not earn enough income to cater for the family.

Table 7: Occupation of respondents

Occupation	Frequency	Percentage
Farming	122	76.3
Petty Trading	23	14.4
Hairdresser	15	9.4
Total	160	100.0

Source: Field Survey, 2002

Eighty-six (53.8%) of the respondents had no formal education while 41% had some level of basic education, a confirmation of the low literacy rate in the region and especially the district (Table 8).

Table 8: Educational level of respondents

Education	Frequency	Percentage
No formal education	86	53.8
Some basic education	39	24.4
Primary/JSS	27	16.9
Secondary sch.	6	3.8
Completed university/higher	2	1.3
Total	160	100.0

Source: Field Survey, 2002

Hygiene behaviour of respondents

According to Burgers et al (1988) hygiene education includes all activities aimed at changing attitudes and behaviours in order to break the chain of disease transmission associated with inadequate sanitation. The hygiene behaviours of respondents therefore centred on their sources of drinking water, its transportation, storage and usage; pump site cleanliness; sanitation facilities at home; waste water and refuse disposal, personal and food hygiene.

Sources and use of water

Though all communities selected for the study had boreholes or mechanised boreholes which had been connected to pipes, the study revealed that a total of 142 were patronizing the borehole and mechanized schemes while 18 were still drinking from hand dug wells, ponds/dams and streams/rivers (Table 9).

Table 9: Source of drinking water

Source of drinking water	Frequency	Percentage
Bore-holes	125	57.1
Hand-dug well	22	10.0
Pond or Dam	3	1.4
Stream or River	40	18.3
Pipe	29	13.2
Total	219	100.0

Source: Field Survey, 2002

This question required a multiple response. Though the majority 152 (70.3%) of the respondents said they patronised safe water (borehole and pipe borne water) 65 (29.7%) also fetched from the traditional sources. During the FGD some of the reasons given for patronising traditional sources were: “due to the taste or colour of the borehole water” and “the rivers and streams represent the gods of the land.” For example, a woman explained that: “I have been fetching the borehole water sometimes but I believe we do not have to stop fetching from the stream all together else if the pump should break down and we go back to the stream the gods will be angry with us. After all they are the ones we depended on till this time”.

Observations made on where people fetch water as reported by the various communities also indicated that apart from the Dominase community, where none of them was seen fetching from other sources the other communities still patronised the traditional sources e.g. hand dug well, stream or river. According

to the WATSAN committee in Dominase, community members normally resorted to tanker services when there was no water because there were no traditional sources like rivers or stream there.

However though the Dominase community was not fetching from other sources table 23 indicates that 12 of the respondents from Dominase had had diarrhoea while 7 had malaria within the past month. Having access to potable water does not necessarily mean the water will be safe even at the time of consumption. As indicated by EHP (2000), access alone typically brings little or no health benefits. The entire environment was also littered with refuse, faeces and flies, which could also be a source of infection.

Distance from homes to fetching points

The distance for fetching water according to the policy of the CRRWSP was to be a maximum of 100m. This was to ensure that women do not travel too far to fetch water in order to save time for other activities and also to encourage people to fetch from the borehole. As shown in table 10, 107 (66.9%) of the respondents had their water sources being 1 to 3 poles away from their house which is between 50m to 100m. Hence, distance could not be a reason for people not patronising the boreholes provided.

Table 10: Distance of home from water source

Distance	Frequency	Percentage
No response	2	1.3
1 to 3 poles away	107	66.9
4 to 6 poles away	37	23.1
7 to 10 poles away	11	6.9
More than 10 poles away	3	1.9
Total	160	100.0

Source: Field data 2002

Each borehole is made to serve a maximum population of 300 people. However, although 107 (66.9%) respondents had easy access to their boreholes Eighty-seven (54%) of them said they had between 10 and 20 people queuing during the peak hours of the day when they fetch water (i.e 6.00am to 9.00am and 4.00pm to 6.00pm). This could encourage people to fetch from the streams and rivers instead of the borehole to avoid wasting time at the borehole (Table 11).

It was a policy of the project that all beneficiary communities sell their water in order to raise funds for its operation and maintenance and the method that was adopted by the project was pay-as-you fetch. One hundred and nine (68.1%) of the respondents said they were contributing towards operation and maintenance while 51 (31.9%) were not (Table 12). The study showed that some communities had adopted other methods of raising funds, which seemed more reliable and convenient for them

Table 11: People queuing at water source during peak hours

People queuing	*Peak Hrs		Total	Percentage
	Male	Female		
No response	2	6	8	5.0
0 to 4 people	6	35	41	25.6
5 to 9 people	5	18	23	14.4
10 to 14 people	7	28	35	21.9
More than 15 people	13	39	52	32.5
No queuing	0	1	1	.6
Total	33	127	160	100.0

*Peak Hrs (from 6am to 9am & 4pm to 6pm)

Source: Field Survey, 2002

For example, though 39.4% of respondents said they still followed the pay-as-you-fetch method, 27.5% paid fixed monthly levies while 1.3% was given meters and paid monthly bills as indicated in Table 12.

Responses from the Focus Group Discussions indicated that the situation on the ground was different. The WATSANs confirmed the fact that it was a policy that they were to sell the water before the borehole was handed over to them but 7 of the communities, except Dominase, were not selling their water. They attributed this to the fact that the WATSANs were not rendering accounts and as such there was no transparency with regard to what their monies were being used for. Others felt it was better to pay on monthly basis or as and when the need arose to have the pump repaired.

Table 12: Method of payment for water

Method of payment	Frequency	Percentage
Fixed monthly levy per household	44	27.5
Metered charge per month	2	1.3
Pay-as-you-fetch	63	39.4
N/A	51	31.9
Total	160	100.0

Source: Field Survey, 2002

On the other hand some of the WATSANs interviewed attributed the reason for the unwillingness to pay to the fact that some community members were complaining about the taste and colour of the water as well as their inability to pay and, hence, chose to patronise the rivers and streams.

For those using the “pay as you fetch” method, 35% said it was difficult finding money to pay for the water while 65% said it was not difficult. The reasons given were that it was too expensive, they could have fetched free from the stream and, also, that it was a gift from the whites and, therefore, did not see the need to pay.

This result was interesting since the main method of raising money for operation and maintenance as adopted by the project was the “pay as you fetch” method and rated high as the main method during the evaluation after the project as compared to 39.4% in the present survey. This is an indication that community members had adopted what seemed convenient for them over the years.

Personal hygiene

Though personal hygiene covers many areas including bathing, brushing of teeth, care of the hair, the feet and cutting of nails, the study concentrated on a few. They included: bathing, brushing of teeth and hand washing with soap since these practices are more linked to water usage (RWSP, 1998). One hundred and twenty eight (80%) of respondents said they bathed two times a day (Table 13). Out of the 80% respondents who said they bath twice a day, 66.3% said they did not have any reason while 8.8% did that to be clean. For the 16% who bathed once a day, 2.5% said they could not afford the soap and water while twelve (7.5%) did not see the need. Another reason given for bathing was to observe personal hygiene. One person said she bathes due to the hot weather.

Table 13: Bathing frequency

Bathing times	Male	Female	Frequency	Percentage
Once a day	11	15	26	16.3
Twice a day	21	107	128	80.0
Every other day	1	5	6	3.8
Total	33	127	160	100.0

Source: Field Survey, 2002

One hundred and fourteen (71.3%) respondents said they brushed their teeth once a day while forty (25%) brushed their teeth twice and 3.1% irregularly, or not at all. There is, therefore, the need for more education on dental hygiene due to the fact that the majority were brushing/cleaning their teeth only once in a day (Table 14).

Table 14: Care of teeth

Frequency for brushing Teeth	Male	Female	Frequency	Percentage
Once a day	17	97	114	71.3
Twice a day	13	27	40	25.0
Irregular	2	3	5	3.1
Not at all	1		1	.6
Total	33	127	160	100.0

Source: Field Survey, 2002

Studies have also shown that 80% of diarrhoeal diseases occur as a result of failure to wash hands with soap at critical periods, which are before eating, after defaecating, and after handling a child's faeces (Curtis et al., 2001). Respondents were, therefore, asked when they felt was the most important times to wash hands (Table 15).

Table 15: The most important times for hand washing

Period for handwashing	Frequency	Percentage
After defecation	64	27.3
Before eating	98	41.7
After eating	29	12.3
All of the above	44	18.7
Total	235	100.0

Source: Field Survey, 2002

This question required a multiple response. The majority (69.0%) of respondents said the most important times were before eating and after defecating

while 12.3% said after eating and 18.7% said at all the times indicated (Table 15). Observations were also carried out during the early hours of the day by the field assistants in 39 homes as part of the study and they indicated that out of the 20 mothers who had cleaned their children after defecating, 15 of them did not wash their hands afterwards. This goes to confirm the fact that respondents are most likely to say what is expected of them and not what they actually practise. It also goes to confirm the fact that children's faeces are seen not to be harmful most of the time and so not much care is given to avoid contact.

When the respondents were asked their reasons for washing their hands, 20 (11.8%) said it gave them a feeling of neatness or being clean while 140 (88.2%) said to keep them from getting sick (that is, for health reasons). This confirms the fact that reasons for people washing hands are not only for health purposes but also aesthetic as indicated by Curtis et al. (2001). There are, thus, some people in the society who might not associate handwashing for example, with the health benefits only. There is, therefore, the need to diversify the messages to reach such people as well (Table 16).

