

**COMMUNITY PERCEPTIONS ON THE UTILISATION AND
MANAGEMENT OF THE DOUBLE PIT LATRINE IN RURAL
PARTS OF SIAYA AND KISUMU DISTRICTS**

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**THESIS SUBMITTED TO THE UNIVERSITY OF NAIROBI
(INSTITUTE OF AFRICAN STUDIES) IN PARTIAL FULFILLMENT
OF THE DEGREE OF MASTER OF ARTS IN ANTHROPOLOGY**

JULY 2000

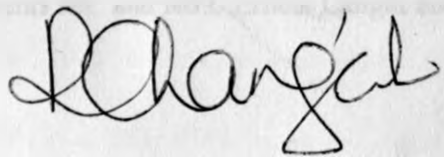
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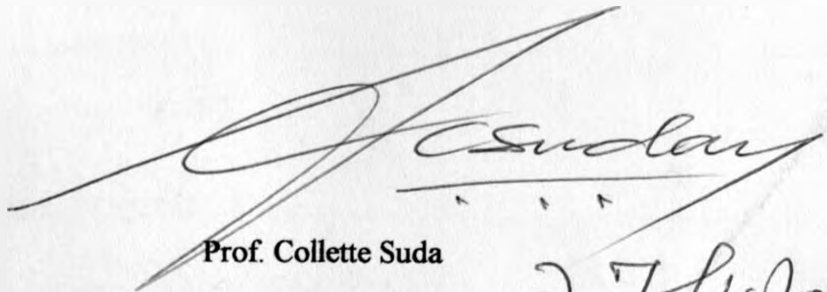
DECLARATION

This thesis is my own original work and has not been presented for a degree in any other University.

 13.10.00

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This thesis has been submitted with my approval as the University Supervisor.



Prof. Collette Suda

Institute of African Studies

27/10/2000

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Acknowledgements

For the accomplishment of this thesis, I am deeply indebted by the assistance given me by various individuals and institutions, without whom the work would not have been possible.

To begin with I pass my gratitude to the staff and administration of the Institute of African Studies, University of Nairobi for their support and constant guidance. I also thank the Kenya/Netherlands Rural Domestic Water Supply and Sanitation Programme, Nyanza and the Team Leader Mr. Matthijs Toot for providing the framework and facilitation for study in the Programme area.

For moral support, I thank my family and husband, parents and sisters. In the same vein, Prof. Collette and her unwavering vision has been a constant source of inspiration. I will always be grateful for her central position in getting through the hurdles of this thesis. I also thank Prof. Simiyu Wandiba for his administrative support as Director of the Institute in 1998.

Abstract

The aspect of sanitation related to the hygienic disposal of human excreta is an important feature of mankind's existence. In Kenya, the majority of the population lives in the rural areas where modern sewerage systems are not available and may continue not to be within the next two decades. Affordable, sustainable, sanitary and rural based technologies are relevant to the majority of the population, including those in the area of study, Nyanza Province. The perception held by people towards an innovation that affects the commonly viewed as personal 'call of nature' is pertinent to its widespread adoption. This study, taking a cross sectional approach, assesses the influence of socio economic, geographical, ecological and cultural factors on the evolution of attitudes towards the double pit latrine in two, rural Luo communities in Nyanza Province. Specifically the voice of the community, their observed behaviour, gender based division of labour and power relations in the technologies' surrounding activities, income, education and occupation are considered both statistically and qualitatively. These considerations are analysed to determine their influence on the evolved perception held by the adopters in Mahanga village in Ugenya, Siaya and those in Kanyajwanga in Kadibo, Kisumu, towards the double pit latrine.

Evaluation of these variables are made within the context of the diffusion theory as propounded by Malinowsky and undersigned by the theory of participation as propounded by Robert Chambers in the twentieth century. Malinowsky commonly regarded as the founder of the functional school of thought maintains that human institutions should be examined in the context of their culture as a whole. His theory

explains change from the point of view that society adopts what is useful to it, and thus allows aspects of an external culture to naturally integrate within another society. The theory of participation on the other hand argues that development will never be sustained if conceived and imported without the involvement of targeted groups. It suggests that development and change cannot be willed upon people, but requires that people themselves identify their problems and interact with outsiders as partners to seek positive change in their lives. These theories illuminate the issues under study and act as an underlying framework to the hypothesis.

The central hypothesis is used to try the position that culture and perception of the community has hindered the full adoption of the technology under consideration. Alongside this, a hypothesis is used to test the commonly held and widely published view that rural communities adopt sanitation technology for reasons other than health and hygiene. These key issues of attitudinal acceptance, rejection and behaviour, form the basis of study objectives and research questions. In turn, the research questions form the starting point for the investigative tools such as the Focus Group Discussion checklists and standardised questionnaires deployed in the study.

Qualitative and quantitative analysis indicated that due to previous experience, and mode of entry amongst other factors, there has been widespread acceptance of the controversial use and management process of the technology. Notably the concept of reuse of human wastes as farm manure did not present itself as culturally objectionable, although not deliberately previously practised in this culture. The

community is easily categorised as feaco phobic but were seen able to overcome the phobias in meeting a perceived higher, and well identified need.

The motivation of users in adoption lean strongly to the medical and scientific, as well as social and cultural influences, with a stated emphasis on the former. Full diffusion of the double pit latrine is limited however by the material cost of key elements of the technology, in relation to the income levels of the majority of the study population. Finally, the technology has left unchallenged the traditionally defined gender roles, activities and power relations which bear both negative and positive implications on the future construction, management and use of the double pit latrine. In conclusion these findings disprove the central hypothesis that the technology has not been adopted due to overriding cultural taboo as regards human waste management in traditional Luo society.

The study brings focus on the urgent issues that arise regarding full fledged sanitation coverage in low income rural areas, chief being the mainstream promotion of more affordable, appropriate technology in difficult conditions. The findings persuade us to build on perceptual and attitudinal strengths concerning sanitation to ensure a wider based diffusion by all sectors of the society in future. Additionally, although modernisation can be forged through external influences, internal gender dynamics must not allow discrimination of certain groups in the community as regards access and control of benefits that are realised during the process of introduction of new technologies.

CHAPTER ONE: INTRODUCTION

1.1 Preamble

The World Health Organisation declared the decade of 1980 - 1990 the water and sanitation decade, and strove to set in motion a concerted effort by the United Nations member states to provide adequate water and sanitation facilities for all by the turn of the century. It proved to be a task far easier called to than achieved, and as the millennium draws near, so also a paradox. In an era when the human race puts people on the moon, transplants hearts and communicates instantly around the world, at least half the population of the world has no access to proper sanitation (Goransson, 1997).

Human excreta is the principal vehicle for the transmission and spread of a wide range of communicable diseases. Some of these diseases rank among the chief causes of sickness and death in societies where poverty and malnutrition are characteristic features. Diarrhoeas, for instance, are – together with malnutrition, respiratory disease and endemic malaria - the main causes of death among small children and infants in Nyanza Province of Kenya (MoPND, 1994-1996). Cholera, whether endemic or epidemic in form as has occurred in the region in the latter 1990's, is accompanied by numerous deaths in all age groups. Under endemic conditions however, it is children who suffer the most fatalities. Other diseases, such as hookworm infection and schistosomiasis, cause chronic debilitating conditions that impair the quality of life (however defined) and make the individuals more liable to die from superimposed infections.

These diseases, and the many others found in the Nyanza region, start their journey from an infected individual to a new victim when the causative agent is passed in the excreta. Therefore the collection, transport, treatment, and disposal of human excreta are of the utmost importance in the protection of the health of any community. In relation to this study, human perception of the collection and disposal the process is directly relevant to full adoption and utilisation.

It was in response to this phenomena that the Rural Domestic Water Supply and Sanitation Programme (RDWSSP) was established in 1982 in response to the United Nations call to 'water and sanitation for all by the year 2000'. The Government of the Netherlands joined hands with the Kenyan Government to initiate the RDWSSP, and selected Nyanza Province as their area of operation due to the high child mortality rate and frequent outbreaks of cholera and other water/sanitation related diseases, among other considerations. The programme continues to be funded bilaterally by the Government of Kenya and the Government of the Netherlands.

The Programme objectives are summarised in three main points. The first is to provide safe and accessible water to communities in Nyanza Province ensuring user responsibility for facilities that are easily operated whilst lessening the burden for women and children in fetching and carrying water. The second is to promote health education with emphasis on safe disposal of human waste through low cost, easily maintained sanitation facilities. The third is to decentralise the programme to independent district based operations and enhance the management and organisation capacity of the beneficiary communities. The second objective that relates to sanitation

and health is closely linked to the short-term goal to 'support communities in the construction of 6000 hygienic latrines with per capita coverage of 10 persons.'

It was in striving to realise this short-term goal that the programme initiated the double pit (sometimes referred to as twin pit) technology in 1992. It was seen as the most feasible solution to latrine construction in unstable soil conditions. Although it had been introduced in other parts of Africa, it was a completely new technology to the projects in which RDWSSP propounded it in Nyanza Province.

The most novel aspect to the adopters was the requirement that the user would eventually need to handle their own excreta, albeit decomposed, for the system to be effective. It was in view of this and other features of its construction and maintenance, that programme management expressed their reservations, doubting its viability in a highly conservative environment.

The purpose of this study was to evaluate, after 5 years of its adoption, the perception of the users of the double pit latrine in two villages in terms of their experience; it's aptness and acceptability as regards gender and culture. Finally it sought to establish the latrine's capacity for duplication, which holds relevance to its sustainability as a development intervention.

1.2 Background to the Problem

The Rural Domestic Water Supply and Sanitation Program introduced three types of latrines in Nyanza Province since its inception in 1983 (i) The Sanplat latrine consists of a pit of between 15 - 20 feet deep and is covered with a concrete slab with a key hole shaped opening. The opening is covered with a detachable, wooden cover with a handle; this cover is in place to avoid fly breeding. The pit and slab are enclosed in a superstructure to enable privacy during use. (ii) The Ventilated Improved Pit latrine is the same as the Sanplat latrine but uses a vent pipe made of PVC that uses the principle of light in order to trap flies, as well as a revolving door structure which maximises darkness in the interior. (iii) The Double pit latrine that is two pits of 7 feet deep used alternately.

History of the Double Pit Latrine in RDWSSP

RDWSSP has had two phases of sanitation approach that were influenced by the development theories of the time. The approaches developed from the top - down to the bottom up approach. In the first that was between 1985 and 1990, the programme would implement only one latrine in the community and carefully demonstrate to community members how the latrine could be made on their own. This was thus called the demonstration approach, and the latrine was developed in a public place such as an educational institution, clinic, or church compound. It was there left to community members to use their own resources to follow suit at homestead level.

During this first phase, in unstable soil conditions the programme dug one deep latrine of up to 20 feet, and using cement blocks, lined the entire length of the latrine. The slab was installed with permanent mortar. The latrine super structure

was finished with bricks and roofed with iron sheet. The cost of the completed latrine stood at approximately 18,000 Kenya Shillings.

More pertinent than its inaccessibility for rural families due to its high cost was the fact that in the final analysis it was a very high investment for a facility which could not outlive a traditional house made of timber, mud and thatched with grass. As soon as it filled up, the latrine had to be abandoned. The blocks and the slab were permanently sealed together, and an attempt to separate these forcefully for re-use would result in damage, rendering such an exercise useless. The demonstration latrine was not a sustainable sanitation intervention and could not be widely replicated at household level. Over the 5 year phase, the level of replicability was low and latrine coverage realised few changes as a result of the demonstration latrine.

From August 1992 to 1996, RDWSSP changed the sanitation approach. Instead of demonstration, the target of latrine implementation became the individual homestead. Cost sharing for the latrine technology whichever chosen, was introduced for materials not available locally. Items such as latrine component moulds, cement, and ballast as well as technical assistance in community organisation, component manufacture construction were provided by the RDWSSP. Community members provided labour and locally available resources, (PAT, 1993). The principle of community cost sharing was aimed at enhancement of ownership feeling and increased commitment to the intervention. It was further based on the participation theory for rural development.

After a year of the household approach to sanitation, there arose an acute problem in parts of Nyanza Province. In some places the above two mentioned designs were not feasible. Because of the soil type, digging beyond 7 or 8 feet was not possible due to swampy areas, shifting soils or highly rocky formation.

RDWSSP introduced the double pit latrine technology as the homestead level solution in unstable or rocky soils in the Programme area. It was first introduced to Kagia village in Kisumu district on a trial basis. After successful implementation of the pilot it was later extended to villages in other districts of the Province. The double pit latrine sought to solve the problem of the old latrine for unstable soils and the main thrust of the technology was in its construction simplicity, affordability and sustainability.

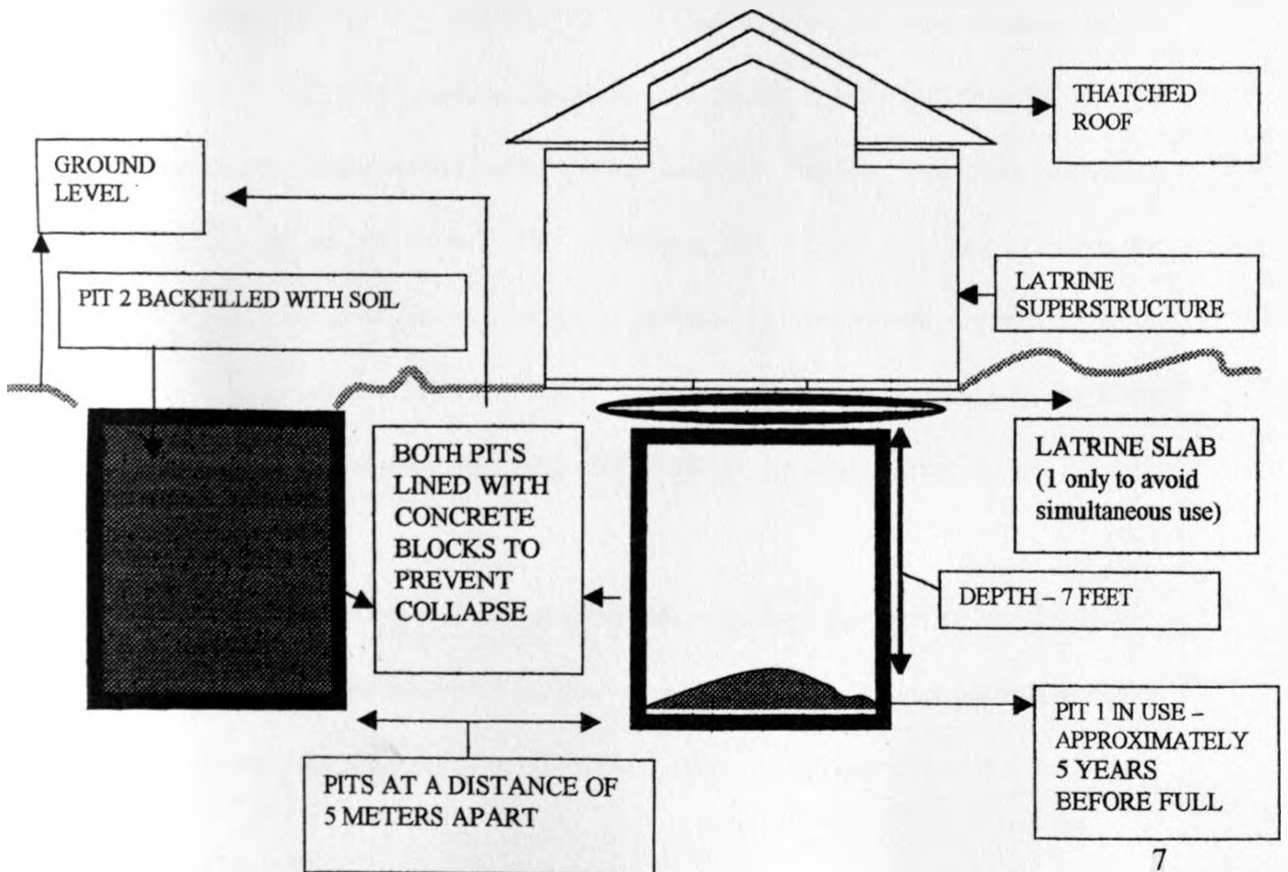
The Double Pit Latrine design

A double pit latrine is one with two shallow pits dug at a maximum of 5 meters apart. Although the pits are two, it is considered as one latrine. This is because only one pit can be in use at any one time. Both are lined from the base to the top with blocks and the cover slab rests on a ring of large blocks called the slab foundation blocks. The blocks are trapezoidal and designed to fit together like a puzzle, such that no mortar is required to ensure that the structure remains in place. The Programme policy requires that only one slab be provided per double pit. This is to prevent the two pits from being perceived as two latrines, and possibly used simultaneously. After the first pit has filled up, the homestead user is expected to transfer the slab to the second pit as well as transfer the

slab foundation blocks. After the second pit has filled up, the first latrine is to be excavated and the contents disposed of, or used as manure.

