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Community Radio in Promoting Agro forestry: A
Case Study Of Mang'elete Radio

by:

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I hereby declare that this project is my original work and has not been presented for the award of a degree in any other University.

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The project has been submitted for examination with my approval as University Supervisor.

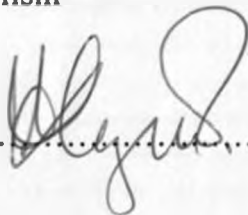Mr Edwin Nyutho

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ACKNOWLEDGEMENTS

DEDICATION

To Dad – you are such a big part of who I am today. Your love of books rubbed onto me – always miss and love you.

INTRODUCTION

It has been said that information is power. Indeed, in this Information Age that we are in, the differences between the various societies in the world are demarcated by information: the presence or absence of it, and its use, disuse or misuse. For example, recently developed countries such as Hong Kong and Malaysia have achieved that status due to their rapid technological development, that is, as a result of harnessing information to generate technological advancement.

On the other side of the coin, Africa lags behind on the world development scale, partly as a result of poor harnessing of resources, and also due to poor information and skill transfer from one community to another. This is certainly the case in Kenya, where, for instance, information beneficial to farmers, such as a new, drought-resistant seed variety, may remain only in the laboratories where it was created, without trickling down to the farmers for whom it is intended. This results in a case where valuable information is not accessed by those who would implement it and most benefit from it. It is thus wasted, yet it may have been vital to enhancing the country's development.

It has been said that writing down information is vital to the transfer of knowledge. However, Africa's strength lies in its oral tradition, that is, transmitting information via speech. Indeed, most African wisdom and traditions have been passed down orally, such as information about medicinal plants, herbal remedies, family histories and so on.

For the small fraction of information that is written, illiteracy has been a major constraint in accessing it. For example, many farmers in the rural areas which are the country's agricultural (and economic) backbone are ill-educated and thus unable to access, for example, the internet or other written publications containing information that would enable them improve their farming and animal husbandry practices. They rely on agricultural extension officers for access to such information, and in this way are limited in the kind of information they access: their knowledge base is determined by that of the extension officer. In addition, the number of extension officers in proportion to farmers is very low, meaning that visits by extension officers to each farm are few and far between. Migratory farmers such as pastoralists also face the same constraints; even in

cases where they are literate, they rarely have access to centres where they can get such information.

This state of affairs leads to a situation where there is a large body of the productive population without access to information that will empower them to improve their productivity, economic status and thus quality of life.

Lacking access to specialized information channels dedicated to, for example, farming, many rural communities rely on the mass media for information. Even then, they do not necessarily have access to all the mass media.

For instance, due to the prevailing economic conditions and the poorly developed electrification infrastructure, television sets are still primarily the preserve of the wealthy in rural communities. Besides, television is used more as an entertainment than an education channel, owing to the high content of foreign programming currently on offer.

Newspapers are also regarded as costly, especially in rural areas where there is not much fluid cash. (One would rather buy a loaf of bread for his/her family with the money that s/he would have used to purchase a newspaper) In addition, apart from the relatively well educated, a majority of people do not relate to the analyses on various issues presented in newspapers, since they are not directly linked to their day-to-day lives.

In comparison, radio is less costly, as once one has the initial radio set one does not need to constantly buy another, unless it is spoilt. All that is needed is to buy batteries, and there are also wind-up radios (powered by winding). In the case of batteries, one also has the option of using an old car battery to power the radio without having to constantly buy batteries; the battery can be taken for recharging at intervals of several weeks. In addition, programming is often available in local dialects, and all kinds of services are offered by radio: greetings (salaams), announcements (fundraisings, death and funeral announcements etc) and so on. Based on the above, radio is often the most practical information source for the average rural person and rural community especially when compared to the other two mass media: newspapers and television.

Radio is the most accessible mass medium of communication in use. It is a practically effective means of communication in communities where most people cannot read or write, but can speak and listen.

Indeed, radio is everywhere. It wakes us up in the morning and accompanies us around the house - in the bedroom, in the shower, in the kitchen - entertaining and informing us. It helps us get to work, advising us of traffic problems and calming our nerves as we commute, in the car or on public transport. For some of us, it keeps us going through the day, either at work or at home, providing company, entertaining us and making us think. At the end of the working day it helps us get home again. Only then does television, radio's younger sibling, take over in the battle for our attention.

Radio has been around for over 80 years and, despite the arrival of new technologies, from television to computers and the internet, radio still plays a major role in our lives today. Every week, 90% of the population tunes into radio for at least five minutes and listening is on the increase. On average, we each listen to 22.9 hours of radio a week - almost as much time as we spend watching television.