Table 16: Reasons for handwashing

Reason	Frequency	Percentage
It makes you feel clean/neat	20	11.8
It keeps you from getting sick	140	88.2
Total	160	100.0

Source: Field Survey, 2002

Sanitation conditions and hygiene practices of respondents

As already mentioned the CRRWSP did not promote any sanitation project at the initial stage but added it on after realising that providing only water was not addressing some other health needs. Thus, during the second phase the CRRWSP incorporated sanitation in the form of household and institutional latrines. The implementation of the sanitation component of the CRRWSP, however, did not take off till the end of the third phase when the project had ended. Beneficiaries paid 50% of the total cost of construction while the project paid 50%. The construction of household latrines ranged from ₦450,000 to ₦1,000,000, depending on the type of latrine. Unfortunately, due to the cost sharing nature about 70% of those who benefited were from the peri-urban area who could afford the 50% contribution while the poor and vulnerable who could not afford did not benefit (CRRWSP, 1999).

Table 17: Place of convenience for household

Place of convenience	Frequency	Percentage
No response	1	.6
Bush	40	25.0
Public toilet	105	65.6
Bush & public toilet	7	4.4
Others	7	4.4
Total	160	100.0

Source: Field Survey, 2002

The study showed that none of the respondents owned a household latrine. One hundred and five respondents (65.6%) said they patronised public latrines while 40 (25%) defecated in the bush. Meanwhile, promotion of individually owned household latrines formed part of the latter part of the project and it was hoped that after the project ended house owners would have the desire to own their own latrines but this was not the case.

As already indicated the 103 beneficiaries of the household latrine promoted by the project in the district were from the peri-urban area, with the majority from Ayensudu because they could afford it (CRRWSP, 1998). This goes to confirm what Esrey et al (1994) said that though many hygiene programmes aim at helping the deprived, in practice however, many of them reach only the higher-income groups because they have the time, education, economic means and sufficient independence to try and adopt new innovations, which facilitate improved hygiene practices.

During an interaction period, 24 (61.5%) out of 39 community members were observed to use the communal latrine whilst 15 (38.5%) were seen going to the bush to defecate. The 38.5% who were found not using the communal latrine were seen to be taking the bush path to the farms and returning. The paths were later found to be littered with faeces.

During the FGD respondents were asked why many people preferred defaecating in the bush and some of their reasons were that the communal latrines had bad odour and were not well maintained. The NCWSP has come to recognise the effectiveness of owning a private latrine for the household and, therefore,

discourages the patronage of communal latrines since they have been identified as being sources of infection and contamination. CWSA, therefore, provides assistance only for the building of household and institutional latrines (the latter for schools, clinics and markets).

Accessibility to household latrines

Another reason for the NCWSP promoting household latrine is to ensure easy accessibility to the latrines. In order for households to have easy access to the latrine to use at anytime of the day and by all members of the family, it is recommended that household latrines are built very close to the homes, between 20m to 50m (CWSA, 1994).

Respondents were thus asked the distance from their homes to the available public latrine, which they were all patronising. Sixty (37.5%) of respondents said that the distance from their homes to the public latrine was less than 100meters while fifty-two (32.5%) respondents lived between 100 and 500meters away from toilets (Table 18). CWSA recommends that latrines be within short walking distance so as to be easy to use by children, in emergency situations like having diarrhoea or during the night (CWSA, 1994).

Twenty-two (13.8%) respondents were paying between 50 and 100 cedis per visit for the use of the communal latrine. Ninety-six (60%) respondents were however, not paying for the use of the latrine.

Table 18: Distance from home to the nearest public toilet

Distance	Frequency	Percentage
Less than 100m	60	37.5
101 – 500m	52	32.5
501 – 1000m	7	4.4
More than 1km	1	.6
N/A	40	25.0
Total	160	100.0

Source: Field Survey, 2002

Many people are of the view that provision of latrine is the responsibility of the government and also that since faeces are waste, money should not be spent on their disposal. During the FGD some of the participants gave the reason for patronising public latrines to the fact that faeces are not to be close to homes and hence, the preference for communal latrines which are normally situated at the outskirts of the community. These views would appear to have contributed to the low sanitation coverage in the region and the nation on the whole. Currently, the Central Region has a generally low coverage of about 15% when it comes to sanitation coverage (CWSA, 2000).

Disposal of children's faeces

Children's faeces are most of the time seen not to be harmful so not much care is given to it when it comes to its handling. This was portrayed in the study

because out of the 160 respondents 153 (95.6%) said they swept children's faeces implying that the children were defecating on the ground. When they were asked how the children's faeces were disposed of, 125 (78.1%) said they threw it on the rubbish dump while 25(15.6%) threw it behind the house (Table 19). Visits to the dumpsites revealed the place littered with faeces, which goes to confirm the fact that there is indiscriminate defecation.

Table 19: Disposal of children's faeces

Disposal of children's faeces	Frequency	Percentage
No response	1	0.6
Behind house	25	15.6
On the rubbish dump	125	78.1
Do not handle children's faeces	2	1.3
Public toilet	7	4.4
Total	160	100.0

Source: Field Survey, 2002

Disposal of waste water

Improper disposal of wastewater also contributes to poor environmental hygiene in the form of pools of water and muddy surroundings, which breed mosquitoes, and contribute to the upsurge of malaria in these communities. On the disposal of wastewater, especially from the bathhouse, CWSA recommends digging a soak away pit so as to avoid pools of water and muddy surroundings or constructing a proper drainage system (CWSA, 1994)). Unfortunately, only 6.3%

of respondents were using soakaway. Twenty-three (14.4%) respondents had dug a pit behind the bathroom which they emptied daily while 87(54.4%) were using open drainage or had dug gutters leading into the bush. Forty (25%) respondents did not have any drainage at all (Table 20). There were, thus, pools of water surrounding many homes making the surroundings very muddy and prone to mosquito breeding. It was, thus, not surprising that malaria was identified as one of the commonest diseases in the communities visited.

Table 20: Disposal of wastewater from bathroom

How waste water is disposed of	Male	Female	Frequency	Percentage
Soak away pit	2	8	10	6.3
Trough emptied daily	7	16	23	14.4
Drainage/channel	16	71	87	54.4
No drainage	8	32	40	25.0
Total	33	127	160	100.0

Source: Field Survey, 2002

Refuse disposal

Improper disposal of refuse is also found to encourage the breeding of flies which find their way into homes, especially refuse close to homes. These flies settle on foods to transmit diseases such as diarrhoea and cholera. From the study 16 (10%) of respondents dump their refuse just behind their houses, at a distance of less than 50 meters. One hundred and forty four (90%) of respondents said they dumped them at the public dumpsites (Table 21).

Table 21: Refuse disposal sites

Where refuse is disposed of	Male	Female	Frequency	Percentage
Public dump site	31	113	144	90.0
Behind house	2	14	16	10.0
Total	33	127	160	100.0

Source: (Field survey, 2002)

General cleanliness of households and communities

The general cleanliness of the communities with regard to how they kept their pump sites as well as their environment clean was also assessed through observation. The field assistants were given an observation check list which was to guide them in observing the hygiene practices of some selected households. These were done very early in the morning before the actual survey.

The checklist detailed some of the hygiene practices which lead to diseases. The details are in Appendix A. Indicators for pumpsite cleanliness consisted of the following: a pumpsite clear of weeds, algae and dirt, and a clean trough without cracks and pools of water using clean covered receptacle or container to fetch water, not using slippers inside the apron or at the fetching point and some others.

The positive hygiene practices constituted the following: covering water for drinking at home, keeping a cup for fetching water on the container, compound and surroundings free from flies, rubbish and faeces, washing hands after cleaning a child and some others (Appendix A). A practice considered to be

positive scored 'one' point while the negative scored 'zero'. The term unsatisfactory and satisfactory were used to classify the households by simply adding up the scores. The average scores by communities are summarised below:

Table 22: Hygiene practices by communities

Name of community	Household cleanliness	
	Positive practices	Negative practices
Simiw	11.25	9.25
Abeyee	13	7.5
Dominase	10.4	11.4
Mpehin	10	9.5
Aweemu Kissi	6.4	13.6
Nyinase	12	8.4
Aweemu Kumasi	6	13.8
Korowfofordo	7	10.4
Average	9.5	10.5

Source: Field Survey, 2002

In all Abeyee scored the highest for the cleanest pump site followed by Nyinase and Simiw. Abeyee, also, recorded the highest in the overall positive practices and scored the least in negative practices. However, they also recorded high malaria cases in Table 23. On the average more negative practices (10.5%) than positive practices were recorded.

Disease patterns and their causes

Most of the communities and households visited were littered with rubbish, unwashed cooking utensils, children defecating and playing on the ground with flies all over the place. The surroundings were also weedy and pools of wastewater were found behind many homes as indicated in Table 21.

It is, therefore, not surprising that malaria (38.7%) and diarrhoea (38.2%) were mentioned as the most common diseases in the communities. Other diseases mentioned included: headache, skin rashes, eye infections, cough, guinea worm, bilharzias and epilepsy, some of which are water and sanitation related. From Table 23 diarrhoea and malaria seem to be common among all the communities visited.