The depth of the pit is designed to be 7 feet based on a scientific calculation on the rate of pathogen die off, against the speed with which the pit fills. If a homestead of 8 – 10 persons use it consistently over a 2 –3 year period, it would fill up, allow for the shift to the second pit and have the same amount of time for the process of decomposition and pathogen destruction. The rate at which the latrine fills varies per homestead number and diet, but the 7-foot depth is seen as able to absorb variations in this range. According to Ministry of Health (1987) - provided the filled pit is closed off for at least 2 years, a stable pathogen - free humus is produced which can safely be used on the farm. The figure below shows the key features of this technology.

Illustration 1 - Key features of the double pit latrine



The approach can be limited where the handling of human faeces is socio-culturally unacceptable and that this technology being relatively new in Kenya, care must be taken to ensure that the users have adequately learned how to use it correctly (MoH, 1987).

... can be readily identified, the perceptions of users and values were greatly important in the study. What they determine is acceptable depends on what we do want to deal our body chemistry.

... the same way the complexity of a well design system can never be taken for granted. In fact, some of the technical needs during the introduction of the latrine in Kenya in Nyeri Province. It was noted that the solution to correct construction of pits, lining of block system and condition of the double pit system, latrine system design.

... sustainability is provided after the first pit is full by digging the second pit and then shifting the slab and block foundation ring to it. The material secrets in the first pit are covered with dirt. The procedure is repeated until the second pit is full. The alternating use of the two pits provides for increased long-term use of the latrine system. The perceived investment is not high as that required. With the single lined pit (as was used in phase I), the lining material would be used once only and would not be recoverable.

... technology is a matter that the above technology provides for sustained long term use of the latrine system. It has not addressed the importance of perceptual factors in design and how they affect the behaviour and attitude of the community.

1.3 Problem Statement

Perception is a complex and personal thing as pointed out by Woodhouse (1992) in his study of perception of water in Kibwezi. He states, “although colour and turbidity can be readily quantified, the perception of taste and odour varies greatly from one person to the next. What we determine as acceptable depends on what we are used to and our body chemistry...”

In the same way the complexity of social improvements can never be taken for granted as has been done in the statement made during the introduction of the double pit latrine in Nyanza Province. It was stated that the solution to latrine construction in unstable, loose or black cotton soil conditions is the double pit latrine. An internal report states:

“Functional sustainability is provided after the first pit is full by digging out the second pit and then shifting the slab and block foundation ring to it. The accumulated excreta in the first pit are covered with dirt. The procedure is reversed when the second pit is full. The alternating use of the two pits provides for continued, long-term use of the latrine system. The permanent investment in pit lining is also retained. With the single lined pit (as was used in phase I), the lining investment would be used once only and would not be recoverable.”

Although technically it is evident that the above technology provides for 'continued, long term use of the latrine system,' it has not addressed the importance of perceptual factors that develop over time and may affect the behaviour and attitude of the community.

These factors will define whether the communities are actually willing to manage and utilise the facility as designed. Practically it would translate to agreeing to transfer the slab as well as the foundation ring blocks, and most important, excavate the first pit after the second has filled. Full adoption, whereby there is both mental and physical diffusion, would be reflected in the understanding and attitude toward the cost and value of the technology as an investment and their willingness to not only adopt but to replicate it as an integral part of their culture. Finally the impact of the technology in terms of the communities' internal gender dynamics have not been investigated. Gender issues have been seen as central to successful development interventions, and in response to this the study seeks to document hitherto undocumented gender responses to issues surrounding the double pit latrine.

1.4 Research Questions and Objectives

The problem statement leads to the development of fundamental questions that have been used to construct the research questions. In some communities there are taboos surrounding latrine use. Akonga (1991) sites responses in one survey that indicated that in the perception of some people, faeces of children are not harmful, and therefore need not be treated as though potentially dangerous. Because of this perception children's faeces would be left on the compound and ignored. In the perception of others, he records that approximately 11 percent believed that the faeces of children should not be mixed with that of adults, as there would be a danger that witches would have access to it and use to harm the child. These perceptions were seen thus to strongly determine behaviour and habits. Because perception is complex and built from culture and experience, the study seeks to answer the following:

- What is community perception towards the double pit latrine and how have these perceptions evolved?
- Are these perceptions affecting full double pit adoption either positively or negatively?
- Has the perception of the technology affected internal gender relations and dynamics through its key processes?
- Are there recommendations that can be made on the way forward drawn from observing the perception of these adopters?

The study sought to analyse the perception of the double pit technology, which falls within an overall cycle of project monitoring, anthropological assessment/evaluation and project action. This cycle is illustrated in the chart below.

Illustration 2: Diagram of Project Cycle

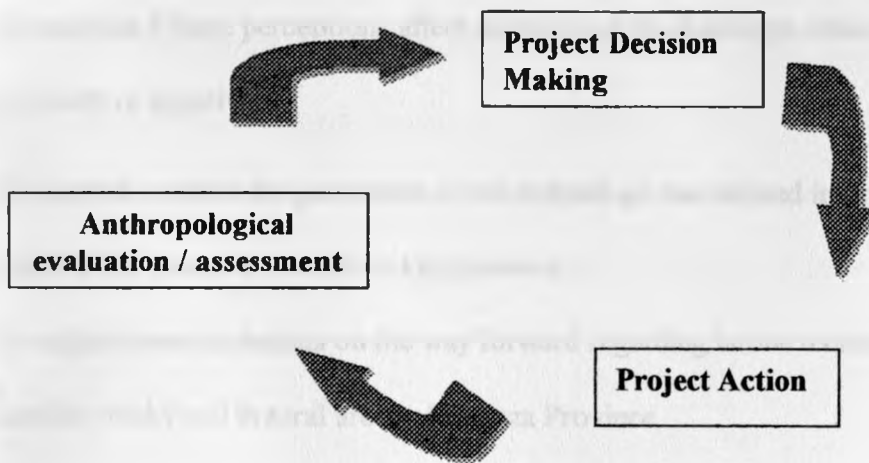


Figure 1 presents the overall framework within which the study finds its objectives. At the level of decision making, a certain technology is proposed based on its technical feasibility. Project action in the form of mobilisation and implementation follow as a result of this decision. Afterwards, as time passes there is need to establish whether the community have accepted the intervention at a crucial level, at which stage an anthropological evaluation is commissioned to establish the communities' worldview and experience as regards the specified technology. This step of anthropological assessment leads to further decisions and culminates in recommendations for project action.

Pointedly, the study aimed to assess 3 main issues in relation to the double pit technology that from the research questions, form the basis for the study objectives.

Objectives

1. To record the evolution and perception toward the double pit latrine in two communities who have adopted the technology, after 4 - 5 years.
2. To establish if these perceptions affect adoption of the double pit either positively or negatively
3. To establish whether the perception of the technology has affected internal gender relations and dynamics through its key processes
4. To make recommendations on the way forward regarding latrine technology for unstable /rocky soil in rural areas of Nyanza Province

1.5 Justification of the Study

The study is justified in relation to appropriate development approaches that consider suitability, gender and sustainability as well as the importance of sanitation in Kenya.

Many scholars in the twentieth century advance the view that development 'gurus' should aim to be relevant to the needs and aspirations of targeted groups as opposed to enforcing ivory tower decisions as seen appropriate to themselves. This position evolved as a result of the enormous failures of development interventions that were literally imported, never winning the hearts or minds of their supposed beneficiaries.

In light of the above, the study is justified in measuring community acceptance of the introduced technology and making recommendations based on the community members world view. The response of the target communities towards the technology has not been recorded in literature, and would usefully be established toward this end and eventually increased sanitation coverage.

The study is further justified in assessing and recording perception, as this will clarify the pertinent question on what the community sees as the reason for using or having a latrine. In analysing culture Haviland (1974), states that an invention's chances of acceptance are limited if it fails to fit into a society's pattern of established needs, values and goals. In this case, the study group requires a reason

or motivation for using a new kind of waste disposal system. In answering the questions of motivation for using and owning the double pit latrine conclusions can be drawn on the way forward, based on the communities perception. According to Cairncross, (1988) in general, the desire for improved health is not the most likely source of motivation because the connection between latrine usage and health is often not perceived. The perceptions held in these communities about human waste systems are significant to widespread adoption. To propel the intervention forward, their 'most likely source of motivation' bears central relevance.

From another angle, the study is justified because at National level, the majority of Kenyans live in the rural areas where modern sewage systems are not available and may not be within the next two decades. Rural, human waste disposal systems are relevant to the majority of Kenyans. A majority of the diseases that affect communities in Nyanza are related to inadequate supply of waste disposal facilities and safe water. Cholera, typhoid, dysentery, tapeworm, hookworm are among the array of common illnesses which assail these communities and are transmitted through faecal - oral routes. Increased understanding of the current cultural perception of sanitation technology for certain areas will be gained through this study. The findings may take their place in the fight against disease.

Women in Africa have traditionally taken a pivotal role in the home front in food cultivation, trade, food preparation and child rearing. In spite of this, their power and status were always in some major ways less than those of men (Jean Hay et. Al., 1984). Technology and new innovations would be thus accepted or rejected by the dominant

sex, without the balance of the perceptions, and consideration of roles and activities by the subordinate sex. The double pit latrine technologies' impact on the communities construction of gender has neither been examined nor recorded, and may lead to increased understanding of the forces behind suitable and increased latrine adoption in the community.

CHAPTER TWO:

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter focuses on documented literature on the topic of the perception of rural communities towards human waste and disposal systems, development approaches, and sanitation.

2.1 Literature Review

To begin with in this literature review cultural responses to human excreta will be examined, to outline documented human responses to sanitation systems.

Attitudes and perceptions about people's revulsion against faeces and urine vary between cultures, and often people's attitudes towards urine differ from those towards faeces. Tanner (1995) writes that a social group develops their own social policy for excreting, defined by age, marital status, sex, education, class, religion, locality, employment and physical capacity. The human dimension was found by Cross (1995) to be the most neglected although of central importance to a full understanding of its potential in systems advocating reuse. A Koranic edict considers urine to be a spiritual pollutant, and Islamic custom demands that Muslims minimise contact with human excreta (Hanafi 1985). Also cited for Muslims, is that positioning of the latrine was deemed appropriate or inappropriate to the extent that the latrines' position was appropriate in relation to Mecca (Goyder, 1978). In Sweden and in Russia, urine has commonly been used to smear wounds, and to

some extent to drink as therapy (Frode-Kristensen 1966:18). Recently urine has been shown to have a disinfectant property. Hansen (1928:88) reported that in the Danish countryside in the 19th century urine was stored and used as a detergent for washing clothes and dyeing.

Faeces in contrast to simple urine, are perceived quite differently, and are regarded as offensive and unpleasant to handle as seen by Malinowski among the Trobriand and by Fortes with the Tallensi (Hamlin, 1990). An exception to this is the perception held to cleaning a child's bottom or that held by professionals/caretakers towards caring for the elderly or incapacitated.

Faeces may carry a definite cultural meaning, for example that one's faeces can be a medium for revenge and therefore must not be seen by others, or that the faeces of certain kin must not be mixed. A study in peri urban Eldoret in Kenya indicated this by stating that some of the informants thought it unsafe to throw children's faeces into the latrine. Here it was perceived that latrine use was dangerous for children because children's stools should not be mixed with those of adults and children's stools should be hidden from witches who may pick on the stool of a particular child for ill motive (Akonga' 1996:42).

From its practical uses cow dung seems to be seen as less offensive than that human faeces. A century ago it became popular in rural Sweden to attach the latrine house (with no pit) to the stable, so that human faeces and dung from the stall-fed animals

were mixed to make them less repulsive when applied to the fields. Fortes reported a similar practice among Tallensi farmers, using a mixture of human faeces and animal manure as fertiliser. Another common way to get rid of faeces is to let pigs and dogs scavenge, i.e. eat the human faeces and produce their own faeces, (which are not regarded as equally repulsive.)

In India the work of excreta collection with the bucket latrine system is reserved for a special margin of society commonly seen both as oppressed and untouchable, and who are destined to this task by virtue of the occupation of parents and lineage (Pathak, 1994). In contrast, Reid (1991) writes about the professional pride shown by Parisian sewer men. Another example from South Africa tells that the ethnic group 'Bhaca' are eagerly sought after as attendants at sewage treatment works (Mbambisa and Selkirk, 1990). According to the same source, highly qualified Trankeians are reluctant to work in the sewage treatment field. The most common perception of human solid waste has been one of disgust, how deeply the view that excrement is despised varies: for some peoples, excrement is simply dirty; for others it is evil or to be scrupulously avoided (Curtis 1978). At the same time certain cultures have used human waste for agriculture and aquaculture for centuries, and register no disgust at all.

Cultural interpretations of excreta and defecation underlie people's responses both to the deposition technologies and to removal and reuse processes. Feachem (1980) states that excreta usually have a special psychosocial status and that in many

society excreta are only referred to in everyday speech with calculated disrespect for the values in society.

Literature points to the fact there is no one best technical solution for human waste disposal systems all over the world. Technical solutions must be adapted to the local environment, the financial resources available, the skills and the traditional 'latrine behaviour' of the user. The western world have largely adopted the toilet connected with the urban sewage system; there are the shallow, pot like toilets emptied daily or weekly commonly used in China where there is widespread use of night soil for aqua and agriculture. There is the pit latrine and the Ventilated Improved Pit (VIP) Latrine widely used in Africa; India favours the pour flush system that enables washing of the anal area with water. There are the toilet designs that accommodate the habits of those who favour cleaning with sticks or stones in which case a pour flush toilet will not be appropriate in view of potential blockages. A pour flush toilet then would be culturally acceptable for a community that uses water for anal cleaning. It is pertinent that latrine/toilet development considers if people are washers or wipers, squatters or sitters, their climatic conditions, what type of soil dominates their environment, where the ground water table is and which materials and skills are locally available (Winblad, 1985).

Literature has documented barriers experienced by development programmes in community adoption of introduced sanitation practices. Opposition to latrine use in an Indian village was based on the fact that women were accustomed to going out into the fields to defecate, and this gave them an opportunity to socialise with

women friends. This occasion was valued by high caste women because they were generally confined to their homes (Barnouw, 1975).