But our relationship with radio is different from that with television. Radio is a secondary medium; we usually listen to it while we are doing other things - getting ready, commuting or working. That doesn't mean, however, that we take it less seriously than television. Radio is a personal medium, which many of us feel very passionately about and we have a strong sense of ownership of the stations we listen to.

The study sought to examine the suitability of radio for transmitting development-related information. In this case, the focus was on reforestation as a means of conserving the environment, attracting rain, and leading to more sustainable crop production.

Justification

For most rural communities in Kenya, agriculture is still the main source of livelihood. Much as one or several people in the family may get jobs in urban areas and bring in money for the family, the rest rely on the land they live on for their day-to-day survival. If they are not cultivating their own land, they may be hired to cultivate others' land in order to get money to buy basic products such as sugar and tea leaves.

Given the rapidly growing global warming phenomenon, such communities are at risk of losing their livelihoods as weather patterns change. Experts have attributed the change in weather to a change in environment, and especially to the increasingly widespread desertification as a result of cutting down trees. According to Wangari

Maathai, the first African woman to win the Nobel Peace prize, who is also an ardent environmental conservationist, the crises Kenya and its neighbours are now facing can be traced to logging and environmental degradation, both of which have significantly reduced Kenya's forest cover.[1] Indeed, since independence in 1963, Kenya's forest cover has shrunk from 10% of its 582 650 square-kilometre territory to a mere 1.7%, altering rain and catchment patterns that are essential for the country's agrarian economy[2].

Planting trees has been proposed as a durable solution to this issue. As per Wangari Maathai, "Although the current situation is dire, it can still be improved if forest conservation and restoration measures are enhanced and strictly implemented."[3]

However, most communities are not willing to hive off land for tree planting as they need it for agricultural production, which is necessary for their day to day survival. Ironically, agricultural productivity is not at its optimum due to poor farming practices. As per statistics: "Africa's agricultural productivity is very low, averaging 300 to 500 kg/ha as compared to 2.5 tons/ha in the United States, for example. To a large extent, low yields are a result of poverty. African farmers lack access to improved seeds, fertilizers and pesticides as well as the knowledge and information to use them effectively and efficiently...Moreover, much of Africa's food is wasted. It is estimated that African farmers lose 15 to 25 percent of their crop in the field and another 15 to 20 percent after harvest to pests... farmers lack the means and skills to protect food crops in the fields and after harvest through proper processing and storage. Added to this are inappropriate land-use practices, which damage the natural resources on which agriculture and life itself depend"[4].

There is therefore a great need for improved farming methods, of which agroforestry is one. This is the planting of trees while at the same time planting agricultural crops for consumption.

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[1]   http://www.news24.com/News24/Technology/News/0,,2-13-1443_1860419,00.html

[2]   Ibid

[3]   Ibid
[4]   http://www.kabissa.org/learning/ict_and_food_security.html

Problem Statement

Agroforestry has not been embraced by many farming communities. There is still a need to sensitize farmers about the need for agroforestry and the benefits it holds. The best way to do this is to use the media that is most accessible to them, and in a language that they understand. However, it is necessary to have empirical evidence that such information would be effectively transmitted via a chosen medium and would have the desired effects.

This study sought to provide such evidence through examining the suitability of radio for transmitting agro forestry information in the community.

DEFINITIONS:

Agro forestry can be defined as the practice of simultaneous cultivation of food crops and trees.

According to the International Centre for Research in Agroforestry (ICRAF):

'Agroforestry is a collective name for land-use systems and technologies, where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land management unit as agricultural crops and/or animals, either in some form of spatial arrangement or temporal sequence. In agroforestry systems there are both ecological and economical interactions between the different components'. (ICRAF, 1993)[5]

Radio at its most basic can be defined as a transmitter-receiver system, which sends out and receives signals in the form of waves. It works as follows:

A radio generator generates the radio energy that will carry the signals.

A modulator mixes the signal to be transmitted with the radio frequency signal (called the carrier) in such a way that the signal can be decoded at a distant receiver.

The receiver gets a signal from its antenna.

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[5]   ICRAF, 1993. International Centre for Research in Agroforestry: Annual Report 1993. Nairobi, Kenya pp 208

For purposes of communication, the radio spectrum is divided into frequency bands. The names assigned to the various frequencies reflect the development of technology.[6]

AM and FM Broadcasting: A Comparison

All early radio work used spark transmitters which could only transmit the dots-and-dashes signals and could only transmit longwave signals. Early AM analog radios fell in this category. They were noisy and inefficient, so experimenters worked to develop "continuous wave"- also known as the "*undamped*" transmitters whose signals went out on a single frequency and which could also transmit full audio-signals.