Community members were asked the causes of the diseases they identified. This was to assess their knowledge level. The common causes of the diseases identified by community members were as follows: contaminated food (19.8%), unsafe and infected water (14.2%), poor hygiene (20.3%), gods and evil spirits (6.0%), weeds and pools of water around house (29.7%), walking in the sun (0.4%) whiles (9.1%) did not know the causes of the diseases (Table 24).

Most (82.4%) respondents were able to identify the causes of the diseases. However, some still attributed diseases to either supernatural powers or too much exposure to the sun or just did not know.

Table 23: Households reporting diseases

Name of Community	Population	Common diseases in community as reported by respondents									Total
		Diarrhoea	Guinea Worm	Eye Infection	Skin rash	Bilharzia	Malaria	Headache	Cough	Epilepsy	
Simiw	1301	11	0	1	2	0	6	0	0	0	20
Abeyee	1416	8	0	0	2	0	9	1	0	0	20
Dominase	2198	12	0	0	1	0	7	0	0	0	20
Mpehin	157	9	0	0	2	0	6	1	2	0	20
Anweemu Kissi	566	11	0	2	0	0	6	0	0	1	20
Nyinaase	132	12	0	0	0	0	7	1	0	0	20
Anweemu Kumasi	346	7	0	0	1	1	5	2	0	4	20
Korowfofordo	2 37	3	0	1	1	0	9	1	1	4	20
Total	6353	73	0	4	9	1	55	6	3	9	160
Frequency (%)		38.2	1.0	2.1	5.8	1.0	38.7	3.7	3.1	6.3	100

Source: Ghana 2000; Field Survey, 2002

This, therefore, gives the indication that though the knowledge level is generally good there will be the need for some education when it comes to their belief in the causes of diseases. This reinforces the need to carry out a study into the knowledge, attitude, belief and practices of the people to inform or guide any future hygiene education programme.

Table 24: Causes of common diseases identified

Causes of common diseases	Frequency	Percentage
No response	1	0.4
Contaminated food	46	19.8
Unsafe & infected water	33	14.2
Poor hygiene	47	20.3
Gods & evil spirits	14	6.0
Weeds & pools of water around house	69	29.7
Don't know cause	21	9.1
Walking in sun	1	0.4
Total	232	100.0

Source: Field Survey, 2002

Gender issues relating to health/hygiene

Introduction

Gender is the culturally defined division of work and areas of responsibility, authority and cooperation between men and women (Roark, 1980). For every improvement related to health and hygiene one must, therefore, ask if it

concerns men, women or both and whether either category has specific needs, priorities and resources.

Gender roles in hygiene education

As indicated by Roark (1980), one of the roles of the woman generally in the home is to take care of the home and the people in it. Thus, though 75.6% respondents had the father as the head (Table 25), 65.3% including the female respondents, felt it was the duty of the woman/mother to educate the children on hygiene practices and also ensure that the children practise good hygiene as shown in Table 26.

Table 25: Head of household

Head of household	Frequency	Percentage
Father	121	75.6
Mother	24	15.0
Uncle	2	1.2
Other relations (in-law, grand parents)	13	8.1
Total	160	100.0

Source: Field Survey, 2002

The CRRWSP had a policy whereby there were to be at least two women being represented on every WATSAN committee. This is because issues concerning water are normally seen to be the domain of women because they are the major users. The project, also, hoped that women could take up the position of chairman or secretary. However, in most cases, men were given these positions

while the women normally took up the position of either the treasurer or ordinary member.

The CRRWSP, also, made a woman to be specifically in charge of hygiene education. She was to see to the daily cleanliness of the pump site and also carry out hygiene education in the community. This is seen as reinforcing the practice of leaving issues relating to hygiene as the sole preserve of women. It was, therefore, not surprising that during the survey it came out that the females (127), especially mothers (80) were identified as those responsible for hygiene education in the homes (Table 26).

The implication of this finding is that the men are not involved very much in hygiene issues and so are not as committed as would be expected. Thus, according to van Wijk (1985), if men are not made to fully participate in programmes they often give a low profile in comparison with other needs and as a result the programme does not succeed. He concludes that a gender approach in hygiene promotion ensures that women do not shoulder extra work and responsibilities in hygiene alone, but that these are better shared among men and women.

Household chores

The study revealed that the majority of household chores were being undertaken by either the mothers or children especially the female children.

Table 26: Person responsible for hygiene education/promotion by sex of respondents

Person responsible for hygiene education	Males	Females	Frequency	Percentage
Father	10	34	44	25.9
Mother	21	80	101	65.3
Male children	1	2	3	1.8
Female children	1	3	4	2.4
Children		3	3	1.8
Other relations /relatives		5	5	2.9
Total	33	127	160	100.0

Source: Field Survey, 2002

For example, when respondents were asked who was responsible for fetching water for the homes, 44.1% of them mentioned children (both male and female children), 28.8% of them said mothers while 19.8% said female children. Only 1.1% said the fathers fetched water for their homes. This confirms the study done by numerous anthropological and social studies as well as from reports of extension workers. Biswas (1977) presents the division of rural labour in Africa between men and women and the description of the daily tasks of rural women. He came out with the fact that most domestic activities at homes are done by women (Table 3). Table 27 also gives details on the activities being carried out by men, women, and the youth in the communities.

Table 27: Household chores/ economic activities by gender

Person	Fetching	%	Sweeping	%	Farming	%
Responsible	Water				/Fishing	
Father	2	1.1	0	0	100	54.9
Mother	51	28.8	58	34.7	39	21.9
Male children	9	5.1	3	1.8	5	2.7
Female children	35	19.8	48	28.7	1	0.5
Children	78	44.1	56	28.7	6	3.3
Others (specify)	2	1.1	2	1.2	31	17.0
Total	177	100.0	167	100.0	182	100.0

Source: Field Survey, 2002

Sweeping of the homes, for example, is seen to be the role of the women (34.7%) and children (33.5%). In the case of children 28.7% said female children as against 1.8% of the boys. Due to the stereotypical role of females in the homes, women and girls tend to be overburdened with household chores leaving little time for leisure and other economic activities. Some of the women during the FGD said they sometimes get so busy they are unable to supervise the children on hygiene practices. They also tend to have less time to participate in community meetings to contribute towards any decisions being taken. This was evidenced during the FGD when most of the women present first asked if it would not take much of their time before agreeing to participate.

It is, thus, very necessary that water and sanitation projects do not overemphasise the role of women in water and sanitation delivery to the neglect of men else too much work will be added to the already loaded schedule of

women. Also, due to the fact that men are seen as the heads of the family, it will do a lot of good if they also take up the role of educating the children on good hygiene practises so as to reinforce what the mothers are doing. For example, Table 27 indicates that 44 (25.9%) men engaged in hygiene education as against 111 (65.3%) women. The practice of involving more men will only succeed if projects increase the participation of men in their hygiene education interventions instead of the normal practice where mostly women are put in charge of hygiene promotion, as was the case of the CRRWSP.

Economic activities

Esrey et al. (1991) have shown that improved hygiene practices have an impact on public health only when they can and are being adopted and sustained by all including women, men and the youth. Hence, both community managed hygiene programmes and public health communication programmes will have to promote those facilities and practices that solve the felt problems and are within the means of not one, but all socio-economic groups. In practice however, many hygiene programmes reach only the higher-income groups because they have the time, education, economic means and sufficient independence to try and adopt new technologies, which facilitate improved hygiene practices. A confirmation of this was during the household latrine promotion by the CRRWSP where the majority of the beneficiaries of the household latrine programme were living in the peri-urban.

The survey also revealed that the majority (54.9%) of the respondents who were men were either engaged in farming or fishing as their main occupation as against 25.2% women and children (Table 27). The Table, therefore, seems to suggest that men wield more economic power than the women. However in order to practise good hygiene there is the need to have the means to acquire the necessary facilities such as household latrines, containers for fetching and storing water, hand washing facilities and soap. Therefore, the low participation of women in economic activities makes it difficult to practise good hygiene since according to them the men are normally reluctant to provide these facilities. This was evidence in the Abeyee and Korowfofondo communities where the men had dug traditional pit for themselves for about a year and were yet to provide that of the women. It will be necessary to empower women economically so that they will, also, be in a position to assist in providing these facilities for the home.

Male and female participation in hygiene education

According to Kendie (2002), the more people participate in hygiene meetings the likely they are to improve upon their hygiene behaviour together with their household. Thus the participation of men and women in hygiene education programmes was assessed.

Table 28: Participation in hygiene education programmes by sex

Sex	Attendance at meetings after CRRWSP		Total
	Yes	No	
Male	12	21	33
Female	39	88	127
Total	51	109	160

Source: Field Survey, 2002

From the Table the overall participation of respondents in hygiene programmes after the CRRWSP project ended had been very poor. In all fifty-one (31.8%) of respondents had attended at least one meeting on hygiene education since the CRRWSP ended. The overall attendance at hygiene meetings was not encouraging.

Gender and hygiene behaviour change

It is believed that gender could influence hygiene behaviour with some people being of the view that females are more likely to practise hygiene as compared to males. A study done in Volta Region Community Water and Sanitation Agency by IRC for example, came out with the findings that schools that were being headed by females had well maintained latrines as against those headed by men (IRC, 2002).