Safe latrines have been promoted in Bangladesh for nearly 30 years but until the end of the 80's they won little acceptance amongst the majority of the population. The main thrust of the campaign was for many years the concept of germs and health. With this approach the sanitation coverage achieved was only 8%. When researchers sought to find out why, it was established that for 75% of the population who were illiterate, the main attraction of latrines were privacy, convenience, comfort of women and prestige. A shift was made and sanitation promotional material now highlighted women's preferences and cultural values, rather than simply repeating health messages. As a result of this and other communication strategies, the percentage of rural families with a sanitary latrine rose from 10% in 1989 to 26% in 1991 (Gore-Dale et al 1993). This example shows that positive change occurs more effectively where the efforts of development agents are aligned to the knowledge and beliefs of the community.

From another angle of beliefs and practice, the ancient Israelites were instructed to take a stick with them on their early morning journeys from the camp to the bush, the stick to be used for burying faeces (Deuteronomy 23:12). The instruction related to ritual cleanliness of warriors before battle, showing that often there is a common ground between science and beliefs that could usefully be exploited as entry points for sanitation programmes.

Mary Douglas, seeking an explanation of the universal existence of taboos, suggests that those things become taboo which are difficult to classify culturally. An inference to this idea is that most societies prefer to maintain a clear distinction between man and animal, man being the superior thinker, tool maker, dominant- whereas animals are instinctive, confined to their creature strengths, and of a lower order. The distinction is difficult to maintain in view of these bodily functions thus defecation and excreta are taboo because they reveal to man an aspect of his animal existence that he would prefer to forget (Douglas, 1966).

One bulletin categorises 3 types of sanitation Programs in the developing world. These are site and service schemes, shanty town or slum improvement schemes and rural sanitation programs. In the third, which is relevant to this study, it is argued that excreta disposal is a sensitive matter about which people have strong, cultural preferences. Participation and involvement in the design and implementation of any sanitation program by the community is essential to its success, and solutions imposed from outside are unlikely to succeed (Cairncross, 1988).

Literature also points out that resistance to new latrines could be due to practical aspects as well, such as inadequate door latches. Though seemingly mundane, it is indicative of high value on privacy (Goyder 1978). Curtis (1978) elaborates upon the sensitive issue of convenience of latrines in terms of location, siting and accessibility. If siting is not done carefully it may be too far for most to use, or too close for free use. In a new tenement project in Madras where toilets were provided in each flat, housing officials found that some of the units were filled with sand and

the space used for other purposes. It was found that defecation within the small confines of the apartment was unacceptable to the occupants. In Botswana it was seen through careful monitoring of a latrine programme that the act of carrying a container of water to the new privy (something quite acceptable in India) was embarrassing to the users. The design was subsequently modified to provide water at the source and allow discretion within a culture that did not enjoy announcing through action, the details of a private intention. He mentions that in rural areas people may find the bush more acceptable and comfortable than pit latrines. This may be due to the fact that latrines may be hot, malodorous and fly ridden, or that children hold anxieties about cavernous holes in the squatting plates. Curtis mentions that comfort for latrine programs are a "selling point," but difficult to predict, again mentioning that squatting, sitting, washing, wiping habits would be best aligned to traditional practice to reduce conflict.

Literature emphasises the core issue of disease and population in sanitation. Of the 37 diseases that are the primary causes of death in the developing world, 21 are water and sanitation related, and for 10, water and sanitation improvements are considered a primary intervention for prevention. From inadequate sanitation, the annual death toll runs into millions (WASH Update, 1991). Rural populations in the lower income countries have minimal access to waste disposal facilities. Rural and shantytown populations still have access to only the most rudimentary facilities or no facilities at all.

Statistics for Africa reflect a growing population, increasing poverty and consequent drops in basic social amenities. Kenya is demographically renowned for the rate of natural increase in the 1980's of 4 percent, per year. The population increased from 5.5 million to 17.2 million in the period 1950 - 1985. More specifically, figures on Kenya have shown that between 1985 and 1993 the percentage of the population with access to sanitation facilities dropped from 75% to 49% in urban areas, and from 39% to 35% in rural areas (World Bank, 1996).

Cairncross (1988) emphasises the importance of sanitation by stating that correct disposal of excreta is one of the most effective measures which any community can undertake to prevent disease. The full range is broad, and is outlined as follows: faeco - oral diseases (non bacterial, from viruses, protozoa and parasitic worms); faeco-oral diseases (cholera, bacillary dysentery and typhoid fever); soil transmitted helminths (children are most vulnerable); beef and pork tapeworms; water based helminths (bilharzia); excreta related insect vectors (filariasis and diseases transmitted by cockroaches and flies.)

In general, the faecal related and faecal transmitted diseases found throughout the developing world share a common origin: the contamination of food, water or soil with human waste (World Bank, 1980). Relatively simple techniques of waste and water treatment are available which, if applied, would greatly diminish the risk of catching faecal transmitted disease. Sanitary storage of excreta accomplishes a great deal; within 2 weeks many of the harmful bacteria die because they cannot survive outside the human host. The same applies to most viruses.

From here, sanitation also relates strongly to development: 'Health should not be seen as an objective of development. What has not been sufficiently recognised is that good health is a positive force driving development... health is more than a consumer item; investing in health increases the human capital of a society. And, unlike roads and bridges, whose investment value dwindles as they deteriorate over time, the returns on health investments can generate high social returns for a lifetime and well into the next generation' (UNDP, 1991).

In striving to attain adequate sanitation facilities, (Winblad, 1985), argues that the western type of toilet system cannot solve the problems of getting rid of excreta in Third World countries. This argument he bases on the position that the technology is costly, relying on elaborate technological sewage systems, as well as large amounts of clean water. These requirements are indeed beyond the capacity of most Third World and specifically African governments as regards their largely growing, rural populations.

Rybenzynski, (1978) also argues that it is unlikely that the systems that were appropriate to the rather small populations of the resource wealthy industrialised countries of northern Europe in the 19th century will be successful in solving the formidable problems of a much poorer, and much more populous, developing country. He further states that developing countries are in fact in a crisis in terms of adequate sanitation, due to the latrine coverage rate as compared to the population growth rate.

Kalbermatten et. Al., (1982) outlines that the most obvious of all social constraints on sanitation is the cost, arguing that as sanitation is expensive, internationally distribution of sanitary facilities is heavily biased to the wealthy. Even with designs that are considered cheaper, at some point down the scale of poverty it ceases to be reasonable to expect people to pay for their own installations. He asserts that in such cases the intervention be viewed as an attempt to overcome poverty and receive government subsidies. He makes no mention of the failure of governments to honour the slogan of 'water and sanitation for all by the year 2000' which unfolded partnership and increased cost sharing as the only viable means of attaining sustainable sanitation coverage. This has brought to the centre stage the need for affordable, sustainable, replaceable and not to say the least socially acceptable systems for human waste disposal (Rybenzynski, 1978).

The pit latrine remains to date one of the most widely used technologies for excreta disposal in the tropics although many still use the bush and the field. The adoption of the latrine has met with mixed success. A Tanzanian study revealed that although the rural population widely appeared to be reluctant to build latrines, it was not due to lack of education or restrictive tradition, but also technical problems like caving in soil. People and particularly children were discouraged from using the latrine, thus reducing its usefulness. There have been experiments in Tanzania with watertight lined pits, in effect, composting toilets, which would have to be emptied at long intervals. (Eygelaar, Winblad quoted by Rybenzynski et al, 1978).

Research commissioned by the Swedish International Development Authority (SIDA), revealed that current development programmes tend to neglect the poorest half of the population. Technologies affordable to these groups have not been systematically developed and tested, and insufficient attention has been paid to socio cultural factors influencing adoption of new practices and new facilities. The research study found that the Ventilated Improved Pit latrine technology relied too much on SIDA - funded subsidies, resulting in Programs unsustainable by local resources. The article concludes with the recommendation that much more emphasis must be placed on sustainable, affordable improvements in the poorest households within the area of any given project (International Resource Centre, 1990).

As regards the impact of the technology on the gender relations, Suda (1991) states that organisation of household labour within Luo society is genderized and based on established power structures within the family system. She outlines that roles are structurally and culturally defined in ways that create and reinforce relationships of male dominance and female subordination. How innovation and cultural change have responded to this power structure is pertinent to the issues raised in this study.

In conclusion literature has shown that sanitation, in particular latrine use in rural communities is important for health that leads to development. In emphasising the key position of sanitation, cultural factors are uniquely highlighted as playing a significant role in the successful introduction of new sanitation technology. Literature also points to the fact that perception stems from previous experience

and habits that are not easily changed as in the case in Bangladesh cited by Gore-Dale (above), without the involvement and empowerment of women.

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2.2 Theoretical Framework

In this chapter the diffusion theory is used as a conceptual tool to situate the problem within the context of the larger livelihood framework. It analyses and informs our understanding of the cultural adoption of new technology in general and how this would be translated for sanitation technology in particular. Key words used are technology, diffusion and modernisation and are briefly defined below.

Technology is used to mean the key articulation between humans and the environment referring to tools and material culture from an anthropological perspective. Other aspects of technology that are inseparable from this in its definition include tasks, resources and skills (Hunter, 1976).

Diffusion is taken to represent the world-wide tendency of human populations to share and pool creative efforts which are in origin locally generated, known and used. All aspects of cultural systems – linguistic, technological, social and artistic are transferable and can be diffused.

Modernisation is a recently coined synonym for such older terms as ‘civilisation’, ‘westernization’, and ‘industrialisation’. An Encyclopaedia of Anthropology (Hunter, Whitten 1976) states that the term in the US was concerned with restructuring development of third world countries with institutions like theirs in the west. Suda defines the term as situated within a traditional – modern frame of

reference where aspects of modernised societies are transferred to non modernised societies.

Diffusion is a process of change within culture. Culture, both material and non-material aspects of it, have allowed man to extend his territory beyond the natural range of other primates. This is because culture is dynamic. All cultures change over time and according to Haviland (1974), one of the most crucial functions of a surviving culture is its ability to successfully adapt to changing circumstances. The history of all human communities has been one of recurrent, if irregular, and uneven change in response to local discovery or, as is more often the case, to external contacts (Forde, 1950).

Change through external contacts is termed as diffusion. Malinowski (1945) regarded diffusion as being a creative form of cultural innovation and other scholars suggested that it accounts for 90% of any cultures' content.

Diffusion as a concept informing cultural change is in certain aspects related to the modernisation theory. Modernisation has in turn been influenced by the structural functionalist views of Parsons 1937, 1957 and Durkheim 1964 and Malinowsky (Microsoft ® En 1993-6). The structural functionalist perspective holds that cultural ideas have necessarily to be a part of a total integrated system, each cultural element effectively meshing in and harmonising with other cultural traits (Pearson, 1974). Within this framework, change and development are gradual, allowing for stability within an internally directed, social system.

Modernisation uses a dichotomous frame of reference whereby change is still seen as evolutionary, but evolution consists of aspects of modernised societies being transferred to the non-modernised. This model also argues that roles in developed societies are typically universalistic, based on achievement and functionally specific, whilst those in underdeveloped societies are particularistic, based on ascription and functionally diffuse Suda (1986).

In using modernisation theory to look at the changing processes and patterns of labour organisation in small farm households Suda elaborates on how the model sees undeveloped countries as particularistic rather than universalistic in terms of the way productive tasks are assigned. This is manifested in an inclination to select labour through exchange or reciprocal relationships with members of one's family or kinship group, instead of with the person most suited to the job. This can be extrapolated to the practice of the latrine construction in Luo communities, whereby culture requires that the male head carry out siting and thatching. Particularism will be seen where even if the homestead is a (de facto) female headed one who is strategically placed to carry out these activities, she will not. Instead the female head will wait indefinitely, until the male head will come from the urban-based employment to fulfil this task. This characteristic is derived from a strong sense of kinship obligation and the general orientation to avoid risk.

According to the diffusion model, this value system creates an obstacle to ideal change. Diffusion requires overcoming of these traditional obstacles as well as

internal changes in attitude, value and beliefs. Only when this has occurred can there be an impact on behavioural patterns however small, as the change expected is gradual rather than radical (Suda, 1986).

There were three main schools of diffusion, one British, the other German and Austrian and the third American. The British school, propounded by scholars like G. Elliott, Smith and J. Perry believed that people were generally non-inventive and that most aspects of higher civilisation first developed in Egypt and then diffused to other parts of the world. If agriculture, pottery, weaving, pyramid building and other features were in America and elsewhere, it was due to the explorations of Egyptians or of people who had been in contact with Egyptian civilisation, but that in essence parallel invention was unlikely. This school of the thought was largely rejected and the scholars' objectivity questioned, as they were seemingly enamoured by the Egyptian civilisation.

The German and Austrian school of evolution was not concerned with the spread of individual culture traits, but the diffusion of entire complexes of cultures. Culture was not seen to come from one place such as Egypt, but from a number of different cultural complexes called culture circles (Kultur Kreise) which served as sources of cultural diffusion (Barnouw 1975). This school devoted its energy to reconstructing culture circles, and demonstrate how these were responsible for worldwide patterns of cultural diffusion (Harris 1993).

The third school of diffusionists included the famous Franz Boas, who with a strong scientific background rejected speculative theorising masquerading as science, rejected too racism and genetic determinism. This school propounded an inductive approach, with careful collection of empirical data on as many cultures as possible. The central thinking of this school was that the environment sets broad limits on the shape of culture as does history and interaction with other cultures (Harris, 1993).

New ideas may spread through diffusion, not only between two societies, A and B, which are in contact, but also between societies A and E through intervening societies B, C, and D which may have trade or other relations with each other (Barnouw, 1975).

Diffusion may be slow, occurring over long periods of time, or it may be rapid. According to Haviland (1974), an invention's chance of acceptance is limited if it fails to fit into a society's pattern of established needs, values and goals. He argues that instances of the acceptance of change are highest when the elements of change spring from a need within the society. Thus people never borrow all innovations they are exposed or introduced to, but usually limit their selection to those compatible with existing culture; this points us to the *selective nature* of diffusion as a process (Beals et al. 1983).

Rodgers' (1983) research examines innovators and innovation in society. Relevant to this study is his analysis of diffusion. He states that the speed of diffusion and the prospects of diffusion are affected firstly by if the technology or the idea is seen to

be superior to what already exists. Secondly the rate of diffusion is affected if the item is consistent with existing cultural patterns, thirdly if it is easily understood, fourthly if it is able to be tested on a trial basis and fifthly if its benefits are clearly visible. He further argues that diffusion is both ways, not only from the complex to the simple, but also from the simple to the complex. Rodgers stresses that as a general rule, items of material culture are more likely to be diffused than the diffusion of behaviour and ideas. He argues that the duration and intensity of contact, degree of cultural integration, and the number of similarities between the donor and recipient cultures further determine diffusion.

In the face of intense technological change, traditional beliefs and standards in particular hold a powerful influence on the rate of diffusion. Indeed reformulation of myths and codes have their own inertia, often slow compared with the introduction of technology. To the outsider these traditional myths and codes may seem to be hindering development but to the insider may be of overriding value, and so may in fact be indispensable to the preservation of social cohesion (Forde, 1950).

This thus highlights two level of diffusion (i) the perceptual and (ii) the material. The perceptual level is the point at which a community or individual embrace a new concept mentally and emotionally, and feels that it warrants a change of attitude. At a material level, an individual or community move a step further from mental acceptance to material and practical adoption. At this level one will witness individual or groups making the necessary sacrifices in terms of time or resources in order to acquire and adopt new technology. Often an inward change precedes the outward one. When the

outward change is not forthcoming, diffusion has failed to take place at a perceptual level. As mentioned earlier however, material changes where seen relevant, can be taken up without the ideas and behaviour that were originally a part of it.