Amplitude modulation (AM)

A band for transmission suited for long distances

Characteristically noisy

The waves vary in height. Height is called Amplitude while length is called frequency.

The Amplitude Modulation (AM radio) carrier frequencies are in the frequency range 535-1605 kHz.

Frequency modulation (FM)

FM wave varies in length, but proportional in height.

Covers relatively shorter distances, but with continuous waves.

Less noisy

The FM radio band is from 88 to 108 MHz.

Community Radio

Several people have defined community radio in various ways:

"*To me a community radio is one that broadcasts to suit the needs of a particular community with the aim of fostering development through its programming. Ownership does not necessarily have to be by the community as long as the community has access to that media and issues are really taken from their needs*" says Maumbi Mwendalubi,

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[6]   See Appendix 1

operations manager at Mosi-o-Tunya Radio Station, a community radio station based in Livingstone, about 500 kilometers South of Zambia's capital city Lusaka. According to Mwendalubi, a community radio should also be affordable and diverse in that it's got to cater across all age groups, cultural and religious differences.

Kelvin Chibomba is Station Manager at Radio Mazabuka FM; another community radio station based in Southern province. *"To me a community radio station first and foremost is demanded, set up and funded by the community"* says Chibomba. According to Chibomba, It is the community which initiates the idea and they own it by funding it through community contribution. It must be non-profit whose interest is only to serve the community and addressing the concerns they are facing. *"It must be community driven, Accessible, Accountable, Affordable, Available and Acceptable. If a radio station has these features, then you can safely say it is a community radio station"* he says[7].

From the above definitions, the most important aspect of community radio is community ownership and participation. Ideally, community radio is a place where issues pertinent to the community are covered, and the community participates fully in the running of the radio. Without a clear sense of ownership that engenders participation, community radio has limited impact.

LOCATION OF THE PROJECT

The study was based in a rural community in Mtito Andei, along the Mombasa highway. This community was deemed ideal for the study for the following reasons:

- It is a farming community
- Sufficient water for both agricultural and general use is a perennial need for the community
- It has access to a community radio station, meaning that radio content is specifically tailored to the community

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[7]   *'The emerging of advanced ICTs address challenges that have continued to hinder development in rural communities'*, by Machova Musanshi, November 2004, International Institute for Communication and Development on: on http://www.iicd.org/

OBJECTIVES OF THE PROJECT

The goals of the project were as follows:

- To analyse the role of radio in the transmission of agro forestry information to the rural Mtito-Andei community
- To find out whether there is any link between programming on local radio and community attitude towards agro forestry
- To add to the available body of information about the role of radio in the promotion of rural development in Kenya.

The study aimed to achieve these goals through finding out the following:

- The information-seeking behaviour patterns of the community, with specific reference to radio (assuming that it is the most available mass media for the community). The study also looked at other media channels for purposes of comparison. The analysis focused on:
- The information needs of the community; that is, what kind of information does the community seek and consider important?
- How the rural community obtains information from the various media channels. that is, **who** seeks **what kind** of information from **which** channel in terms of age. sex and literacy levels
- How the information is implemented
- The radio-listening patterns in the community with, specific interest to conservation issues, seeking to answer the following questions:
    - o When is radio listened to?
    - o Who listens to radio?
    - o For what purpose is radio listened to?
    - o Is the information specifically gotten from radio implemented? How?

The study also sought to find out:

If and how conservation information obtained from radio is affecting the community's attitude and behaviour, that is:

What has been the community's attitude towards conservation?

What is the community's attitude towards conservation after obtaining information on the same

THEORETICAL FRAMEWORK

The first two parts of the study were based on the Uses and Gratifications Theory which seeks to examine what individual needs are met by the media.

Research on the influences of radio was first done in 1937, directed by Paul Lazarsfeld, A communications scholar, under the auspices of the Office of Radio Research at Columbia University. The mission of the research was "to study what radio means in the lives of listeners". This perspective challenged the then-prevalent 'magic bullet' theory that assumed that people passively attended to whatever the media presented, and responded to such messages immediately and uniformly.