CHAPTER SIX
HYGIENE EDUCATION AND SUSTAINABLE HYGIENE BEHAVIOUR
CHANGE

Introduction

Hygiene education was one of the interventions highlighted by the CRRWSP during the latter part of the project to ensure that the health benefits of the water and sanitation facilities provided were maximised (RWSP, 1998).

Hygiene education during the Central Region Rural Water Supply Project (CRRWSP)

During the study, 83.1% of respondents confirmed the fact that hygiene education took place during the period of the project and that the animators mainly undertook these hygiene sessions (Table 29).

Table 29: Hygiene education during the CRRWS Project

Any hygiene education during CRRWSP	Frequency	Percentage
Yes	133	83.1
No	6	3.8
Was not around	21	13.1
Total	160	100.0

Source: Field Survey, 2002

To sustain hygiene behaviour change the project trained the WATSANs to be in charge of hygiene education in the community and it was expected that they continue with the education and promotion even after the project had ended. The study, however, show that this could not be carried out effectively. During the interview 28.8% respondents said hygiene education had been going on after the project ended while 71.2% respondents said nothing of the sort was being organised by the WATSANs (Table 30).

Table 30: Hygiene meetings held after project

Hygiene promotion held	Frequency	Percentage
Yes	46	28.8
No	114	71.2
Total	160	100.0

Source: Field Data 2002

Apart from hygiene education being carried out by the project staff and WATSANs 10 (6.0%) respondents identified Community Health Nurses as agents for disseminating health and hygiene messages during their antenatal and postnatal visits. This is a laudable idea and ensures continuity in the promotion of hygiene which will lead to sustaining behaviour change.

Participation in hygiene meetings

Respondents were asked whether they had participated in any form of hygiene education for the past three months. Fifty-two (32.5%) respondents had participated in a hygiene education programme while 108 (67.5%) respondents

had not (Table 31). During the FGD the WATSANS shared some of their difficulties in organising hygiene meetings which had led to their inability to carry out hygiene education. Thus, the hygiene programmes that were being organised for which some said they were attending were that for postnatal and antenatal mothers by the Community Health Nurses.

Table 31: Participation in hygiene education programme

Participation in hygiene education	Frequency	Percentage
Yes	52	32.5
No	108	67.5
Total	160	100

Source: Field Survey, 2002

Some of the reasons given by respondents for not attending meetings organised by the WATSANS were that they had heard the same message over and over again in the same way (normally through talks) and so were no more interested to attend such meetings. They also said many suggestions are made during such meetings but are never carried out, which does not serve as a motivation to attend similar meetings when held.

Some of the issues that were discussed during the hygiene education sessions as respondents listed were mostly related to water and sanitation and these included personal hygiene, environmental hygiene, domestic hygiene, pump site cleanliness/maintenance, and keeping potable water safe. These topics, which also formed the basis of the hygiene intervention, were to ensure that communities that benefited from the project maximised the health benefits of the

facilities provided. Though the messages were very important, it is very important that only a few that address the immediate problem are highlighted so that a specific behaviour can be dealt with at a time (Boot, 1991).

Method of disseminating hygiene messages

The method of transmitting hygiene messages has been identified by Boot (1991) as contributing to behaviour change. Hence, some of the most effective means by which hygiene messages were disseminated to community members were identified.

Interpersonal methods such as person-to-person discussions as in home visits; small group discussions (up to 12 persons) and large group discussions (between 12 and 30 persons) are all effective in influencing knowledge, attitudes and practices for health improvement. This is due to the fact that there is an opportunity for feedback, questions, and clarifications, exchange of feelings and ideas and joint action (Boot, 1991). It will, however, depend on how the hygiene educator goes about the facilitation. If it is too didactic it will not have the desired impact.

Review of the animation materials used showed that the main means by which hygiene education was disseminated was through talks and discussions. The discussions were normally organised during community meetings so as to get maximum participation of community members. The animators also used the "Jug Test" where a jug was used to fetch the existing source of water and community members were asked to view the water under a microscope. It was to

discourage them from patronising those sources or at least treat them before drinking.

During the focus group discussions the groups were asked which other means of disseminating the message they would have preferred, and they mentioned film shows, role-plays, drama and discussions. Many of the members in the focus group discussion also preferred the use of mobile cinema vans because to them the talks did not seem to make the impact expected.

According to them people seemed to be tired of hearing the same things being said over and over again especially if the same medium was being used to disseminate the message. They often forgot the moment they left the meeting grounds. However, if the message was in the form of a film or drama they were likely to continue discussing it and by so doing a lot of people who did not attend the meeting could learn from those who did. Also, by discussing what had been learnt it was more likely to be remembered and a conscious effort would be made to put the hygiene message into practice. This goes to confirm the Chinese proverb which says, "I remember 35% of what I hear, 60% of what I see and 75% of what I do".

Table 32, however, indicates that not much participatory methods were used in carrying out hygiene education during the CRRWSP. Out of the 139 respondents who were present during the project period 133 (83.1%) confirmed that the main method for disseminating hygiene messages was through talks by the animators.

Table 32: Methods used to disseminate hygiene messages

Methods	Frequency	Percentage
Flip charts/Demonstration	6	3.8
Discussions/talks	133	83.1
Had Travelled	21	13.1
Total	160	100.0

Source: Field Survey, 2002

Factors influencing behaviour change

Green et al. (1980) identified three factors contributing to health behaviours and these are predisposing, enabling and reinforcing factors. These factors include beliefs, attitudes, cultural values, personal skills and resources (individual or community).

As stated by Boot (1991), behaviour is influenced by how people think and feel hence, any hygiene education that is not based on the local culture cannot possibly be effective in changing people's behaviour and practices. For example, frequent diarrhoea may be taken as a fact of life, rather than as a disease. Thus, when respondents were asked about their beliefs relating to causes of diseases, 22.9% said diseases came naturally, while 56.6% believed witches or evil spirits caused them. Also, 10.2% said poor personal/domestic hygiene caused diseases and another 10.2% could not tell the causes of diseases (Table 33).

Table 33: Beliefs relating to the causes of diseases in community

Beliefs on the causes of diseases	Frequency	Percentage
Caused by evil spirits/gods	58	34.9
Caused by witches	36	21.7
Natural – disease comes at anytime	38	22.9
Poor personal/domestic hygiene	17	10.2
None/Do not know	17	10.2
Total	166	100.0

Source: Field survey, 2002

In promoting hygiene behaviour it is important to start from an understanding of what disease means to people, what diseases they recognize, and what their notions of prevention and causes are. The more hygiene education builds on local cultural values, the more chance there is that it is attractive and effective to bring about hygiene behavioural change (Boot, 1991).

Cultural values and beliefs largely determine what people consider right or appropriate behaviour and practices. When this is not taken into account it will cause project failures. Thus, if some of the community members believe diseases are caused by evil spirits and witches as was in this case, then it is likely they will not associate diseases with poor hygiene practices. The approach to hygiene promotion will, therefore, have to address this issue before behaviour change can be achieved.

Involvement of role models and institutional structures

Apart from the cultural values, another means by which behavioural change can gain an important impetus according to Boot (1991) is through the support and example of respected persons. Though the majority 98 (61.3%) of the respondents felt it was through continuous education that hygiene behaviour change could be sustained 44 (27.5%) of them also identified the need to involve key personnel in the community, which includes the chiefs, elders and assemblymen to promote and sustain hygiene behaviour. This is because they command some kind of respect and are likely to influence behaviour.

Table 34: Ways by which hygiene education can have an impact

How hygiene education can have impact	Frequency	Percentage
Education	98	61.3
Sanctions	11	6.9
Training	2	1.3
Messages should be short & varied	4	2.5
Involvement of key personnel (chiefs, elders etc)	44	27.5
Need for change of attitude before hygiene education	1	0.6
Total	160	100.0

Source: Field survey, 2002

The CRRWSP, also, recognised the role of respected personalities in project implementation hence, the formation of the WATSANs who were to be nominated by communities themselves to manage their water facilities and also promote hygiene. It, therefore, did not come as a surprise when 29 (17.5%) and

22 (13.3%) respondents identified the WATSANs and chiefs respectively to be the persons responsible for hygiene promotion in the community (Table 35).

Table 35: Persons responsible for hygiene education

Persons responsible for hygiene education	Frequency	Percentage
No response	3	1.8
WATSANs	29	17.5
Environmental Health Asst	1	0.6
Community Health Nurses	10	6.0
Health related staff	9	5.4
Others (Chief, Opinion leaders, elders)	22	13.3
N/A	92	55.4
Total	166	100.0

Source: Field survey, 2002

It was hoped that community members will nominate people they respected to be on the WATSAN; however, during the focus group discussions it came out that some of the reasons for the non-attendance of hygiene meetings was that some WATSAN committee members were not respected by community members.

Six out of an average of seven WATSAN committee who participated in the FGD complained that they were not being respected by community members and were always insulted when carrying out the tasks assigned to them. This was considered an unfortunate situation because it is a voluntary work which takes a lot of their time without any allowance. The WATSANs went on further to say

that the insults sometimes got so personal and intense that they were not motivated to work. This contributed to the low profile given to hygiene promotion by the WATSANs as was discussed during the FGD.