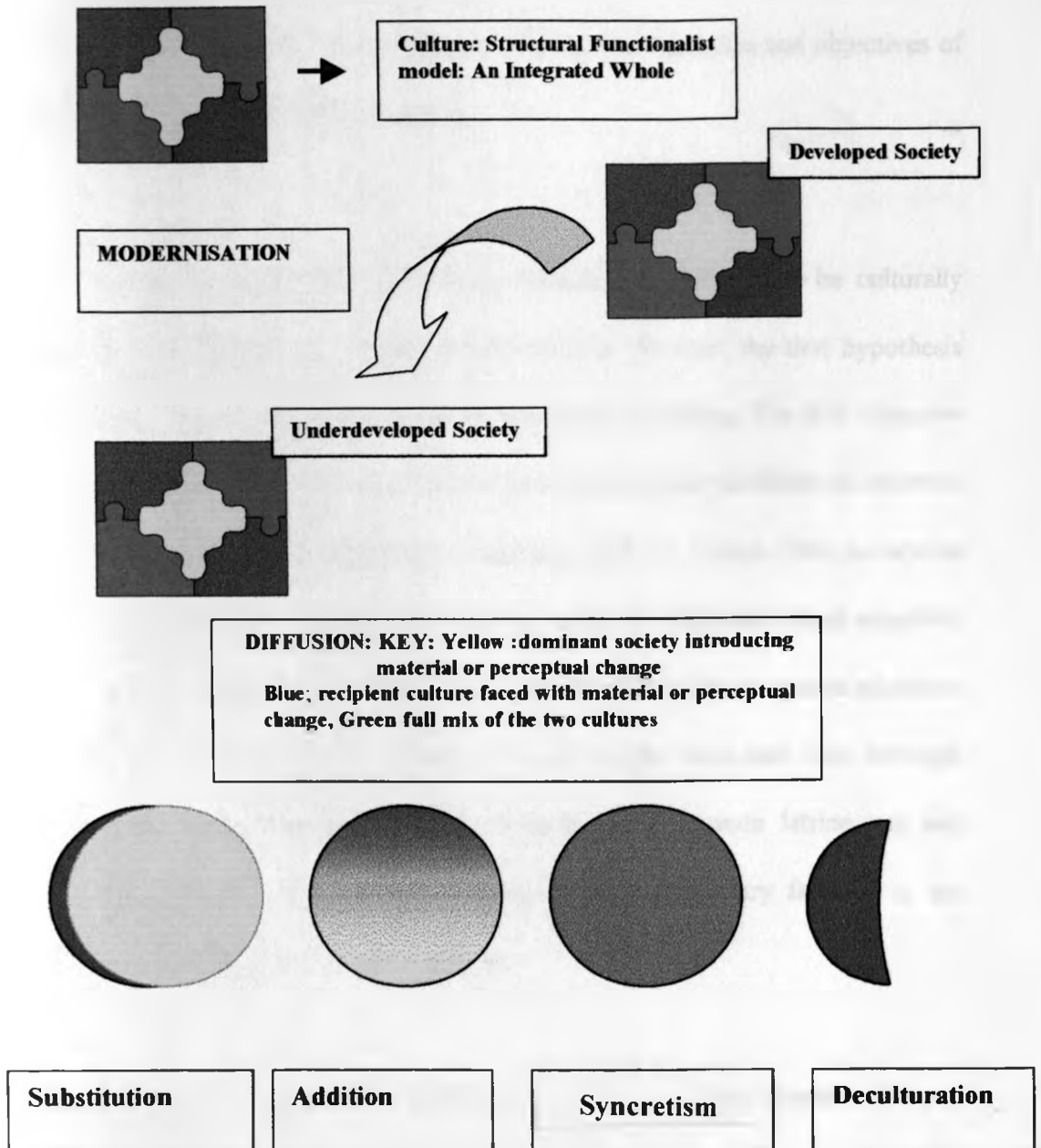
Depending on the cultural variance between the new and status quo, intensity and frequency of exposure to the new and the relationship between the group introducing and the group receiving, diffusion can take different forms (Haviland, 1974) when it occurs. One form is substitution, in this case a community replaces a pre existing trait with another that fills its function, for example changing from using sisal to synthetic chords for basket weaving. This involves minimal structural change or change of perception and attitude, as there is no gap, void nor obvious straggles of leftover previous patterns.

Another form of cultural change that occurs in diffusion is syncretism whereby old traits of community A, blend with new traits of community B, resulting in a change that is neither purely A's or B's, but more correctly a mixture of both. Syncretism has characterised the Legio Mario religious sect with its unique blend of traditional African belief systems (ancestor worship, witchcraft believed as the cause of sickness), with Christianity (Messiah of African origin, use of the rosary and Christian prayer) (South Nyanza District Socio cultural Profile 1986). The result is neither pure Christianity nor pure traditional African religion.

Another possible result of diffusion is simple addition whereby new traits are added, structural change may or may not occur and pockets of the community continue to adhere to their old traits alongside members using the newly introduced ones. This is easily seen with the convergence of traditional medicine with modern within the same community. The population would in this case make use of a menu of alternatives with no serious commitment to any. A fourth scenario in diffusion is the process of de-culturation whereby a part of either material or non-material culture may be lost. In the case of human waste disposal habits, the level of diffusion of the new technology will be determined by how it fits into the defecation norms and social order of the group to which it is introduced. Deculturation would be evident if instead of observing in-law avoidance taboo, mother-in law and son-in-law openly and regularly share one latrine without embarrassment.

The illustration below provides a graphical framework within which society, modernisation and the diffusion process can be considered.

Illustration 3: Theoretical Framework



2.3 Hypothesis

In this section hypothesis are drawn from the illustrative literature review and theoretical framework and under the context of the study objectives. The hypothetical statements will work alongside the research question and objectives of the study to place findings within context.

Because literature states that human waste disposal systems need to be culturally appropriate and build on the traditional behaviour of the user, the first hypothesis will assess community perception towards the double pit latrine. The first objective of the study was to record the evolution and perception toward the double pit latrine in two communities who have adopted the technology, after 4 - 5 years. This perception will be tested using two hypothesis; the first assessing the rationale behind adoption, and the second measuring the weight of perception working for or against adoption. Thus the first hypothesis to be tested is based on the statement that although medically there has been proved to be a strong link between latrine use and reduction of disease, often the link between health and sanitary facilities is not perceived by rural populations, (Cairncross).

Hypothesis 1: *The rationale for double pit latrine use in Luo Nyanza does not spring from medical or health concerns, but from other non-scientific considerations.*

The second statement to be used to measure perception is the following;

Hypothesis 2 *Cultural norms, perceptions and values of communities in Luo Nyanza have hindered full adoption of the double pit latrine.*

Literature points at the imbalances that may result from a newly introduced technology within rural communities when it does not consider the unique needs and interests of the different parties in society. In such a case it may be unsuccessful or reinforce unfavourable, or exploitative gender biases. Thus the third objective, to establish whether the perception of the technology has affected internal gender relations and dynamics through its key processes, will be tested using the following statement:

Hypothesis 3: *The introduction of the double pit latrine has supported traditionally defined gender roles, activities and power relations.*

The fourth study objective, to make recommendations on the way forward will be built using the findings from the tested three stated hypothesis above.

CHAPTER THREE:

METHODOLOGY

3.1 Scope of the study

This section is an outline of the broadness of the study and seeks to clarify and delineate the areas that were focused upon in depth. Thematically, the study studied perception of the community members as regards the latrine technology, willingness to adopt the facility, gender division of labour and reasons for this, and recorded recommendations of the community. The study uses a qualitative and ethnographic approach to draw out meaning and significance to responses.

The primary focus of the study was the perception of the community adopters towards the technology and how this has been shaped by either their positive or negative experiences. Their experiences before the introduction of the facility were looked at. The events that occurred in the period since the project began were recorded using the survey method, to see which were the common and relevant experiences to the community, and what their feelings and beliefs toward the technology were.

At another level the issue of understanding was looked into at a broad level. Is there a willingness to use the technology as recommended? The extent to which it is a technically and culturally accepted solution for waste disposal in the area is

investigated. The study records the communities' feelings on how the facility could be improved and for which reasons.

Of key relevance to the study was how the facility has responded to the socially approved gender roles and activities. The activities that surround the latrine introduction will be looked at in order to assess which member of society does which activity, and for which reason.

To study the impact of the technology on gender, an analytical framework which considers who does what and why, was used. The framework is proposed by Overholt et al, (1983) and consists of four inter related components which form a database. The components are an Activity Profile; Access and Control Profile; Analysis of Influencing Factors Profile, Access and Control, and Project Cycle analysis.

The Gender Framework of Analysis is involving and encompassing in its handling of the possible gender issues and gender concerns in projects. It seeks to identify gender gaps where the division of gender roles brings inequalities in the amount of work input, or benefit received. These gender gaps usually originate and are maintained by systems of gender discrimination in society, reinforced through religion, culture and education systems built up over years or even centuries. For purposes of this study the activity profile and project cycle analysis are the tools used to draw out information on the impact of the intervention on gender. It has

been noted that children are often exploited as they substitute for adults in daily activities. They usually contribute more to a families' production of goods and services than they consume, especially if they are not sent to school (Boserup, 1990).

3.2 Socio-Cultural setting and Study areas

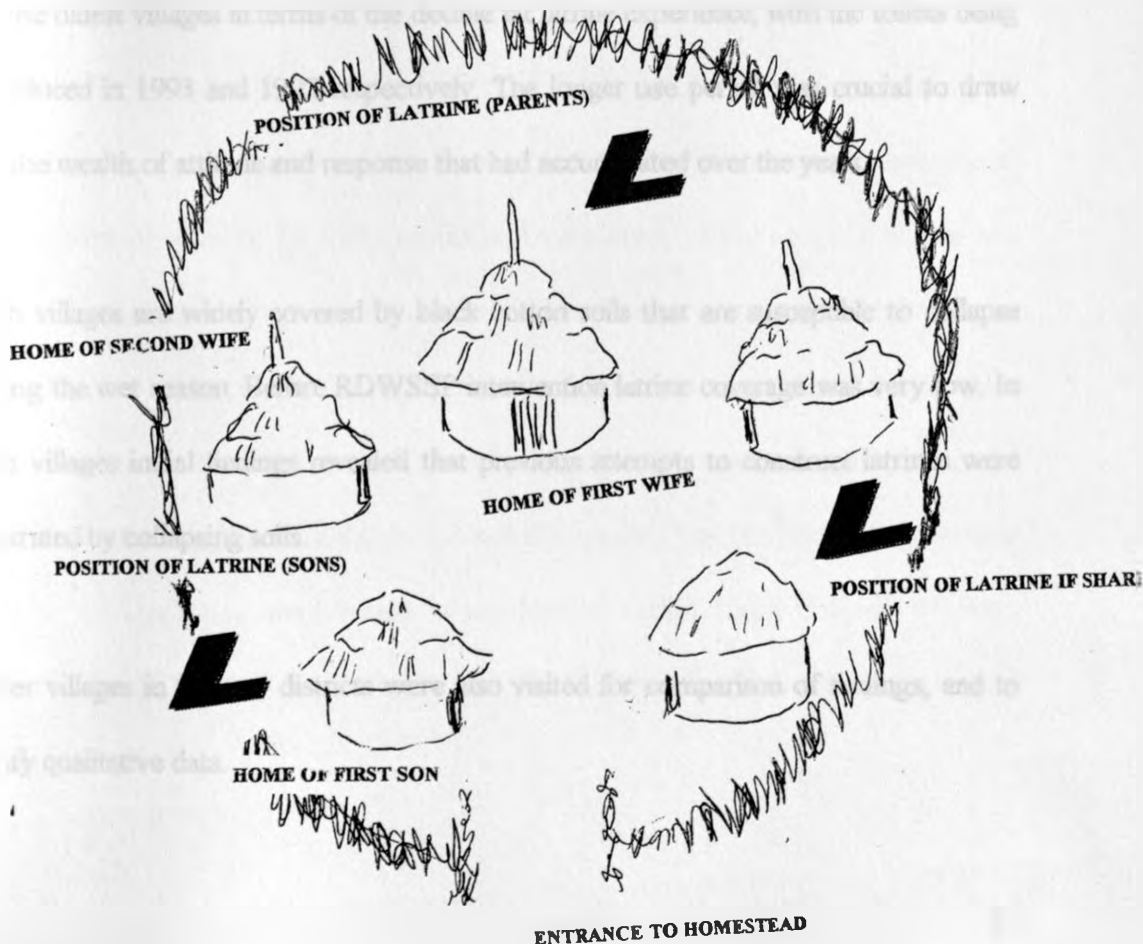
The Luo constitute the only group of River – Lake or Western Nilotes in Kenya, but are the fourth largest of all the ethnic groups in the country, with a population of almost 3 million people according to the most recent census. They are after the Kikuyu, Luyia, Kalenjin ethnic groups. Their history, evolving in the process of several stages of migration, became a composite culture of numerous disparate elements. Some of this was acquired during the migrations, but many others adopted from assimilated outsiders, such as the Abasuba, from defeated and absorbed Bantu speakers, and from neighbouring groups of peoples. Occupationally they are fishers and farmers although today they have diversified considerably in professional and serious business careers.

Consisting of approximately forty sub groups based on territorial area, each of these was autonomous in the past. Their community and political life consisted of large casts of clans and lineage. Political autonomy was facilitated by the cohesion created by common clanship or lineage.

The Luo social world is divided into three units; a homestead surrounding called *dala*, a sublocational unit called *gweng'*, and a wider territory called *piny*. In the past it was common for *jo-gweng'* (those of different *gweng'*) to fight over territory for livestock grazing, but in times of war they joined forces against a common enemy. Today the boundaries are demarcated by locational boundaries as introduced by the colonial administration.

The Luo have an ancestry traced only through one genitor-unilineal descent. The structure is thus patrilineal and filiation is traced through the male genitor, as is family property and land. The illustration below shows the typical layout of the Luo homestead and the proposed position of the latrine.

Illustration 4: Diagram of traditional Luo Homestead



Study Area

The double pit technology is only deployed in soil conditions that do not allow for the conventional latrine. This is a soil type that is sandy, loose, extremely rocky where pit digging beyond 2 meters is difficult, or black cotton soil that collapses during the rains. In most parts of Nyanza the standard unlined pit can be used successfully. Double pits have been deployed in unstable soil formations in parts of Kisumu, Siaya and Homa Bay only.

One study village was taken from Siaya district and another from Kisumu District. The study areas were Mahanga village in Usonga location, Uranga division, Siaya District; and Kanyajwanga village in Masogo location of Kadibo division, Kisumu district. They are the oldest villages in terms of the double pit latrine experience, with the toilets being introduced in 1993 and 1992 respectively. The longer use period was crucial to draw out the wealth of attitude and response that had accumulated over the years.

Both villages are widely covered by black cotton soils that are susceptible to collapse during the wet season. Before RDWSSP intervention latrine coverage was very low. In both villages initial findings revealed that previous attempts to construct latrines were frustrated by collapsing soils.

Other villages in the two districts were also visited for comparison of findings, and to verify qualitative data.

Siaya District

Siaya district was previously administratively divided into 10 divisions: Boro, Uranga, Ukwala, Yala, Wagai, Bondo, Rarieda, Usigu and Madiany. Now it has been subdivided into two districts namely Bondo and Siaya, with the study village falling in Siaya. Between these two districts there are 49 locations and 173 sub locations. Currently Siaya experiences a large exodus of its labour force to urban centres such as Kisumu, Nakuru, Nairobi, Mombasa and Eldoret, due to the lack of diversified economic activities and limited social and recreational facilities usually associated with urban centres.