Motivation to ensure sustainability of hygiene behaviours

According to Burgers et al (1988) facilities and practices are more likely to be adopted when they are encouraged through incentives and regulations. Some of the incentives identified by the WATSANs during the FGD included awarding the cleanest village, the village with the best-protected water source, or to the family with a well kept latrine in each village. The Volta Region Community Water and Sanitation Project could motivate people to participate in, practice and/or maintain hygiene behaviours, 10 (6.3%) of the respondents felt people who attended hygiene meetings regularly and practiced good hygiene should be given some kind of motivation so as to encourage others to also attend. Nineteen (11.9%) respondents were also of the view that there was the need to pass and enforce by-laws on hygiene practices and offenders punished to serve as a deterrent to others. This practice used to be carried out by the Environmental Health Unit in the past when offenders were summoned to court to be prosecuted, hence, their being referred to as “samansaman” (Table 36).

Table 36: Sustaining/maintaining hygiene behaviour change

Sustaining/maintaining hygiene behaviour change	Frequency	Percentage
No response	16	10.0
Use of chief and elders as role models	4	2.5
Continuous hygiene promotion by talks, films	111	69.4
Motivating people to practice good hygiene	10	6.3
Using the punishment and rewarding system	19	11.9
Total	160	100.0

Source: Field Survey, 2002

Improvement in hygiene behaviours during and after the CRRWSP

One of the objectives of the CRRWSP was to improve hygiene behaviours by reducing the incidence of water and sanitation related diseases, especially, diarrhoea. The study, therefore, sought to identify whether there were improvements in hygiene behaviours during the project period and after it had ended.

Table 37: Improvement in hygiene practices after CRRWSP (1998)

Improvement in hygiene practices after CRRWSP	Frequency	Percentage
No response	2	1.3
Improvement	120	75.0
No Improvement	29	18.1
No idea	9	5.6
Total	160	100.0

Source: Field Survey, 2002

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Improvement	120	75.0
No Improvement	29	18.1
No idea	9	5.6
Total	160	100.0

Source: Field Survey, 2002

Respondents were asked if there was any improvement in hygiene practices just before the project ended. One hundred and twenty (75%) said there was improvement while 29 (18.1%) said there was no improvement. Some of their reasons were that people kept their surroundings and especially the pump sites very clean, a lot of people patronised the boreholes as their main source of drinking water and people stopped urinating into and drinking from the stream. Finally and most importantly, 25(15.6%) of the respondents said there was improvement in health and reduction in diseases (Table 38).

Table 38: Evidence of improved hygiene behaviour at the end of CRRWSP (1998)

What improved?	No.	%
No response	6	3.8
Surroundings & pump site kept clean	35	21.9
People changed ways of doing things/practiced good hygiene	18	11.3
People stopped drinking/urinating into stream	45	28.0
Use of only borehole especially during dry season	2	1.3
Improvement in health & reduction in diseases like GW	25	15.6
No improvement	29	18.1
Total	160	100.0

Source: Field Survey, 2002

Since there were no clinics in the communities visited this could not be verified. However, data from the district hospital as in Table 2 indicated that though there was a remarkable decrease in for example, cholera from 39 cases

with 3 deaths in 1997 to 21 cases with no death in 1998, there was a sharp rise of 204 cases with 2 deaths in 1999 when the project had ended. This could be as a result of many factors which can later be investigated into. However, it could also be as a result of the decrease in hygiene education activities in the communities.

Reasons given by the 29 respondents who said there was no improvement when the project ended were that: some people still patronised the traditional sources of water, people still defecated indiscriminately, poor operation and maintenance of borehole and not keeping to hygienic practices.

Table 39: Hygiene behaviours sustained after the CRRWSP (2002)

How hygiene behaviour has been sustained	Frequency	Percentage
People drink from the borehole	17	9.7
People patronize/built latrines	5	2.9
People are committed to cleaning of pump site	12	6.9
People wash hands after defecating	32	18.3
People wash hands before eating	7	4.0
Food vendors cover food	1	.6
Improvement in other hygiene related behaviour	5	2.9
Behaviour not sustained	96	54.9
Total	175	100.0

Source: Field Survey, 2002

Sustaining hygiene education and hygiene behavioural change

Respondents were also asked whether improvement in hygiene behaviour attained during the project period had been sustained to the present time. 54.9% said the improvement in hygiene behaviour attained during the project period had not been sustained because some people had reverted to the drinking of other sources of water aside what was provided; people were still practicing open defecation. Hence to use the definition of sustainability as given in the BBC Dictionary as “the ability for a project or a plan to be continued at the same level of activity or pace without harming its efficiency and the people affected by it” then hygiene behaviour cannot be said to have been sustained. This is because the hygiene behaviour change achieved did not continue at the same pace after the project ended.

For the 45.1% who said hygiene behaviour change had been sustained, some of the reasons given were that: people were washing hands after defecating and before eating, some were drinking only from the borehole, pump sites were being cleaned and people were building or using latrines.

Comparisons were made with regard to the differences in hygiene behaviour both during and after the project ended and below are the findings.

Table 40 shows that though 120 (75%) respondents said there was improvement just after the project in 1998, only 63 (39.4%) said the improvement had been maintained.

Table 40: Sustainability of hygiene behaviour during and after CRRWSP

Improvement in hygiene behaviour	When project ended (1998)		Present situation (2002)	
	Frequency	Percentage	Frequency	Percentage
Behaviour sustained	120	75.0	79	45.1
Behaviour not sustained	29	18.1	96	54.9
No response	11	6.9	0	0.0
Total	160	100.0	175	100.0

Source: Field Survey, 2002

The change in behaviour during the period of the project according to the WATSANs could be due to the fact that everybody gets enthusiastic or excited about new projects and is prepared to do whatever it takes to be part of the project.

Another reason for the change in behaviour according to the WATSANs was the fact that the project had animators who paid regular visits to these communities as follow-ups to what they had learnt at meetings. The continuous visits served as a check to especially the committee members whose job it was to ensure that community members adhered to good hygiene practices. Some of the hygiene practices include fetching only from the borehole, keeping the pump site clean and practising good personal and environmental hygiene.

Observations made to confirm data collected from the households on their personal, domestic and environmental hygiene gave the following results:

Table 41: Indicators for improved hygiene behaviour after the CRRWSP

No.	Indicators set for improved hygiene behaviour	Yes	No	Remarks(+ve/-ve)Behaviour	
				+ve	-ve
1	Faeces on path/around compound	13	26	X	
2	Animal faeces on compound	30	9		X
3	Compound tidiness	19	20		X
4	Weedy surroundings	16	23	X	
5	Cooking utensils exposed to flies	26	13		X
6	Covering of cooked food	21	10	X	
7	Soak away/drain for waste water	9	30		X
8	Dumpsite close to house	24	15		X
9	Dumpsite cleanliness	8	31		X
10	Faeces at dumpsite	34	3		X
11	Children's clothing clean	9	30		X
12	Flies on compound	31	8		X
13	Children defaecating on compound	8	31	X	
14	Mothers using soap to wash hands after cleaning children	2	6		X
15	Owning own household latrine	0	39		X
16	Patronage of communal latrine	24	15		X
17	Washing of cloths close to pumpsite	9	30	X	

Table 41: Indicators for improved hygiene behaviour after the CRRWSP (cont'd)

No.	Indicators set for improved hygiene behaviour	Yes	No	Remarks(+ve/-ve)Behaviour	
				+ve	-ve
18	People fetching from other sources apart from BH & HDW	23	16		X
19	Putting of leaves on water after fetching	2	37	X	
Total				6	13

Source: Field Survey, 2002

Observations made in homes as presented in Table 42 indicate that there were more of the negative behaviours than the positive behaviours. This goes to confirm the fact that behaviour change was not sustained or maintained after the project. These observations also go to confirm a similar study, which was conducted in the Volta Region by International Research Centre (IRC) on how behaviours had been sustained three years after water and sanitation as well as hygiene interventions had been made in some communities and schools in the Volta Region.

Ten schools were surveyed for: hygienic storage of water as seen through observation; skills in hand washing through demonstration; knowledge about critical times of hand washing, and hygienic use and maintenance of institutional latrines. The results were based on the assumption that: If receptacles are available in each classroom, then proper water storage tends to be sustained; If

there is a project intervention in the community, then safe water is available in the school.

These hypotheses were not proven as many schools did not have any water storage receptacle and the few available were empty. Also, the assumption that schools would provide hand-washing facility if the project provided latrine did not hold. Only 2 schools out of the 10 had a hand-washing facility, water and soap near the latrine for students to use. Also, cleanliness and maintenance of latrines seem to have deteriorated over time. Only 2 out of 10 schools had clean and well-used latrine (i.e. free from puddles of urine and faeces on floor) at the time of the study.

Recommendations made included: Using hygiene as community entry point; planning a sustained extension effort over a long period of time - years rather than months; maintaining close coordination with other collaborators/stakeholders like the GES, GHS, Environmental Health Unit, District Assembly, and NGOs in water and sanitation to ensure sustainability of programmes.

As a result of the findings made during the study, in the next chapter some recommendations have been made to aid future hygiene interventions in the water and sanitation sector. It is hoped that when these recommendations are effected hygiene will take a different shape to ensure that behaviour change is sustained even after projects have ended.

CHAPTER SEVEN

SUMMARY, LIMITATIONS, CONCLUSIONS, RECOMMENDATIONS AND FUTURE DIRECTION OF RESEARCH

Introduction

According to WHO (1995) the poorest 1000 million people on Earth are seven times more likely to die from infectious diseases - many of these due to inadequate hygiene and sanitation - than are the least poor 1000 million. In the past, however, hygiene education has always been seen as an-add on to technical interventions, thus, the Central Region Rural Water Supply Project (CRRWSP) which began in 1989/90 in the Central Region under the Rural Division of Ghana water and Sewerage Corporation (GWSC) had as its main aim "to provide basic water supply services to communities with populations between 200 and 2000 who have no modern water supply" (RWSP, 1998).

At the end of its first phase, however, evaluation made indicated that not much progress had taken place with regard to decrease in the incidence of water and sanitation related diseases even though some communities had benefited from the provision of water facilities. As a result, hygiene education was intensified during the second phase of the project. The final evaluation carried out at the end of the project indicated that the incidence of diseases had reduced, the majority of the people were keeping to hygienic practices, the borehole water was being sold,

maintenance and repair works were being carried out promptly and the WATSANS were functioning effectively.

Further studies conducted three years after the project indicated the contrary to the above. This study, thus, sought to assess how hygiene behavioural change is maintained within project communities after the introduction of hygiene behavioural interventions. Specifically the study hoped to present and assess the hygiene interventions made during the CRRWSP; examine institutional structures put in place to ensure sustainability of the behavioural change; assess follow up activities carried out after the project and also assess whether improved hygiene behaviour has been maintained/sustained over the years.

Summary of findings

Administering of questionnaires, interviews, observations and Focus Group Discussions were used to collect data according to the objectives drawn for the study. After inputting data by use of the SPSS software, they were analysed using frequencies. The following results were obtained:

1. The study proved that though 60.3% of the respondents said they were patronising the borehole and mechanised schemes, 39.7% as well as those patronising the boreholes were still drinking from Hand dug wells, ponds/dams and streams/rivers. Also, community members, according to the policy of the project, were to sell the water to raise funds for the operation and maintenance of the facilities. One hundred and nine (68.1%) respondents said they were contributing towards operation and maintenance while 51 (31.9%) were not.

Observations made indicated that some were not actually selling as they indicated and some of the reasons given for not selling were due to the fact that they did not know what the moneys were being used for since the WATSANs never accounted for the moneys collected. Some also said they could not afford, hence, their patronising the traditional source.

2. Concerning the traditional beliefs on causes of diseases, some of the respondents (56.6%) believed evil spirits, the gods or witches caused diseases while 22.9% believed they occurred naturally. 10.2% did not know the causes of the diseases while 10.2% attributed it to poor personal and domestic hygiene. This gives an indication that the knowledge of the respondents with regard to the causes of diseases is very low.

3. In examining whether gender has an influence on hygiene behavioural change, results from the survey showed that out of the respondents 52% of the men were engaged in economic activities such as fishing and farming while 27% were carried out by women and children the rest by all family members. It was thus eminent that men wielded more economic power than the women and since in order to practise good hygiene there will be the need for there to be the facilities such as; household latrines, containers for fetching and storing water, soakaway pit, hand washing facilities and soap the non-involvement of men will make it almost impossible for hygiene practices to be effective and sustainable.

The study, also, proved that 65.3% respondents perceived hygiene education or promotion to be the sole preserve of women thus men counted themselves out when it came to ensuring that children were adhering to hygienic

practices. This, therefore, adds to the already heavy schedule of women making them burdened with less time for leisure or see to other social activities like attending to community meetings to contribute towards decision making for the development of the community.

4. The method of disseminating/communicating the message is also very important to ensure behaviour change and its sustenance. Review of the animation materials used showed that the main means by which hygiene education was disseminated was through talks and discussions. The discussions were normally organised during community meetings so as to get maximum participation of community members since this was a criterion to determine the community's commitment to have the facility.

The animators also used the Jug Test that was an instrument to physically prove to community members how contaminated their traditional sources were so as to discourage them from patronising them.

Focus Group Discussions held gave an indication that a lot of respondents used the radio as their means of information thus the survey tried to access how the media could be used as a means of promoting hygiene practices. 111 (69.6%) of the respondents said they had access to radio while 49 (30.6%) did not have access. Having access to a radio did not necessarily mean listening to it, thus, they were also asked whether they listened to the radio. One hundred and twenty five (78.1%) respondents said they did while 34(21.3%) said they did not. This is an indication that to achieve hygiene behaviour change the media could be an effective tool as proved by other studies.

Apart from disseminating hygiene messages through the radio, other means which seemed to be the preference of the respondents during the focus group discussion were film shows, role-plays, and drama. Many of the members in the focus group discussion also preferred the use of moving cinema vans for information dissemination because to them the talks do not seem to make the impact expected since people seem to be tired of hearing the same things being said over and over again and even tend to forget the moment they leave the meeting grounds. The survey results showed that not much participatory methods were used in carrying out hygiene education.

5. The level of community participation in hygiene education interventions is also believed to affect the maintenance of hygiene behavioural change. The study thus examined the level of community participation in hygiene meetings and how this affects maintenance of hygiene behavioural change. Results from the survey proved that the overall participation of respondents in hygiene programmes after the project has been very poor. Out of a total of 160 only 51 persons attended with only 12 men patronising as against 39 women.

Conclusion

The results of the study have led to the following main conclusions with regard to the sustainability of hygiene behaviour change after a hygiene education intervention.

1. The hygiene behaviour of respondents especially with regards to keeping surroundings clean, drinking only the provided potable water, using household latrines, and use of proper drainage was generally very poor.
2. People still held on to the fact that diseases were caused by supernatural powers, evil spirits or the gods. This could affect their attitudes towards hygiene practices since they do not associate diseases to poor hygiene.
3. The promotion of hygiene is seen as the domain of women, as such mothers are given the sole responsibility to ensure its promotion both in the homes and community. Thus, for example, almost all the hygiene promoters on the WATSAN were women. This in effect adds to the already burdened roles of women leaving very little time to see to other socio-economic activities. Women also tend not to yield much economic power as compared to the men and since in promoting hygiene there will be the need to have facilities such as household latrines, soap, containers for water storage etc., empowering women economically is very crucial so that they support the men to acquire the facilities that will make it easy to practise good hygiene.
4. The method of delivering the hygiene message has impact on maintaining hygiene behaviour change. The main approach that was used to disseminate hygiene messages was through discussions during community meetings. Though the education centred on water hygiene, sanitation and causes of diseases, the emphasis seems to be on seeing to the sustainability of the facilities and generating funds for its operation and maintenance more than on hygiene education.

5. The level of participation in hygiene meetings was found to impact on hygiene practices thus it was not surprising that the hygiene behaviours of the respondents were not encouraging due to the fact that the majority of them were not participating in hygiene programmes.

Recommendations

1. Based on the above findings the researcher is of the view that the government has a major role to play in promoting hygiene behavioural change in order to curb the incidence of these infectious diseases. This can be done by developing and implementing clear policy priorities and establishing enabling frameworks to address under-development and poor hygiene. More commitment must be given to hygiene behaviour-change instead of it being seen as an add-on to technical interventions both on the part of the government and External Support Agencies (ESAs). The policies should reflect the need for different approaches to rural and urban hygiene promotion and hygiene education.

2. In order for the behavioural change to be maintained institutional structures like the WATSANs and Environmental Health Units of the Ministry of Local Government should be strengthened so as to continue with the hygiene promotion even after the project ends. Projects should be implemented through the existing structures and build their capacity to perform the task rather than set up parallel groups/institutions which wind up after the project ends and there is no continuity afterwards.

3. Arrangement for continuing support of community - level organisation should be clearly set out, preferably in a contractual form between the community and the back-stopping agency/department like the District Assemblies in this instance. Greater emphasis should be placed on institutional support (retraining, resourcing, and reform) of DAs doing the back-stopping to enable them to do effective follow up. The voluntary role of the WATSANs will need to be revisited since that has proved to be unsustainable.

4. Hygiene promotion programmes should move from the increase of knowledge to the demonstrated improvement of hygiene conditions and practices. This can be done by improving on the approaches to hygiene education like the action-learning approaches, which focus on building people's capacity to learn through processes of adapting and re-adapting ideas, and systematic approaches like formative research, SARAR and Participatory Hygiene and Sanitation Transformation (PHAST) methods.

A combined approach of using both the interpersonal method and the mass media has been identified to help in promoting hygiene behaviour change. It, however, should involve the people for whom the programme is being planned so that they associate with it and make input for its success.

5. Capacity building needs to take place at all levels and at all settings. In order to get hygiene promotion on the agenda and ensure its sustainability the services of trained and experienced people is required. Training courses for improved planning and management, monitoring of hygiene behaviour-change programmes

and exchange visits could profit from the lessons learnt to make conventional hygiene education programmes more effective.

6. There will be the need study into how best to deal with gender differences to achieve a more balanced gender division of labour needs instead of targeting women or men in their traditional roles to achieve specific and short-term objectives. There will, therefore, be the need to develop educational strategies, which not only change women but also men, for almost all hygiene improvements.

There is also the need for projects to incorporate income-generating activities especially for the women to empower them to contribute towards the upkeep of the home and also to support with the provision of some amenities which though important might not be a priority of the beneficiary example of which could be the provision of household latrine or a container to store potable water for drinking.