The soil type in the district varies per region. The major soils include red volcanic soils (ferralsols) and black cotton soils (vertisols); most of the soils have underlying murrum, making moisture retention poor. Soil fertility ranges from moderate to low. Ferralsols tend to be well drained and very deep. They range in colour and texture from friable to firm sandy clay to clay with acid humid topsoil. While the vertisols tend to be poorly drained, cracking clay, they are in most cases quite fertile. Usigu division, the division in which one of the study villages (Mahanga) falls, is characterised by such vertisol, black cotton soil. See illustration 2 for a clear position of the study area, which is highlighted within Usigu division of Siaya district (MoPND, 1996).

Kisumu District

Kisumu district (now Nyando and Kisumu districts) was formerly divided into 8 divisions. These are Winam, Maseno, Nyando, Muhoroni, Lower Nyakach, Kadibo, Miwani and Upper Nyakach. Administratively these are further divided into 51 locations and 158 sub locations. Although exact statistics have not been recorded, there is notable in migration to the district when there are seasonal loads on the sugar cane farms.

The soils are dominated by the former Lake sediments, commonly sands and clay soils. In Kano plains the soils are poorly drained and are generally very deep and firm. They are dark brown and grey in colour. In the western part of Kano Plains are the dark cotton soils commonly associated with swamps. These types constitute more than 70% of all soil types found in Kisumu district. The area of study (Kanyajwanga) in Kadibo division, Kisumu is a village with dark cotton soil and a tendency to drain poorly. See Illustration 3 for a geographical location of the study area (MoPND, 1996).

SIAYA DISTRICT
ADMINISTRATIVE
BOUNDARIES

- District boundary
- - - - - Divisional boundary
- District Hqts.
- Urban areas
- ⊙ Mahanaga Village

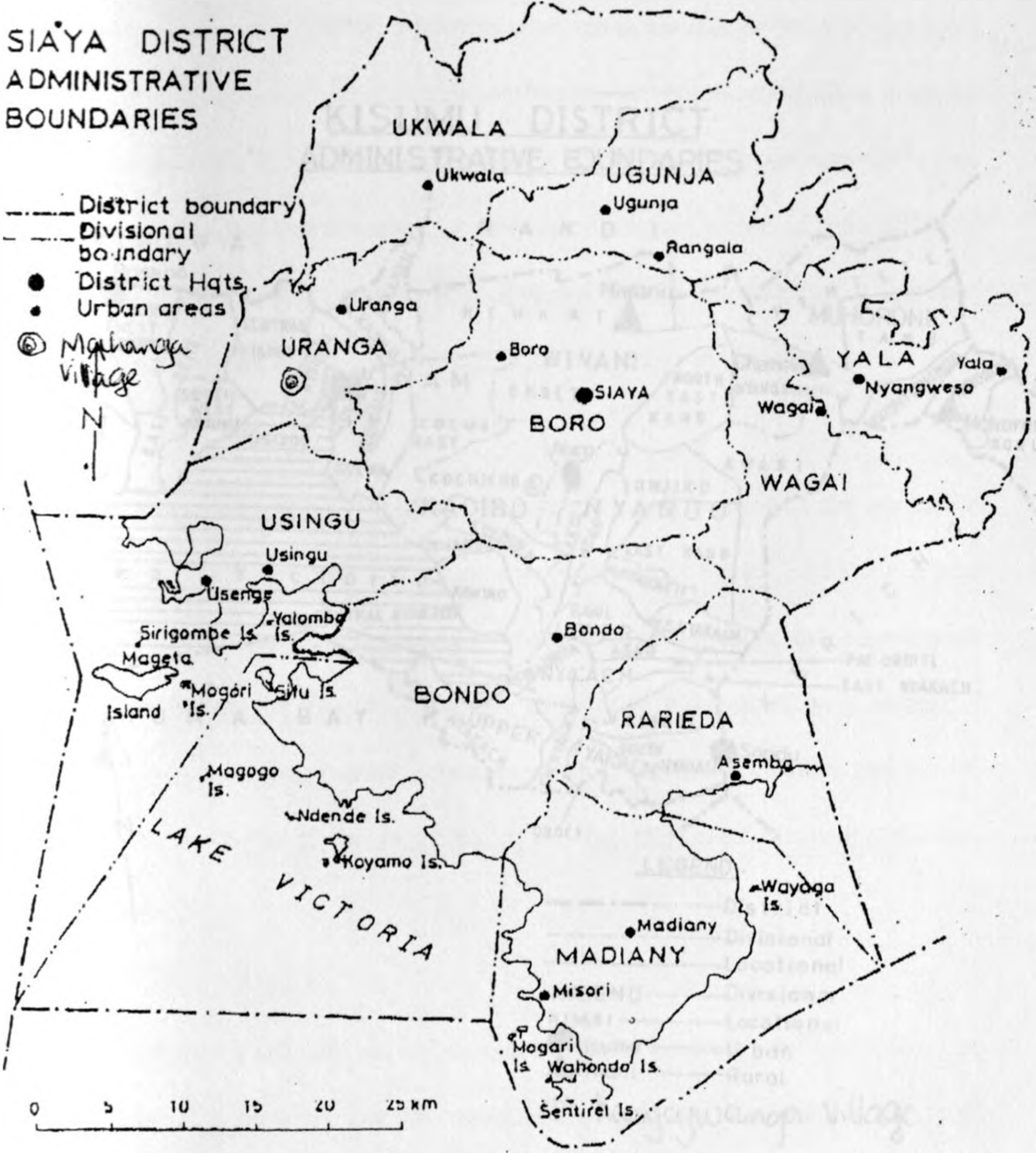


Illustration 4: Map of the Study area in Siaya District

KISUMU DISTRICT ADMINISTRATIVE BOUNDARIES



Illustration 5: Map of the Study area in Kisumu District

3.3 Data Collection Method

The study uses an ethnographic, qualitative approach to address the research questions. This approach can be understood within an ethnographic process model which describes the importance of 5 key interdependent elements namely the conceptual framework, data collection techniques, interpretations, contexts and dialectical process of data analysis. It argues that the interactive use of these elements enables the researcher to produce findings with internal and external validity, objectivity and generalizability.

The ethnographic approach uses data collection techniques and analysis that are guided by a conceptual framework based on the context of a value system. This value system comprises phenomenology that requires the researcher to adopt the interviewee's viewpoint; holism requiring the researcher to perceive the total situation instead of focusing on a few aspects within a complex situation; contextualism which requires the researcher to consider all data in relation to the contextual environment in which they were gathered.

Defecation habits, and methods and thoughts towards faecal disposal in particular, are often viewed as personal. For this reason certain information pertains to use, who can/cannot use the latrine, when and under which circumstances one will refuse to use the latrine cannot be sought in a straight forward way (Narayan, 1995). The study thus has striven to be contextual and holistic in its approach to data collection and analysis, maximising internal value systems and knowledge to qualify responses. The

first step in this is involving community members in the design and administration of the household questionnaire. Martha Johnson in her book "Lore - Capturing Traditional Environmental Knowledge" (1992), described her view of why traditional Aboriginal community members needed to be involved in her study of the knowledge, attitudes and practices of their environment. She argued that traditional, environmental knowledge must be documented by Aboriginal people themselves. This inside perspective is essential if the information is to be interpreted accurately. Moreover it is a fundamental right of Aboriginal peoples, or any local people for that matter, to have control over research that affects them.

In harnessing the insider view, the household questionnaire was designed as mentioned above with the local community residents of the two villages with the guidance of the primary researcher. They answered the question 'how can perception toward the technology be assessed?' Thereafter these questions were framed in Dholuo, processed, copied and distributed to them later on. Their educational background and capacity were assessed and after an introduction and training they carried out the survey (see copy of trainer's module in annex IV). Altogether there were 6 research assistants responsible for data collection, analysis and presentation with three in each village. The underlying principle in using community members is accuracy which can only come through the insider understanding, capacity building for problem solving, increasing interest of the local community, commitment to the result and increased self awareness. In the long term this method results in change of behaviour through a widening of behavioural options. It

taps local knowledge and by using it, the research process become relevant (Narayan, 1995).

Triangulation was used within the ethnographic and qualitative data collection approach. In this, information from different sources, obtained using different methods and disciplines from both insiders and outsiders, are collected on the same phenomena, and compared to verify accuracy and reliability. In this sense what leaders say, what people say at household level, what is said in a group, their observed behaviour and relevant documentation are juxtaposed in order to draw conclusions on perception.

Participant observation by the principal researcher through long-term association, whereby the researcher develops insights through interpersonal relationships and interaction was undertaken. The objective was to understand both covert and overt behaviour in terms of meaning that is held by the people in this particular setting. In this case it examined behaviour surrounding latrine use and avoidance laws, possible taboos as regards surrounding activities of construction, use and maintenance.

Informal interviews were conducted with key informants: local leaders, Water and Sanitation Committee officials and project extension staff. At household level structured questionnaire were administered to expose the majority of respondents to the same stimulus. These interviews contained both open and closed - ended questions, to establish the community level of understanding and awareness; their willingness to adopt the technology as designed, likes and dislikes of the latrine technology and their view of the gender and the cultural impact of the intervention.

Focus group discussions were conducted by the researcher and research assistants with a checklist as a guide for groups of people in order gain consensus on issues that seem unclear and to test responses in a group context against those made individually (see annex II for checklist). Annex III contains the household questionnaire used. Non - structured open-ended questions were asked alongside closed-ended questions in the household interviews. Closed ended responses were used to enumerate and quantify responses on key themes whereas the open ended ones contributed to illuminating the why and processes of these responses.

Drawn from qualitative research tools is the case study method whereby the case is viewed as an example of a class of events or a group of individuals. In this sense it is accepted that a case can be located that is typical of many other cases. Case studies have the potential and the capability of generating rich data that enables the researcher to develop theories that can then be tested empirically. Where the situation was found to be reflecting widely expressed feelings and/or behaviour, a case was recorded to draw out lessons for the universe study population and clarify the general perception, where possible.

3.4 Sample size

The sample consisted of homestead adopters of latrines completed in 1992 and 1993 in order to tap from their longer experience. One village in Kisumu and one village in Siaya which were the earliest to have implemented the double pit latrine and have had the longest experience with the technology, were selected. These were Kanyajwanga and Mahanga having implemented the latrine in 1992 and 1993 respectively.

For the household questionnaire, one member from all of the homesteads with the double pit latrine was interviewed. The respondents were divided into male adults, female adults, children and the very old. Several focus group discussions were held with women alone, men alone, children, and mixed groups, as well as general community meetings to discuss findings and perception, in the two main villages.

In Kanyajwanga Village there are 35 households who have adopted the double pit and in Mahanga Village there are 15 homes with the double pit. Each of the homesteads were visited and a member of each household responded to the structured questionnaire. The individual questionnaire provided background to the focus group discussions that included more homesteads outside the total of 50 homesteads interviewed. This brought in the views of non-adopters, providing a wider cushion to commonly perceived acceptable norms. Purposive, stratified sampling was used to select the household respondent who was a resident of the village since project inception. The structured questionnaire respondents were divided as follows 40% male adult or elder, 40% female adult or elder and 20% male or female child.

3.5 Data Analysis

After data collection, general data analysis was done with the community researchers in one of the homes in the village. Simple groupings of majority/minority responses were recorded and the conclusions and implications discussed. At the end of this analysis, their conclusions and recommendations were presented and discussed at a community meeting.

When the findings were discussed with the adopters of the technology in the community meeting, the results were used to encourage the airing of views, opinions and concerns. The outcome of the discussion sessions contributed to the qualitative understanding of the major research areas.

At the second level, the village analysis was compiled with findings from the structured household interviews, Focus Group Discussions, observation, and conversation towards testing the hypothesis and meeting the study objectives. Quantitative data was condensed using pie charts, tables, graphs and percentages. Qualitative data was grouped, coded and common themes assessed and presented.

Narratives of a few, key, real life experiences were recorded verbatim as case studies to highlight the experiences and responses of village habitants which served to shed light on attitudes and feelings, away from the questionnaire environment.

CHAPTER 4

PERCEPTIONS ON THE UTILISATION AND MANAGEMENT OF THE DOUBLE PIT LATRINE

This chapter records the findings of the study and seeks to fulfil the objectives of the study by systematically proving or disproving the hypothesis stated in chapter 2.

4.1 Hypothesis 1

The study showed that the practice in the 1960s was to use the vast and extensive bush for the purpose of waste disposal. The low population and density ensured that there were clearly demarcated areas surrounding the homestead, which were accepted as being used for this purpose. Amongst the Luo people, defecation was regarded as a private practice that should be done away from the vicinity of other adults. As a matter of respect parents would avoid defecation in the same place as their children and vice versa. It was considered a taboo for ones adult offspring to encounter their parents doing this. More pertinent was the respect that pervaded the parent/child relationship and in turn the respect in the couple/in-law relationship. "It is not good for in laws to be naked in the same place - it is shameful" one Siaya resident said, demonstrating the attitude purportedly rife in the rural Luo society regarding appropriate latrine use.

Latrine usage was introduced in the colonial era by the colonial government and implemented under the authority of the colonial appointees in the form of local

chiefs. After independence, the Kenyan government through the Ministry of Health and the chiefs carried on the campaign for latrine usage. Widespread adoption was low, as there was little change of understanding surrounding the need for the facility. This slow adoption joined in with the pressure from striving to meet more basic needs of food, clothing and shelter. Discreet use of the widely available bush and field was seen as normal and acceptable by most within the community at that time.

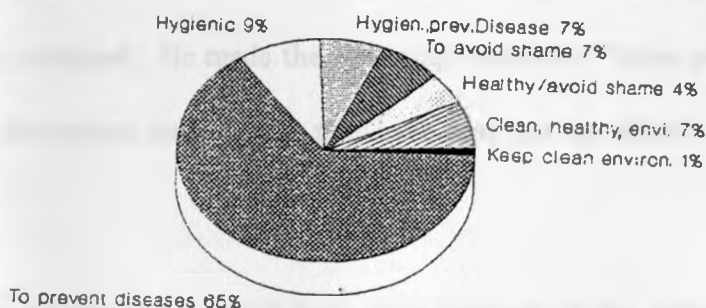
The study revealed a clear shift from this pre colonial and early postcolonial attitude. The villagers in both communities registered keen awareness for the need for a latrine. The reasons for having a latrine fell under the broad categories of health and acceptable social behaviour.

It came out that those who did not have a latrine were no longer regarded as having fulfilled the norm or ideal. Society now saw them as having been pressed by lack of means (financial, physical), laziness, or negative traits as stubbornness and refusal to change their ways, which they had become used to throughout their life.

During Focus Group Discussions on why a latrine is important it was revealing that most of the reasons aired had been formed by the communities past habits and experiences of using the bush. The importance of privacy during defecation in the Luo custom is realised more easily with, rather than without a latrine facility. Said one man, "shame is avoided by squatting in the bush and being seen by someone."

Another stated that it is safe to use a latrine because it prevents contact with faeces and urine, which cause disease. The concept that human faeces can cause disease was well entrenched in the minds of the respondents in both villages and appeared to supersede cultural beliefs and other social concerns. The pie chart below displays the reasons stated during the household interviews as to why one needs a latrine. The reasons given were cleanliness, health, environmental hygiene, social grace, for the prevention of disease or a combination of any of the above.

Illustration 6: Why one needs a Latrine



Before the introduction of the double pit latrine, the study recorded that in response to their own awareness, latrines had been constructed in the past. "They had tried to build a latrine at least 6 times before I was married in this home. When I came here there was no latrine because every year it would collapse." This was the statement of one of the double pit adopters. Like her, the majority of adopters were not attempting latrine construction for the first time. 80% of the respondents stated that they had been involved in latrine construction at least once, and 16% had undergone

latrine construction more than 3 times. The latrines in this area would usually survive between 1 – 2 rainy seasons before the walls would cave in. This frustration of collapsing latrines had resulted in some making latrine construction an annual activity, and for others, remaining without latrines altogether. The programme entered these villages with the knowledge that the design of the double pit latrine was able to withstand unstable soil conditions. At village level however, this was not an immediate assumption, as they had been disillusioned by their past experiences. One man stated that when they participated in the project to construct latrines, other members in the community jeered at them and told them that they were wasting their time. After several years of seeing them using the latrine, they were more convinced. He made the following statement: “some people refused to build when the project came. Now, they have seen that the latrine can last.”

Besides the aspect that it could last, other features of the latrine were seen as positive as shown in the table below.

Table 1: Why I like the Double Pit Latrine

RESPONSE	PERCENTAGE
It does not collapse	20%
It prevents disease	27%
It is hygienic/slab can be washed	16%
It prevents shame or is convenient	16%
Combination of social, health and hygiene advantages	12%
Unclear	9%

Other positive aspects expressed in informal discussions included the fact that the double pit enhances environmental cleanliness, it provides privacy, and that it allowed for good hospitality when visitors came.

Hospitality to visitors, either relatives or friends in the Luo community is demonstrated by providing comfort, convenience, refreshment and honour. The study showed that the availability of a latrine was one strength towards providing hospitality as a host. Some latrines were even reserved especially because they were to be kept clean for visitors. One home encountered in the study area had

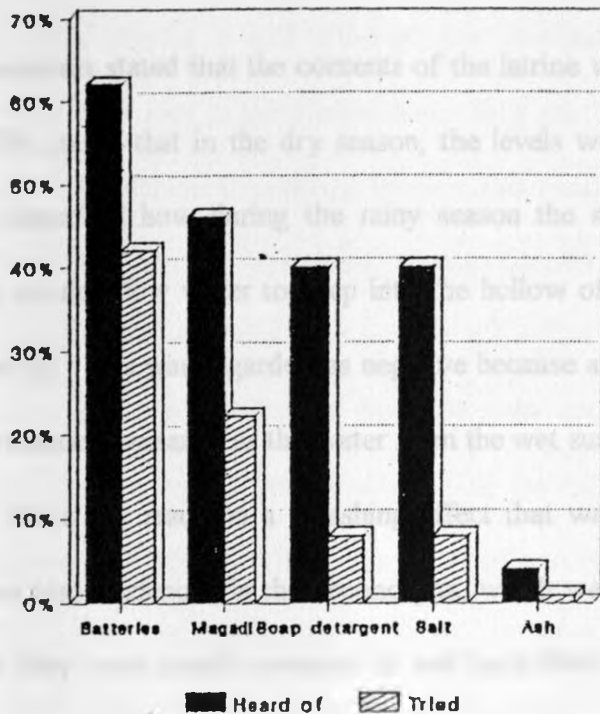
been reluctant to adapt the latrine provided by the Programme and the following experience appears to have changed their position. When there was a funeral, there was no latrine for their guests. The hosts were forced to send their visitors to use the latrines of neighbouring homesteads, and the visitors were inconvenienced. The incident was said to have lowered their feelings of esteem both in front of their guests and their fellow villagers.

Another experience unveiled during the study was the user determination to extend the life of the 7-foot deep latrine by using chemicals. Community members were found having taken up the practice of depositing substances into the latrine to extend the period for using the latrine. Some of the villagers claimed that if they threw in Magadi Soda into the latrine, the waste inside would decompose rapidly and allow for a deeper latrine with added free space. Others did the same using batteries mixed with water; still others used ash towards the same effect.

To illustrate this, one man in Mahanga village described how he placed batteries in a 'karai' (shallow metal basin), and then covered them in water. After this he broke the batteries open with a 'panga' (sword) and poured the mixture into the latrine. He stated that after a week, he could notice a sharp decrease of the latrine contents. Another man in Kanyajwanga described how he mixed 2 cups of Magadi salt in a bucket, dissolved it and poured the solution into the latrine. "After 2 - 3 days, the level of the latrine contents had dropped." Most of the respondents had heard of this practice, but had tried only a few. The bar chart below shows the various items

which community members had heard of, against those which had actually been tried.

Illustration 7: Items deposited into the latrine: Used and tried
MANAGING LEVELS IN LATRINE



The bar chart above shows that over 60% of the users had tried to reduce the levels of the latrine contents using batteries. This bar chart further serves to reveal the communities' reliance on a latrine, to the extent that widespread effort was being placed on extending use of the facility. It also serves to demonstrate the value placed on the latrine facility within the homestead. When asked, it was the male adult of the homestead who was in the foreground in initiating this activity. From an environmental perspective, it raises questions however on the safety of these practices in view of the requirement that eventually the contents be used as manure.

Several discomfiting experiences were recorded as well. In summary these were geological such as water logging, flooding, superstructure maintenance, and social, incomplete second pits.

Several homesteads stated that the contents of the latrine would rise up during the rains and 37% stated that in the dry season, the levels would drop. 47% of the homesteads described how during the rainy season the surrounding soils of the substructure would allow water to seep into the hollow of the latrine, causing the waste to rise up. This was regarded as negative because after the first 1 – 2 years this would become a nuisance as the water from the wet surroundings would fill the latrine, and make use result in a splashing effect that was viewed as distasteful. Flooding was also evidenced in the second pits, which were not yet in use and in cases where they were poorly covered or not back-filled as this was viewed as labour intensive. Water would stagnate from the rain and underground seepage, leaving a concrete lined, gaping hole in the middle of the compound. This problem of the second pit was seen as a security risk as water stagnates and animals fell inside sometimes getting injured. In spite of the recommendation by the intervening group (the Programme) to backfill the unused latrine with soil, this was not followed in even 1 of the homesteads in the two villages. The reasons given for this were lack of adequate materials, as the recommendation to use soil was regarded as too laborious. It is apparent from this that the villagers were reluctant to take up activities, which increase the workload even though it would enhance the safety for both their animals and themselves.

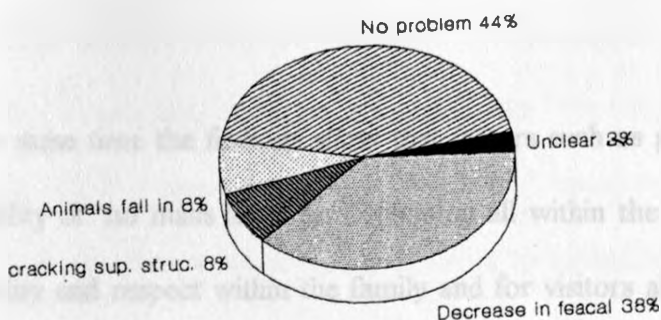
Another problem expressed by the double pit latrine adopters was with the materials used for the superstructure (walls and roofing). Several users felt that they needed Programme assistance in the materials for the superstructure because during the dry season the soil type would make the walls crumble. Poor latrine superstructures were observed; of interest is that although this complaint was rife, the (living quarters) houses were kept in good condition. Why the difference in the attitude between the latrine maintenance and the house maintenance? Distinction between main living quarters and other homestead superstructures were observed however for other situations. Investigations showed that in the Luo communities, the latrine was regarded as separate and distinct from the main house. One key informant explained that after the man of the household dies, the deceased were supposed to abandon the house and rebuild. The cultural practice has evolved to include present day economic realities, resulting in only symbolic re-roofing, but the practice applies only to the main house, and not other small structures in the house including the latrine.

Finally, there was the problem of incomplete structures. Some of the adopters displayed apathy in second pit completion, in spite of their clear understanding of the use process. The majority of respondents clearly understood that the latrine should be used alternately as opposed to simultaneously. The reasons given by community members for their inability to complete the construction of the second latrine were lack of money to pay diggers, their own laziness, and lack of time. Most of the owners of incomplete double pits appeared to lack a sense of urgency in finalisation of the construction process, which was their responsibility. This attitude

was perhaps impounded by the fact that the need for a latrine had been met by the use of the first pit, whilst the need for the second one was deceptively far in the horizon. One elderly man emphatically stated that his latrine would not fill up “in his lifetime,” so there was no need to discuss what he would do should his latrine fill up. In one or two instances, this was in fact possible, but for the majority, the incomplete second latrine would hinder correct use of the facility. Some had even taken some of the assigned cement blocks for lining for use as kitchen stones (modification). There was a clear priority accorded to the construction of the first latrine, but lower priority accorded to the second as their immediate need had been met.

When asked to state the problems experienced during the dry season with the latrine, the villagers response is summarised below in the pie chart.

Illustration 8: Problems experienced during the dry season



In conclusion, the experiences of the double pit adopters and their reaction to these experiences reveal the evolved perceptions toward the double pit latrine. Observation and signs such as smell within the latrine and footpaths to and from the latrine revealed that the latrines in the majority of cases were being utilised fully, and homestead attitude and behaviour had undergone certain changes. From using the outdoor field, the majority of the members of the homestead had taken to using the latrine as a replacement of the field.

There was value accorded to the latrine as illustrated by their innovation and involvement to the extent that methods of extending the use period were practised. Judging from the number of times recorded that most homesteads had attempted to build latrines, the facility met a felt need in the community. Discussions and interviews pointed to the fact that most of the adopters regard the benefit of a latrine in terms of health gains (see illustration 6 above). These findings disprove the hypothesis that states that adoption did not stem from health or scientific considerations.

At the same time the findings show that factors such as past experience, reduced availability of 'no mans land' for defecation all within the Luo cultural context of hospitality and respect within the family and for visitors alike, played their part in making the technology a felt need. The responses that emphasise health as the paramount driving force can be attributed to increased awareness, exposure and education by the development agency and Ministry of Education.

At the same time hospitality to visitors would call for the facility, as would the importance that a father in law would not encounter his daughter in law exposed 'in the bush.' The findings also show that the installation of the latrine is regarded as a considerable investment. It required time, labour and raw materials and although respect for in laws prevails in the study communities, it was not always practical or feasible to ensure separate facilities for in-laws. Valuable time and resources were directed to more immediate needs and households are seen sharing the facility more frequently than applying the rules of parent-child respect or avoidance. This shows that social considerations were of importance in latrine construction but not overriding health and hygiene considerations.

The community perception towards the latrine was assessed from other angles as well, beyond the testing of the hypothesis. Community members were asked if they knew of an alternative system of waste disposal in the difficult soil circumstances, apart from the double pit latrine. It was illustrative to find that none could think of an alternative system the reason being that they had not been exposed to other technologies and the double pit was the first visible and successful attempt to solve the latrine construction problem in unstable soils. On being asked how the double pit latrine could be improved, 25% of respondents stated that they wished the latrine could be built with increased depth in order to extend the period of use before moving to the other pit. This response as with the low inclination to build separate latrines for in-laws, reflects labour avoidance that lends itself to the fact that socio economic realities present other priorities at community level. The recommendation however is not viable in the sense that increasing the depth would on the one hand

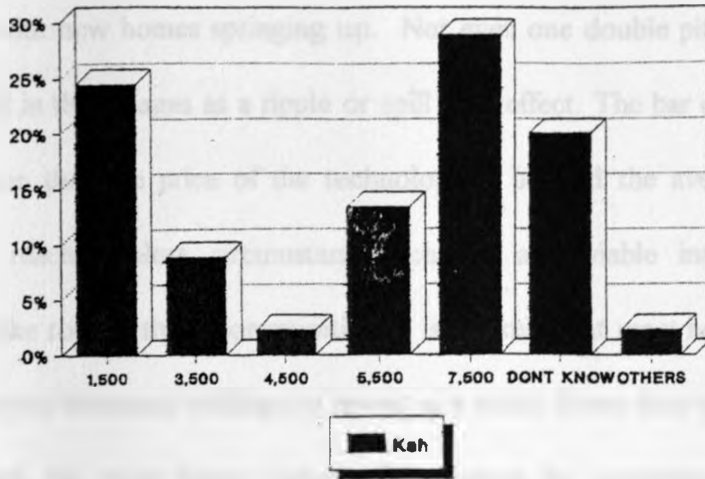
require more building blocks making it more expensive, and on the other hand nullify the rationale behind the design (the aspect of excavation).

Others suggested that the latrine would be enhanced with increased Programme input in the form of iron sheeting for the roof and a second slab to avoid the unutilised pit from being exposed. The desire to be assisted with more instead of less should be seen two points of view; the so called “dependency syndrome” and their limited understanding of the cost.

One of the most relevant aspects of the double pit perception and adoption was the cost of the facility. Respondents demonstrated low awareness of how much it would cost them to purchase the materials necessary for constructing a complete double pit latrine. This awareness would demonstrate their understanding as well as their readiness to replicate the latrine. The actual price of purchased materials including cement and sand was around Kshs. 5,500 as at 1997.

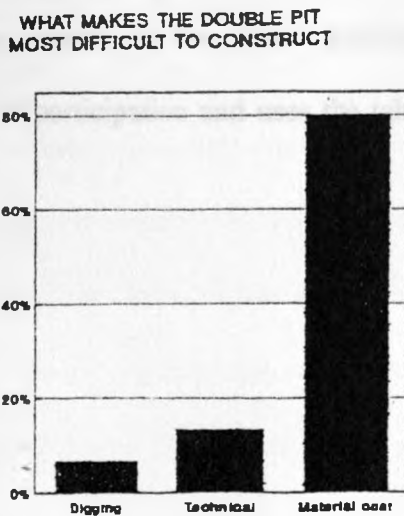
Below is the response of some community members reflecting their assessment of the cost.

Illustration 9: Perception of latrine cost



To further disclose the pertinence of cost, the respondents were informed of the material value of the facility and asked what would make the facility most difficult to construct on their own between digging the latrine, technical skill and the cost of materials. The response is outlined in the bar chart below.

Illustration 10: Perception of greatest barrier to independent construction



Since the projects were initiated in 1992/3, the population in the various villages has increased with new homes springing up. Not even one double pit latrine has been constructed in the villages as a ripple or spill over effect. The bar chart above gives an indication that the price of the technology is beyond the average community members' reach. Unless circumstances change and viable income generating activities take root in these communities, it is unlikely that most homesteads would have nearly six thousand shillings to invest in a toilet. From their stated perception of obstacles, the price factor reduces its chances for complete replication and widespread adoption and integration for most parts of rural Nyanza.

At the same time the level of participation the intervening agency have adopted requires close analysis. To provide a development initiative without sharing or explaining how and what one requires to replicate it may lead to a dependency syndrome, and fail the intervention in attaining the crucial 'sustainable' status expected in development work. More the failure when the stated intended approach of the intervening agency is the famed participatory approach. White (1996) describes 4 types of participation and uses the table below to illuminate the results of each.

Table 2. Participation Levels

I. Genuine Participation	A. Empowerment	I. Citizen Control
	B. Co operation	I. Delegated Power
		II. Partnership
II. Pseudo Participation	A. Assistencialism	I. Placation
		II. Consultation

In respect to the communities' low awareness of the material value and cost of the introduced double pit latrine, the intervening agency could be, although perhaps not intentionally engaging in a form of pseudo participation. This is stated on the basis of a critical analysis of result— is the final outcome mere consultation, mere placation, or is it delegated power and community control? The sense of independent control over their environment and the latrine technology was still low. This was further observed in the response by the community position on how improvements could be made on the double pit latrine. Only a small representation of the respondents stated that they could improve the latrine through their own enhanced care by regular smearing of the mud walls, cleaning and clearing the bush around the superstructure. Most requested further assistance in the form of housing materials and the like. The group that sees themselves as the actors in improving their facility were smaller than those who perceived themselves as passive beneficiaries.