7. Children, who are so vulnerable but also so eager to learn, can be motivated and equipped with knowledge and skills as well as the facilities to adopt safe hygiene behaviours. Attention should be paid to opportunities like integrating hygiene education in school programmes as in the School Health Education Programme (SHEP) by the Ghana Education Service (GES) and also to identify the role children can play as potential vehicles of change within their homes and communities. Hygiene promotion programmes can touch upon the unbalanced workload between girls and boys and its consequences for the education and development of girls.

Suggestions for further research

1. It is being suggested from the above conclusions that a further research be conducted into the different approaches in hygiene education and examine which of them has been able to influence behavioural change as well as maintain or sustain the change.
2. A study into which institutional structures are currently being used by water and sanitation projects to promote hygiene should be done to ascertain which of them is effective and sustainable.
3. The role of the District Assembly in providing backstopping to the Community Based Organisations like the WATSANs set up to continue with the hygiene interventions should also be studied.
4. Poverty is linked to the practice of hygiene so a study in this area will be of interest.

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Appendix A

INSTRUMENT FOR DATA GATHERING

HOUSEHOLD SURVEY – OBSERVATION CHECK LIST

Observation of Household Environment

Hygiene Practices

Y N

1.	Are there faeces on path to/around the house and/ in the compound?		
2.	Are animal faeces around house/in compound?		
3.	Is compound tidy?		
4.	Is surrounding weedy?		
5.	Are cooking utensils exposed to flies?		
6.	Is cooked food covered?		
7.	Is there drainage/soakaway for waste water?		
8.	Do household have a dumpsite near by?		
9.	Is dumpsite clean?		
10.	Are there faeces at the dumpsite?		
11.	Are children's clothing/body clean?		
12.	Are there flies on compound		
13.	Did you meet a child defecating on the compound?		
14.	If yes, did mother wash hands after cleaning baby's faeces?		
15.	Does household have their own toilet?		
16.	Is path to latrine site weedy?		
17.	Does household patronise communal latrine?		

Observation at Pump site

Y N

18.	Is there drainage?		
19.	Is there a soakaway?		
20.	Is there a trough?		
21.	Is the trough filled with weeds and/ filth?		
22.	Is pump site free of algae?		
23.	Are there pools of water around pump?		
24.	Are surroundings of pump clear of weeds?		
25.	Are surroundings free of animal faeces and/rubbish?		
26.	Are there signs of open defecation in the surroundings?		
27.	Do some people wash clothes/bath close to pumpsite?		
28.	Is container used to fetch water clean?		
29.	Is the container used to fetch water covered?		
30.	Do people put leaves or rubbers on water after fetching?		
31.	Are people fetching water from other sources apart from the BH/HDW?		

Observation of Water storage in the house

Y N

32.	Is there a container for storing drinking water?		
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If Yes,

33.	Is drinking water stored in the container?		
34.	Is the stored drinking water covered?		
35.	Is water free from visible particles or mosquito larvae?		
36.	Is the water storage area free from animal droppings and garbage?		
37.	Is there a cup for fetching water from the container		
38.	<p>If yes, Where is it kept?</p> <p>(1) On the floor (2) On top of container (3) On a table (4)</p> <p>In the water (5) Others</p> <p>Specify.....</p>		

Appendix B

STRUCTURED INTERVIEW GUIDE FOR HOUSEHOLDS

Demographics of household

1.	Could you please tell me your age? _____ (1) 13 –19 years (2) 20-24 years (3) 25-34 years (4) 35-44 years (5) 45-54 years		
2.	SEX (1) Male (2) Female		
3.	How many people are there in this household? _____		
4.	What is your occupation? (1) Farming (2) Fishing (3) Petty trading (4) Others, specify		
5.	What is the highest level of education of the head of the household? (1) No formal education (2) Some primary school/JSS (3) Completed primary/JSS (4) Some secondary school (5) Completed secondary school (6) Some university/higher (7) Completed University		
6.	Are you single, married, living together, widowed, divorced or separated? (1) Single (2) Married (3) Living together 4) Widowed (5) Divorced/Separated		

Questions to Households on Use of Water

7..	<p>What is/are your source(s) of drinking water? Mark more than one if needed</p> <p>(1)Borehole/HDW (2) Well (3) Pond/Dam</p> <p>(4) Stream/River (5) Other (specify</p>		
8.	<p>What is the source of drinking water for the home? Mark more than one if needed</p> <p>(1)Borehole/HDW (2) Well (3) Pond/Dam</p> <p>(4) Stream/River (5) Other (specify</p>		
9.	<p>Which of them do you drink on the farm? Mark more than one if needed</p> <p>(1)Borehole/HDW (2) Well (3) Pond/Dam</p> <p>(4) Stream/River (5) Other (specify)</p>		
10.	<p>How many houses away is your house from the water source?</p> <p>(1) 1 to 3 poles away (2) 4 to 6 poles away</p> <p>3) 7 to 10 poles away (4) More than 10 poles away?</p>		
11.	<p>How many people do you have queuing during the mornings/evenings at the water source?</p> <p>(1) Less than 5 people (2) More than 5 people</p> <p>(3) About 10 people (4) More than 10 people</p> <p>(5) More than 15 people</p>		
12.	<p>At what time of the year do you have water from the tap everyday? Mark more than one if needed (1) Dry season</p>		

	(2) Rainy season (3) Throughout the year		
13.	Do users of pay for water?	Y	N
14.	If Yes what is the method of payment? State amount (1) A fixed monthly levy per HH (2) Metered charge per month (3) Pay-as-you-fetch (4) Flat charge per person		
15.	Do you have problems with the payment of water?	Y	N
16.	If Yes, What are the problems? 		

Questions about Personal Hygiene at home (women/children 6-12 years)

17.	How often do you bath? (1) Once a day (2) Twice a day (3) Every other day (4) Once a week		
18.	Reasons (1) Can't afford (2) Don't see the need (4) No reason		
19.	What things do you use to bath? (1) Soap (2) Sponge (3) Lime (4) Ash (5) Disinfectant		
20.	How often do you clean your teeth? (1) Once a day (2) Twice a day (3) Irregular (4) Not at all		

Questions on Sanitation Facilities

21.	Where do household members defecate? (1) Bush (2) Public toilet (3) Other (specify)		
22.	If public toilet how far is it from the house? (1) Less than 100 m (2) 101 – 500 (3) 501 – 1000 m (4) more than 1 km		
23.	Do you pay for the use of the toilet?	Y	N
24.	If Yes, how much per visit? (1) ₦20 - ₦30 (2) ₦31 – ₦50 (3) ₦51 – ₦70 (4) ₦71 – ₦100 (5) ₦100 and above		
25.	What is done after children go to toilet in the compound? (1) Left for animals to eat up (2) Dig and bury (3) Swept (4) Others		
26.	Where do you dispose of children's faeces? (1) Behind house (2) In the rubbish dump (3) Do not handle children's faeces (4) Others (specify)		

Questions on Waste Water Disposal

27.	Where is the waste water from cooking disposed of? (1) In the courtyard (2) Behind the house (3) In the bathroom (4) In the bush (5) Other (specify)		
28.	Where does the HH dispose of waste water after washing clothes? (1) In the courtyard (2) Behind the house		

	(3) In the bathroom (4) In the bush (5) Other (specify)		
29.	Where does waste water from the bathroom end up? (1) Soakaway pit (2) Trough emptied daily (3) Drainage/channel (4) No drainage		

Questions on Refuse Disposal

30.	Where do you dispose your refuse? (1) Public dump site (2) Behind house (3) Farm (4) Burn (5) Bury		
31.	If behind the house, how far is this from the house? (1) Less than 50m (2) 51 – 100m (3) 101 – 150 (4) 150+		
32.	If on farm, give reasons.		

Hygiene and Disease

33. What is the common disease or sickness in your family/community and what are their causes? Mark more than one if needed

(1)	DISEASE	Tick	SOURCES OF INFECTION
(2)	Diarrhoea		
(3)	Eye Infections		
(4)	Skin rashes		
(5)	Guinea worm		
(6)	Bilharzia		
(7)	Malaria		

Please use these codes to fill for sources of infection

1. Contaminated food
2. Unsafe water
3. Poor hygiene
4. Infected water
5. God
6. Evil spirits
7. Weeds around house
8. Pools of water in surroundings

Gender relations

34.	Who is the head of the household? (1) Father (2) Mother (3) Uncle (4) Aunt (5) Other (specify)		
35.	Who is responsible/takes responsibility for hygiene education or good hygiene practices in the household? (1) Father (2) Mother (3) Male children (4) Female children (5) Children		
36.	Who fetches water for the household? (1) Father (2) Mother (3) Male children (4) Female children (5) Children (6) Others (specify)		
37.	Who is responsible for sweeping and keeping the surroundings clean? (1) Father (2) Mother (3) Male children (4) Female children (5) Children (6) Others (specify)		

38.	Who does the cooking in the home? (1) Father (2) Mother (3) Male children (4) Female children (5) Children (6) Others (specify)		
39.	Who is mainly responsible for farm work? (1) Father (2) Mother (3) Male children (4) Female children (5) Children (6) All family members (7) Others (specify)		

Knowledge and level of acceptance of hygiene education messages

40.	During the time of the project were you given any hygiene education?	Y	N
41.	By whom? (1) WATSANs (2) EHAs (3) Community Health Nurses (4) Health related staff (5) Animators (6) Others, specify		
42.	What issues/topics were discussed? (1) Personal Hygiene (2) Environmental Hygiene (3) Domestic Hygiene (4) Pump site cleanliness (5) Keeping water safe from the pump till it is drunk (6) Others, specify		
43.	Did you find people change their behaviour as a result of the education?	Y	N
44.	What were some of the changes you observed? (1) Pump site was always clean (2) People drank only water from the borehole		

	(3) People stopped open defecation		
	(4) People made cautious efforts to wash their hands after defecation		
	(5) Others, specify.		