4.2 Hypothesis 2

The second objective of the study was to assess and describe the level of community acceptance in the use process of the latrine. The practice of relocation of components, latrine excavation and disposal of human excreta as farming manure/or alternative disposal were studied as a means of assessing the community's acceptance of the facility.

In terms of use, it appeared that many homes made full use of the latrines, both adults and children. During the questionnaire, the query on whether adults would be willing to share the latrine with their in laws came up with an overwhelming affirmative. On the ground it became apparent that most families did not have the means to construct several latrines, as it requires resources. Latrines were shared between in laws and yet the respect that should characterise this relationship was continued. To avoid bumping into the previous user on the way in and out, a common habit was to leave some material hanging outside the door, so that respectful distance would be observed. In one instance, a homestead with many married sons had built a separate latrine for their parents in law, but this particular latrine had no traces of ever being in use, whereas the one for the sons was overused and barely meeting the needs of the sons' families.

The community were asked if they were willing to transfer components (from pit one that had filled to pit two), and if so how they would go about it. The process of excavating the pit with manure was also examined to test the presumption that handling of faecal matter or items contaminated with faecal matter is unacceptable

in the Luo community. The essence of this was to see whether after having had contact with human excreta, handling of the components would prove to be a problem to the users, or pose a taboo.

In Kanyajwanga village, of the 30 homesteads with double pit latrines, two homesteads had already transferred their components and 1 had already begun using the second pit. The woman in one of these homesteads described the process;

This latrine was dug in 1992. It was 8 feet deep...After it got filled; my son removed the slab to the other pit. We left the slab out to dry in the sun for a few days. After this he transferred the slab (without using gloves) to the other pit. He started constructing the superstructure of the second pit. Then we poured soil on the first pit and covered it with some leaves. That is how we vacated it."

The household interview responses on whether they were willing to relocate components from one latrine to the next are outlined in the table below.

Table 3: Response to Relocation of components

Response	Percentage
Willing to relocate slab and blocks	91%
Willing to relocate slab only	7%
Unwilling to relocate slab and blocks	0%
Willing to hire labour to do this	2%

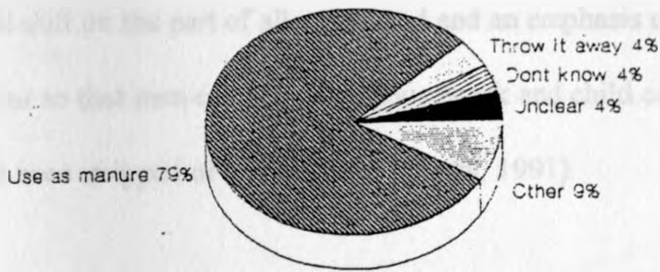
There was no evidence of reluctance to transfer the components or that the process would be considered unclean or a taboo in the community. On the contrary came a strong indication from the majority of the respondents that this would be acceptable. The study community did not express that the components having been in touch with their own waste would make them unclean, if handled.

Further, the study probed the perception of the people on the task that lay before them; latrine contents excavation. How would they excavate their latrine? 44% stated that they would do it themselves personally, 29% stated that they would help each other from household to household, and 27% stated that they would hire labour to do it for them. None of the respondents stated that they would be unwilling or undecided on what to do. At the most, there was the request that a demonstration of this process be provided to help them know how to undertake this new activity. On the issue of tools for the exercise, the absence of tools for the excavation process did not pose a problem to latrine excavation for the majority of users.

The study sought to establish the position of the community members on the issue of disposal of the excavated matter. The expected or ideal response is to dispose of the latrine contents as manure. Most of the respondents said they did not habitually use manure and if they were given a choice between animal, human manure and chemical fertiliser, 51% said that chemical fertiliser would be their last choice because it was expensive and that it was reputed to destroy the soil in the long term. 24% stated that human manure would be their last choice because they had not seen

it being done before. The overall reaction to the excavated latrine contents is summarised in the chart below.

Illustration 11: What will you do with the contents of the Latrine?



In conclusion there was a strong level of community acceptance, proven in two instances by practical example and stated by the majority, that latrine components would be transferred; and that most were willing to dispose of the contents in the farm as farming manure. This finding strongly disproves the hypothesis which states that adoption of the double pit latrine has been hindered by cultural norms, perceptions and values as concerns the traditional waste disposal practices of the Luo people.

4.3 Hypothesis 3

“Some women recommended that domestic work should be equally shared by men and women. Equal distribution of tasks between men and women requires a major attitudinal shift on the part of all concerned and an emphasis on the domestication of male labour so that men can help with housework and child care without feeling that they have been stripped of the maleness” (Suda, 1991).

This statement is related to findings on a study on activities and roles among the Luo in Siaya. The third objective of the study was to assess and highlight the implications of the adaptation of the technology in relation to gender roles as they evolve from their culture. At a theoretical level, what people do in society, their traditional roles will have impact on the project or vice versa. Was there as a result of the double pit process any change in this? The study sought to investigate the tasks surrounding the double pit intervention from the decision of siting the latrine to the construction, maintenance, and relocation of components and excavation of the first pit when the second is full. Whose role is it to do what? Why is this? Do any gender issues arise? Overleaf is a summary of findings in the form of an illustration followed by a short assessment on the same.

Illustration 12: Division of labour in latrine construction and maintenance Process



SITING - MALE ADULT



8. TRANSFER OF COMPONENTS, FEACAL EXCAVATION

-MALE ADULT, MALE CHILD

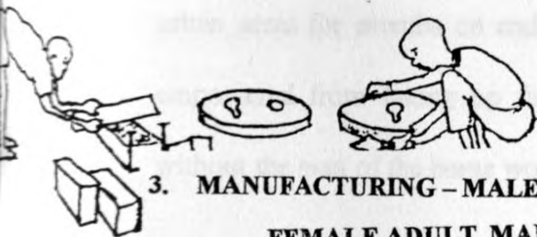


DIGGING - MALE ADULT, CHILD

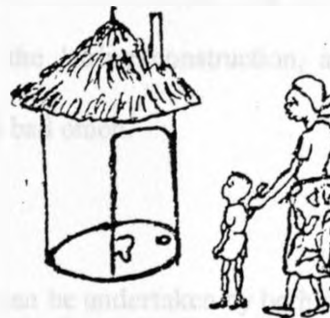


8. TRANSFER OF COMPONENTS, FEACAL EXCAVATION

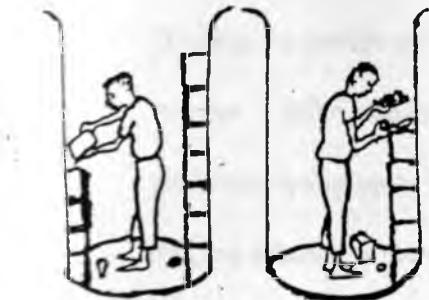
-MALE ADULT, MALE CHILD



3. MANUFACTURING - MALE ADULT, FEMALE ADULT, MALE CHILD



7. TOILET TRAINING - FEMALE ADULT, SOMETIMES MALE ADULT



MALE ADULT, FEMALE ADULT, MALE CHILD



6. CLEANING THE LATRINE - FEMALE ADULT AND CHILDREN



Siting of the latrine is the decision to construct the latrine to the east or the west of the homestead. The male adult decides this in the Luo community if present. The reason forwarded for this is that it is his role as the owner of the home or that he has control over the home. In instances where there is no male adult authority in the home, the decision is made by the woman of the house (mother). 80% of the respondents stated that the siting is a male adult role and around 10% stated it was a joint male adult and female adult role (senior parents). 80% gave the reason for the male adult featuring strongly in this role as the fact that traditionally the male adult owns the home. This pointed to the reality that in this community; major structures cannot be put up or pulled down without the senior male adults' approval.

The implication of this was that latrine construction could not take place when the male adult was away. Women in the project area who had husbands working in the urban areas for months on end were as a result of this belief and practice, disempowered from taking up the initiative of the latrine construction, as siting without the man of the home would be seen as a bad omen.

Digging the double pit is a task that physically can be undertaken by both men and women. Unlike standard latrines which can be dug in excess of 15 feet, the double pit latrine is dug up to 7 feet. In spite of this, 82% of the respondents believed that digging a latrine is the role of the men and the male child. The reason mostly given for this was men's physical strength and experience (57%), and another 20% stated that the person who dug did so because of their availability. A few respondents

suggested that traditionally, women were not supposed to dig latrines, or that tradition and custom prevented them from doing so. In the 2 study villages there was only 1 incident of a woman digging the pit. She did so because the men in the homestead were reluctant (her own husband of the Legio Maria sect was too busy preaching and had no time for these things, she stated emphatically). Although this case is exceptional, it demonstrated the beginning of change in the women's attitude towards traditionally dominated activities.

Volunteers did manufacturing of blocks and slab for the double pit latrine at community level from each household interested in receiving the latrine. Mostly the volunteers were the male adult, female adult and male children. 67% of the respondents felt it was 1 or a combination of these; some said that this was anybody's role, irrespective of their sex and age. Nevertheless the male adult and female adult were the ones seen to have this task because they had availed themselves and had been trained. Notably the female child is not available for this activity.

Lining the double pit latrine substructure: One aspect of the design of the double pit is that the blocks are arranged to fit without mortar (see chapter 1). This enables women who have not been trained on masonry to be able to participate effectively in lining the latrine. As in the activity of manufacturing blocks and slabs, the role is assigned to those available for training and implementation. In over half the cases it was the male adult or male adult and male child; in other cases it was done by the female adult. Again the female child did not feature as ever being assigned this role.

Thatching, as in all roofing activities in the Luo homestead, thatching is a man's job. The activity symbolises the mans' leadership position in the home. In a group of young adults discussing thatching, they said that women may be able to thatch but custom prevents them from doing so, combined with "fear of being seen while on top by the person from down." One key informant stated that women are at times viewed as unclean, and if she were to thatch, the man of the house could never enter the house, as it would amount to a curse upon him. One 75 year old man in Mahanga village was asked what would happen if a woman would do the latrine thatching. He responded by saying that it is a man's job to thatch houses and he had no idea what would happen if a woman did it, since he had not seen a woman thatching during his lifetime. On asking children in a focus group discussion under the age of 14 years, one child doubted that a woman could thatch well; another thought women fear climbing up and none had ever seen a woman performing this activity.

Cleaning the latrine is a role assigned to the female adult, female child and male child. Over 80% of the respondents allocated this activity to the female adult or one of the children. The reason given for this was that cleaning the latrine is part of housework of which men are not involved in.

Toilet training was perceived by 36% of the respondents as being the role of the female and male adult. The second largest group regarded it as the female adult

role alone. Over 10% said it was everyone's' role, reflecting the traditional African concept that child rearing is a communal activity.

Transfer of double pit components was a task viewed to belong to the male adult and or male child (90% of respondents). In the homes where this was actually done, the male child did it in one, and the male adult in the other. The reason for this was male physical strength, experience and the tradition that men have always done heavy duties.

Excavation of the first pit of its contents as in the case of digging and transferring components, this task in the opinion of 89% of the respondents was to be fulfilled by the male adult and male child for reasons of strength, experience in digging and tradition. Two women in Mahanga village expressed that they would help each other in this role in case their husbands were too busy and they could not afford hired labour. They stated that from their experience, it would most likely be left to them, and they would not refuse the task.

From the above, it is clear that in most instances the new technology supports traditionally defined roles, activities and power relations, thereby validating the third hypothesis of this study. The absence of the female child in the new activities such as lining the latrine of block and slab manufacturing suggests that she has 'disappeared' in the homestead activities which usually occupy the female adult e.g. cooking and water collection. Although these are not bad in themselves, they

4.4 Summary of Tested Hypothesis

Hypothesis 1: *The rationale for double pit latrine use in Luo Nyanza does not spring from medical or health reasons, but other considerations.* This hypothesis was disproved as latrine use is seen overwhelmingly within both communities in terms of health and hygiene benefits. At the same time technical feasibility (the latrine does not collapse) and the ability to provide hospitality to guests are motivating factors as well.

Hypothesis 2 *Cultural norms, perceptions and values of communities in Luo Nyanza have hindered full adoption of the double pit latrine.* This hypothesis was also disproved. Instead practical use and adoption was evidenced. Approaches were widely adopted to extend the use period of the latrine. General consensus was expressed that excreta excavation would be undertaken and this used as manure. Full adoption was hindered by practical factors such as cost of materials and inertia at community level.

Hypothesis 3: *The introduction of the double pit latrine has supported traditionally defined gender roles, activities and power relations.* This hypothesis was supported by the findings. Indeed little had changed within the assignment of duties as per the socio-cultural set up and the activities surrounding use and management of the double pit latrine. Men continued to fulfil their roles that symbolise power and authority within the home such as siting and thatching, whilst women undertake nurturing roles such as cleaning and toilet training, and anything

that the man is unavailable to do but does not challenge male dominance. The children in the home are seen supporting the mother's role whilst the girl child does not get the chance to leave the homestead in spite of the new opportunities that arise within the community.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

5.1 Conclusions and Recommendations

The first objective of the study was to record the evolution of perception toward the double pit latrine in two communities that have adopted the technology, after a period of 4 - 5 years, and see if these experiences had affected adoption positively or negatively.

The findings indicated that in spite of difficulties experienced, cultural change had begun to take root in the study communities, influencing perception of the double pit technology in a number of ways. Its success and ability to withstand the elements was witnessed by adopters and non adopters alike, and it soon proved itself as a solution to latrine construction in their unstable soils. Health and hygiene considerations had become established values and virtues in the community, making these paramount justifications to latrine adoption. This disproved the first hypothesis that stated that scientific factors do not provide the rationale for the technologies adoption. Home grown management practises gave indication that the technology is being adapted to suit the local environment, demonstrating feelings of ownership and pointing to assimilation. The communities are demonstrated as accepting the technology at both perceptual and material levels, but hindered by full adoption by its impractical high cost.

It is recommended that a more inexpensive technology for unstable soils be looked into because cost, as opposed to cultural perception has been seen to be the biggest barrier to full scale adoption. "If development is the expansion of people's awareness and ability to predict and control their environment, then a high degree of local participation is a necessary precondition of its success" (Save the Children, 1980). Construction materials need to not only be within the financial means of the adopter but logistically attainable and feasible as well.

Genuine participation requires that the issues of cost and logistics is fully appreciated by community members in order to realise increased determination and control over their environment. It is recommended that other materials such as plastic or stone for pit lining should be explored in bringing down the cost, and making the procedure less cumbersome.

It is recommended that follow up and demonstration of the decomposition process be practically carried out to ensure the periodic excavation process of the double pit latrine. Interventionists of the technology should reinforce acceptance, and show that decomposition results in a substance that is safe for farming manure. The findings revealed that certain substances such as old batteries were being used to hasten the decomposition process. This needs to be investigated further to establish whether there are implications of this practice on food safety and soil equilibrium.

Further recommendations are based on the findings on motivational factors that lend themselves meaningfully to potential adopters and users of the technology in the region. Literature reveals that rural latrine coverage in spite of project interventions in the region has not yet reached 50%. Increased adoption requires mastery of motivational factors that are valued and promotion of the intervention accordingly. For sanitation promotional materials for example (information, education and communication materials), it is recommended that the health advantage of latrine use and financial advantages such as savings on medicine and hospitals be exploited. At the same time, this promotion should be done with understanding of the non-homogeneity of communities and merge virtues such as hospitality, and family respect in becoming responsive to both cultural and scientific concerns.

The other objective of the study was to establish whether the perception of the technology has affected internal gender relations and dynamics through its key processes.

The findings showed that activities surrounding the construction and management of the double pit latrine remained based on the socio-cultural structure of Luo society. Men as patriarchal heads made overall decisions of whether or not, where and when the latrine would be constructed. This was observed in the past and continues to be observed today. Based on physical strength men were expected to dig, but women were seen to have already entered this supposed male domain. This change was mostly due to male absenteeism, deaths and labour out-migration. Almost all members of the society save the very young, old and the young girls were involved in the technical aspects of the construction process. Building the latrine framework and the roof were the sole domain

of men however, and of particular sensitivity was the male role of thatching, which carries strong taboos. In general the traditional set up and power relations were left unchallenged by the double pit latrine and in this scenario the girl child is likely to miss opportunities, symbolic of her eventual position as a women in society.

Where changes in traditional roles are evident, they are further entrenching female subordination and workload (women digging of latrines). Widespread gender involvement is evident, demonstrating the African tradition of work as a nuclear family concern, where specific tasks and roles are ascribed. The findings reveal that implementation approaches were not in conflict with the culture of the target group, and allowed the intervention to fit within the socio-cultural environment, possibly enhancing chances of the technologies' acceptance. This positive aspect of successful introduction should not encourage complacency, as there are obvious weaknesses in relation to development and progress in rural Luo communities as mentioned earlier, that need to be tackled urgently.

It is recommended that means of forging progress and development through women in a culturally sensitive manner in the face of low male head presence should be explored.

The study also recommends that the female child be given careful attention. From the findings it is evident that she is placed last in priority when training or other opportunities for exposure present themselves. This is because she is invisibly substituting activities that are usually assigned to the female adult. It is recommended that development efforts learn to critically analyse activities and examine not only the labour distribution patterns, but also access to the real benefits of development including

increased capacity and skill. The female child is a future mother with the potential and capacity to initiate change through a multiplication effect. This potential should always be fully explored.

5.2 Areas of Further Research

A number of factors clearly come to the fore as pertinent for further research. The first is community reaction to the final stages of the use process, which requires that the decomposed faecal matter is excavated and reused as manure. It is proposed that Participatory Action Research (PAR) be undertaken at community level as unlike standard research, would allow for relevant follow up and application at community level. Demonstration of this process was a stated recommendation of the community during the course of the study.

Secondly the interrupted process of decomposition needs to be looked at closely in view of its potential to affect the environment either positively or negatively at the humus reuse stage. Implications of the unexpected process may hold implications on the key adoption and replication issues on the double pit latrine technology.

Finally as relates to practical activities and relationships between men and women, there is need to establish how within the Luo culture, women as de facto female heads can legitimately forge construction and other development at homestead level in the absence of the male head, without breaking well entrenched taboos. In view of the reality that male urban out migration has had impact on all aspects of rural economic life from agriculture to security, studies need to be focussed on culturally appropriate ways of forging progress at homestead level within this scenario. At the same time there is need to institute development Programmes in such a way that subconsciously, female subordination in the girl child is not administered. Because socially the girl is trained in homestead duties at an early stage, whenever the female adult in the homestead is called away, she can quietly replace the void. This process

although smooth and convenient, relegates her to the unseen background with dangerous regularity. Ways of drawing out the potentials of the girl child during broad-based development interventions need to be studied.

5.3 Limitations of the Study and difficulties experienced

During the course of data collection, the community researchers expressed that the household questionnaire was too long and involving, although they had been involved in its design. On close observation it became apparent that in fact the work was literary based whilst they were usually involved in practical activities in the farm and household. Although they had the skills and ability to do the research they needed more time than I had realised. Also being basically volunteers and mostly women with household duties, the schedule had to be readjusted and more time allotted to avoid inconveniencing them.

During both community meetings that were convened to share the findings of the study, members of the community expressed interest in the fact that many homesteads were taking measures to hasten decomposition of the latrine contents through use of magadi, soda, ash, batteries and the like. The communities wanted to know from me, which of the items they were using was the best. The question was unexpected. Their initiative to modify the use process was not clearly right or wrong, but required facts which I was not prepared with at the time. My reluctance to respond was based on the fact that any recommendation could not conflict with safe and scientifically based agricultural/environmental practices, and because the approach was apparently chemical in nature, I needed to defend any position that I took with the seriousness it deserved. The study had unfolded new areas surrounding the double pit adoption procedure that there was no time to fully explore within this study. More research should be done on this as the technology continues to be adopted in other parts of the country.

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APPENDIX

PROGRAMME OBJECTIVES

Long Term Objectives

- To provide safe water, easily accessible in quantities adequate for drinking, food preparation, personal hygiene and in some cases (small) livestock, at a cost in keeping with the economic level of the communities and through facilities which can easily be operated and maintained by the beneficiary communities.
- To provide health education, with emphasis on the safe disposal of human waste through low cost, easily maintained sanitary facilities, with the aim of protecting the health of the people from water and human waste related diseases.
- To ensure the continued participation and responsibility for the projects by involving the men and women in site identification, construction, operation and maintenance of the water points.
- To achieve the systematic transfer of management, planning capacity and programme responsibility to the participating districts so that by the end of the Interim Phase the Programme will be composed of independent district based and controlled water programmes. Ensuring gender sensitivity at all levels and promotion of maximum opportunities for women in programme operation and management.
- To ensure that gender needs and expectations are taken into account during the project implementation process and that the programme aims at giving women access to and control over the facilities and benefits accrued thereof.
- To ensure that the programme is able to incorporate other relevant district - based water development programmes.
- To reduce the burden of carrying water over long distances which, particularly in the case of women who are the chief hauliers of water, will save considerable amounts of time and energy, thus creating resources which can be spent on alternative productive activities.
- To establish the required institutionalised organisational framework which will have a positive impact on the organisational capacity of the community.

Short Term Objectives:

- Construct and complete 356 water points for provision of safe drinking and domestic household consumption water each with per capita coverage of 250 persons.
- Support communities in the construction of 6000 hygienic latrines with per capita coverage of 10 persons.
- Provide hygiene education to 6230 homesteads aiming at achieving a 65% hygiene behaviour adoption rate.
- Build capacity for effective user organization based on the existing participatory approaches focusing on involving concerned and maintenance of water and sanitation facilities.
- Complete the DWSP decentralization and integration into autonomous district based institutions and district focus systems.

QUESTIONS FOR FOCUS GROUP DISCUSSIONS

1. Why is a latrine important? Some people don't have latrines,
What do you think of them?
2. Can you describe the double pit latrine, how it should be used?
3. How do you feel about this process? Is it good? Bad?
4. Whose job is it to thatch a house?
What about a latrine?
Why?
If a woman did it, what would it mean? What would happen?
5. After the second pit of the Double Pit is full, the first one is to be
excavated and the contents used as manure.
How do you feel about this? Is it a problem? So you use any manure?
Why?
6. How can the double pit be improved? why?

PERCEPTION STUDY OF THE DOUBLE PIT TECHNOLOGY
QUALITATIVE/QUANTITATIVE QUESTIONNAIRE

BACKGROUND INFORMATION

Name of project site..... Location Division..... District.....

(1) Name of person conducting interview Date.....

(2) Name of Respondent

(3) Age

(4) Education level Nil/Lower Primary(upto std 4)/Upper Primary(Std 5 and above)/Secondary

(5) Occupation.....

(6) Income level Ksh. p.m.:.....

(7) Date of installation of Double Pit

(ASK)

(8) Before the introduction of the double pit, did you have a latrine? Yes/No

(9) Where was it? (Confirm)

(10) If yes, how long did it last you before it collapsed?.....

(11) Since you have lived here how many times had your latrine collapsed?.....

OBSERVATIONS

(12) How many households use this latrine?

(13) How many Adults? Children? Total users

(14) Has adequate care been given to the second pit? YES/ NO/ N/A

(15) Is there evidence of the use of the existing latrine? YES/NO

(16) Is the presently used latrine (i) well taken care of? (ii) poorly taken care of?

(ASK) ?

B (17) If no second pit ask, what difficulties did you have which prevented you from constructing the second pit? (Explain)

III AWARENESS AND UNDERSTANDING

A. 1. Why do we need to use a pit latrine

A. 2. Do you know how to make blocks and slabs YES NO

If no, explain why

A. 3. How are the two pits supposed to be used?

How will twin pits be used?	Response (Tick One)
To be used alternately, and the second pit to be excavated after the first is filled up, and the components transferred.	
Can be used simultaneously, one pit for homestead the other for adults if there are 2 slabs.	
Can be used simultaneously, one pit for homestead the other for visitors if there are 2 slabs	
Other, explain	

A. 4. What is the recommended distance between the double pits?

.....

Why?

A. 5. What is the recommended depth of each of the pit?

How deep is your latrine? —

A. 6. At what approximate distance from the slab is the latrine considered full?

A. 7. What do you do when the first pit is filled up?

A. 8. After Slab/block transfer what should be done to the exposed pit?

- A. 9. Do you think that you need another slab why?
- A. 10. How much would it cost to implement the double pit technology latrine?
(Excluding the labour, excluding hiring moulds)

Cost of Double Pit Technology	Response
Kshs. 1,500	
Kshs. 3,500	
Kshs. 4,500	
Kshs. 5,500	
Kshs. 7,500	
Do not know, cannot guess	
Other	

Experience

- E. 1. What is the goodness of the latrine?
2. What are the difficulties you have encountered with the D.P. ?
- E. 3. Do you have any difficulties with the D.P. in the rainy season?
.....
.....
.....
- E. 4. What has been your experience with the dp in the dry season?
-
.....
- E. 5. Who in the homestead uses the latrine?
-
- E. 6. Some people have ways of managing the levels of excreta in the latrine.
(i) What methods have you heard of?

(ii) What methods have you used or tried?

E. 7. Have any of your pits ever filled up to date? YES/NO

E. 8. Concerning the relocation of components, what will be/was your response?

(indicate status)

Relocation of Components	Response
Are you willing to relocate the slab and blocks?	
Willing to relocate the slab only?	
Unwilling to relocate slab and blocks?	
Willing to pay someone to do this?	
other.....	

E. 9. What did you find most difficult about this exercise?

IV GENDER

KEY Male Adult: MA

Female Adult: FA

Male child: MC

Female Child: FC

G (1) Is it a mans job or a woman's to

Double Pit technology preparation By Gender	Male(M) Female(F)	Why	Who actually will do it? M/F	Why
Site the latrines?				
Dig the latrine?				
Prepare the blocks and slab for the latrine?				
Line the latrine?				
Clean the latrine?				
Toilet train children to use the latrine?				
Transfer the components when the second pit is filled up?				
Excavate the latrine when it has filled up?				

G 2. Do you use this latrine when there is

- (i) The presence of in-laws
- (ii) The presence of visitors in my home
- (iii) A strong, bad smell
- (iv) Many flies
- (v) A very dark, small interior
- (vi) At night

(vii) Fear of snakes

v. ATTITUDE

ATT (1) After the second pit has filled up it is necessary to excavate the contents so that it can be reused.

Community Response to excavation of first pit after the second one fills up. Would you?	Response (tick one)
Excavate the pit personally? or by some members of the family in the home	
Do saga - help each other do it at village level?	
Hire labour to do the job for you?	
Agree to be contracted to do the job for someone else?	
Refuse to be involved in excavating your own or anyone else.	
Be undecided?/Not know what to do?	

ATT (2) How much would it cost to hire someone to excavate ones latrine?

ATT (3) Do you feel that this is (i) affordable (ii) expensive for most members of this village community?

ATT (4) What tools do you need for the excavation of the faecal matter?

Tool Required for latrine Excavation	Response
Ladder	
Bucket	
Gloves	
Shovel	
Other	

ATT (5) How many of these ticked above do you have or would afford to buy?

.....

ATT (6) Under which conditions would you refuse to excavate a latrine?

.....

- ATT (7) What will you do with the contents of the latrine?
- ATT (8) Do you use manure for farming? YES/NO Explain
- ATT (9) Order the following from first to third in show of your preference of fertilizer when conducting gardening/farming activities.
- (i) Decomposed animal faecal matter. (Number)
 - (ii) Decomposed human faecal matter. (Number)
 - (iii) Chemical fertilizer (Number)
- ATT (10) Why is the third position your last?
- ATT (11) If you had to relocate/(On your own) a different place with collapsing soils and you needed to construct a latrine which of the following would make the double pit technology most difficult to install?
- Digging
 - Technical know how
 - Preparing blocks and slabs
 - Getting 5000 for materials
 - Other expenses

RECOMMENDATION

- RES (1) Have you ever considered another cheaper way of constructing a latrine which is lasting and suitable to unstable soil conditions? YES/NO Explain
- (2) Would you like to be taught about how to use the DP latrine? YES NO
In which way?
- (3) How can this double pit be improved?

Research Training for Double pit Perception Study Trainers Notes

I Introduction

- This study is on the double pit latrine technology which has been taken up in this village
- There have been several phases of the Programme. Presently we are on Interim II of RDWSSP
- The objectives of RDWSSP are relevant to this study (Long term: health education with emphasis on low cost sanitation facilities, short term: 60,000 hygienic latrines with each a per capita of 10 persons.)
- This led to the double pit where standard latrines would not succeed. Double pit latrines had been done in other parts of Africa, but in 1992 were new to Nyanza Province.

II Background

- Phase I there were demonstration latrines of 20 feet deep lined and mortared. The cost was Ksh. 18,000 which was too expensive for most villagers to replicate, thus sanitation impact was low.
- In phase II, the double pit was introduced. No mason meant that a mason was unnecessary. Women could manufacture and line the latrines on their own.
- The design is that 2 pits of seven feet are termed as 1 latrine because only one pit can be used at a time. This is why it is only 5 meters apart, and why only 1 slab is provided. The latrines pits should never be used at the same time.
- After the second pit is filled up, the contents of the first one are excavated and used as manure. After at least two years the contents are free from germ causing bacteria.

III Problem

- Community experience not known
- Level of understanding not known
- Level of willingness to use the pit as designed not known.
- Existence of gender implications at community level not known
- How to proceed with latrines in unstable soils not known

IV Objectives of the Study

- Record Experience
- Assess level of understanding
- Assess level of adoption and acceptance
- Highlight implications if any, of the technology on gender

V Scope of Study

- Where unstable soils exist in zoned Programme area

- Kisumu and Siaya districts where double pits have existed for longest
- Kanyajwanga in Masogo location of Kadibo division, Kisumu District
- Mahanga in Usonga location, Uranga division, Siaya district

VI Methodology

Participatory Research

- People of the community will be used to gather information because of your knowledge of the language, culture habits, beliefs and therefore have an insiders view.

- Geographically, this is your home and you are most comfortable here.

- You have selected by the village as teachers (VRPs), and therefore are respected and welcome to the community residents.

- You will be able to share your findings with the double pit adopters after the study as the findings are for their consumption as well.

Things to note as you gather information:

- You will need to be thorough and honest in your recordings, otherwise the exercise loses value

- You will group together your findings, conclusions and recommendations and present these to the double pit adopters at a voluntary community meeting.

VII Formulation of Research Tool with community members

- Brainstorming - What kind of questions shall we ask the village adopters in order to gain their perception of the double pit latrine?

- Cover key areas of study objective, discuss main thrust of questionnaire design

- Discussion/Questions

- Role play of researchers administering questionnaire on key researcher

VIII Questionnaire Administration - Things to Remember

- Self awareness - what does this mean?

- Data collectors verses teachers

- Encourage discussion by respondent; they should feel no disapproval as there is no right or wrong response.

- Assure all respondents that their responses would be treated with confidentiality, and none of their responses will jeopardise their opportunities.

- Although you may think you know the response, ask anyway and record what you hear

IX Division of Double Pit Homesteads amongst the Village researchers

- None of the researchers who are VRPs are to go to the homesteads where they