Effectiveness of current hygiene education methods

45.	Have you attended any meeting in the village in connection with hygiene education for the past month?	Y	N
46.	What method do/did the hygiene educators use in communicating hygiene messages to you? Mark more than one if needed. (1) Drama (2) Role play (3) Songs (4) Discussions/Talks with posters (5) Talks alone (6) Others		
47.	Do you have a radio?	Y	N
48.	Do you listen to radio?	Y	N
49.	Have you been listening to issues relating to hygiene on radio?	Y	N
50.	What are some of the issues/topics discussed? Mark more if needed. (1) Personal Hygiene (2) Environmental Hygiene (3) Domestic Hygiene (4) Talks on diseases (5) Others specify.....		
51.	Do you share information learnt with household/friends?	Y	N
52.	What methods do you use to share information with your		

	household/friends? (1) Drama (2) Role play (3) Songs (4) Discussions/Talks with posters (5) Talks alone (6) Others specify		
53.	Do you see any change in people's behaviour as a result of the hygiene education?	Y	N
54.	If Yes give examples. Mark more than one if needed. (1) People now drink from the borehole (2) People now patronise/build latrines (3) People are committed to cleaning pump site (4) People wash hands after defecating (5) People wash hands before eating (6) Food vendors cover food (7) Others.....		
55.	If No why has there not been a change inspite of hygiene education being given? (1) People not willing to change (2) Approach/method of education not appropriate (3) People tired of the messages (4) Messages inappropriate (5) Personnel delivering hygiene education not well trained. (6) Others		
56.	Make suggestions as to how best hygiene education can be carried out to make the expected impact. 		

Socio cultural factors

57.	What are the beliefs on the causes of diseases?		
58.	What are some of the cultural beliefs in relation to children's faeces?		
59.	What cultural practices do you think in a way do not promote hygienic practices? E.g. Not washing plates/cooking utensils at night.		

Sustainability of hygiene behaviour change

60.	Have there been an improvement in hygiene practices after the project ended?	Y	N
61.	What has improved?		
62.	What has turned worse?		

		
63.	Is hygiene education currently on-going in your community?		
64.	Which group/individual is responsible for hygiene education currently in your community? (Name of group or Organisation) (1) WATSANs (2) EHAs (3)Community Health Nurses (4)Health related staff (5) Others, specify.		
65.	Have you been attending hygiene education sessions?		
66.	If Yes, What are some of the issues/topics discussed?		
67.	If No Why not		
68.	How often is the water point cleaned in this community? (1)Daily (2) Less than a week (3) Weekly and above		
69.	Do you participate in the cleaning?	Y	N
70.	Who cleans the water point? (1) Everybody (2) Women (3) Men (4) Children (5) Caretaker (6) Vender (7) Nobody (8) Others		
71.	Make suggestions as to how best we can sustain hygiene promotion programs as well as behaviour change.		

Questions to mothers

Y N

72.	<p>With respect to hygiene and good health, what are the most important times for hand washing? (You can tick more than one answer)</p> <p>(1) After defecation</p> <p>(2) Before eating</p> <p>(3) After eating</p> <p>(4) Do not know</p>		
73.	<p>Why do you think handwashing is very important?</p> <p>(1) It makes you feel good</p> <p>(2) It keeps you from getting sick</p> <p>(3) Others, specify</p>		
74.	<p>Who should be responsible for hygiene education in the home?</p> <p>Tick as many as applicable</p> <p>(1) Mother (2) Father (3) Siblings (4) Relatives</p> <p>(5) Others, specify</p>		
75.	<p>Give reasons</p>		
76.	<p>How best can we sustain improvement in hygiene practices at home?</p> <p>.....</p> <p>.....</p>		

Appendix C

GUIDE FOR FOCUS GROUP DISCUSSION (FGD) for WATSANs

A. INTRODUCTION

1. What are the major problems in the community? Probe for reasons
2. What are the main water and sanitation related diseases in the community?
3. Probe for the seasonal variations in disease patterns.
4. What things are important to people in the community? (Probe: wealth, children, good health, livestock, jobs, position etc.)
5. If health is mentioned, probe why?

B. DEFECATION AND HYGIENE PRACTICES

1. Where do people defecate in this community?
Men
Women
Children
2. How are the faeces of children disposed of? (Probe extensively)
3. How are the faeces of those with diarrhoea disposed of? (Ask for reasons)
4. What are the common anal cleansing materials used in the community? Why are these used? How are they disposed of?

C. HANDWASHING PRACTICE

1. At what time would you wash your hands? (Probe reasons)
2. What things do you normally wash your hands with? When will you use soap and why? When will you not use soap?
3. Many people will not like to wash their hands with soap, why do you think this is so?
4. Which people are more likely to use soap to wash their hands and why?
5. Which is the most important occasion for washing hands with soap and why?

D. SOURCES OF WATER

1. Where do you normally get the water you use in your home from? (Probe for sources of water for different purposes – drinking, washing, bathing, cooking, farming etc.)
2. How would you describe the water situation in your community? (Probe for availability, seasonality, queues at pump site etc.)
3. What do people usually do when there is a water shortage?
4. Is there anything about the water situation in your community you would like to share with us?

E. HYGIENE EDUCATION/PROMOTION

1. Do you carry out hygiene education in the community? If no, which group does?
2. How often are these sessions held?

3. Has hygiene promotional activities taken place in the community within the last 3 months?
4. What issues/topics are/were discussed?
5. What methods are/were used to deliver hygiene education messages?
6. Do you have problems with the use of these methods?
7. Comparing the attendance to hygiene meeting during the time of the water project to presently. How has the patronage been?
8. If there has been a remarkable improvement what might have accounted for that?
9. If it has decreased what are the possible causes?
10. Did the hygiene education by animators on the project influence peoples' behaviour?
11. If Yes, in what ways?
12. Was the change in behaviour sustained over the years? Did it improve or has it deteriorated? Give reasons to your answer.
13. How often is the water point cleaned in this community and who does it?
14. Do you supervise the cleaning?

G. SUSTAINING BEHAVIOUR CHANGE

1. What are some of the problems you face in delivering hygiene messages?
2. Can these problems influence hygiene behaviour change?
3. Do people still patronise the traditional water sources (rivers, stream, dug out, ponds etc)?

Appendix D

**QUESTIONNAIRE GUIDE TO BE USED IN SCHOOLS WHO HAVE
BENEFITED FROM THE CRRWSP INSTITUTIONAL LATRINE
PROJECT**

Observation latrine use and maintenance

		Y	N
1.	Is the latrine path leading to the latrine clear from weeds?		
2.	Is the latrine floor free from visible anal cleansing materials?		
3.	Is the latrine floor free from visible excreta?		
4.	Is the latrine floor free from visible puddles of urine?		
5.	Can latrine pit be used by children? (e.g., being full or not)		
6.	Latrine is maintained and free from major problems?		
7.	Cover slabs, in place, free from cracks		
8.	Squat slabs, in place, free from cracks		
9.	Vent pipe stable, without wiggling		
10.	Fly Screen exists, seems to be in place		
11.	Doors in place, can be opened and closed		
12.	Walls, free from cracks that can be seen through		

Observation Materials for handwashing

13.	Is water for handwashing available?	Y	N
14.	Is soap available?		
15.	Are water and soap within reach of each other?		
16.	Is handwashing facility within 40 steps of the latrine?		

Observation drinking water storage

17.	Are receptacles available for storing drinking water?		
18.	If yes.....		
20.	How many receptacles are there in all?		
21.	How many are covered?		
23.	How many receptacles contain water?		
24.	Does the water appear to be free from visible particles and mosquito larvae		

32.	When you think of good hygiene and health, what are the two most important times for handwashing?		
	Before eating		
	After visiting the latrine		
	After cleaning a child's faeces		
	Do not Know		

33. Where do boys in the lower classes (P1 – 2/aged 6 years to 8 years) defecate?
 (Let the child answer freely and then code as shown below. Mark more than 1 box
 if needed.)

	In the school latrine		
	Other places		

34. Where do girls in the lower classes (P1 – 2/aged 6 years to 8 years) defecate?
 (Let the child answer freely and then code as shown below. Mark more than 1 box
 if needed.)

(A)	In the school latrine		
(B)	Other places		

35. About the latrines, are they cleaned by

(A)	boys in the school?		
(B)	girls in the school		
(C)	Is there a planned roster involving boys and girls?		

Ask for roster to cross check. Please make comments on what the situation is in
 the school

Y N

36.	Do you learn hygiene in class/school?		
37.	Can you mention two things related to hygiene you learned in school?		

Confirm and tick question 37 if child is able to mention two of the items below without being prompted

a) Wash hands before you eat
b) Wash hands after latrine use
c) Drink safe water
d) Cover your food from house flies
e) Drop anal cleansing materials into the pit
f) Observe Personal Hygiene