The Columbia University study, for one of it's first major research programs, sponsored a study focusing on the nature and influences of daytime radio serials. The study sought to find out the characteristics of the people who sought out and attended to the daytime serials. The second was what uses they made of the information derived from listening and what gratifications the serials provided. The research project showed clearly that people actively sought out certain forms of preferred content, made use of what they obtained form the medium in various ways, and experienced a number of different kinds of satisfactions and rewards (broadly categorized as 'emotional release', 'wishful thinking' and 'valuable advice') from their experience[8].

In 1949, a study was conducted through personal interviews during a newspaper delivery strike. They were asked what they missed the most about the newspaper. The most missed element was having to find an *alternate source of news*. It was learned that many people read because it was the socially acceptable thing to do, while most read as an escape, relaxation, entertainment and the social prestige (Severin and Tankard, 1997).

The Uses and Gratifications approach came to the forefront in the late 1950's and early 1960's, when there was a shift in focus from previous communication research which had sought to find out: "what do media do to people?" In its place, Elihu Katz in 1959 suggested replacing the above question (which depicted the media audience as passive victims of media) with "What do people do with the media?" - an approach

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[1] Milestones in Mass Communication Research: Media Effects (3rd Ed); Lowery, Shearon A. and DeFleur, Melvin L.; Longman Publishers USA (1995)

which reflected the rapidly growing school of thought which stated that persons were "able to actively bend programs, articles, films and songs for their own purposes" (Blumler, 1979).

Further research was done by Jay Blumler and Elihu Katz, who are credited with being the first to coin the term 'Uses and Gratifications' in 1974. They postulated that media users play an *active* role in choosing and using the media. This is to say that they take an active part in the communication process, and they are goal oriented in their media use. As per this theory, a media user seeks out a media source that best fulfills his or her needs. It assumes that the user has alternate choices to satisfy their need.

This theory also suggests that there is not only one way in which people use the media; rather, each user has a different reason for using a particular medium. Thus, media consumers have a free will to decide how they will use the media and how it will affect them. Uses and Gratifications theory implies that media consumers can choose the influence media has on them, and that users choose media alternatives merely as a means to and end.

In 1972, Blumler and Brown identified four primary reasons for which one may use the media:

Diversion -- Escape from routine and problems; an emotional release.

Personal Relationships -- Social utility of information in conversation; substitution of media for companionship.

Personal Identity or Individual Psychology -- Value reinforcement or reassurance; self-understanding, reality exploration.

Surveillance -- Information about factors which might affect one or will help one do or accomplish something (Severin and Tankard, 1997) (Blumler and Katz, 1979).

As per the above objective number 3, the study also sought to find out:

- If and how conservation information obtained from radio is affecting the community's attitude and behaviour, that is:
- What has been the community's attitude towards conservation?
- What is the community's attitude towards conservation after obtaining information on the same

This section of the study was based on Everett Rogers' Diffusion of Innovation Theory. He theorized that innovations (new ways of doing things) are adopted in various stages by various groups of people. The theory is summarized below.

In his comprehensive book *Diffusion of Innovation*, Everett Rogers defines diffusion as '*the process by which an innovation is communicated through certain channels over time among the members of a social system.*' Rogers' definition contains four elements that are present in the diffusion of innovation process.

The four main elements are[9]:

(1) Innovation - an idea, practices, or objects that is perceived as new by an individual or other unit of adoption

This definition is favoured because it signifies that the perception of the individual determines what an innovation is; that is, it does not matter whether something is actually 'new' or not; it qualifies to be regarded as an innovation if it *appears* to be new to the adopter.

(2) Communication channels - the means by which messages get from one individual to another.

(3) Time - the three time factors are:

(a) innovation-decision process

(b) relative time with which an innovation is adopted by an individual or group.

(c) innovation's rate of adoption.

(4) Social system - a set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

The original diffusion research was done in 1903 by the French sociologist Gabriel Tarde who plotted the original S-shaped diffusion curve. Tardes' 1903 S-shaped curve is of current importance because "most innovations have an S-shaped rate of adoption". (Rogers, 1983) The variance lies in the slope of the "S". Some new

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[9]   Milestones in Mass Communication Research: Media Effects (3rd Ed); Lowery, Shearon A. and DeFleur, Melvin L.; Longman Publishers USA (1995)

innovations diffuse rapidly creating a steep S-curve; other innovations have a slower rate of adoption, creating a more gradual slope of the S-curve.

In the 1940's, there was a study carried out on the diffusion of hybrid seed among Iowa farmers by two sociologists, Bryce Ryan and Neal Gross. They studied the diffusion of hybrid seed among Iowa farmers, at a time when American farmers were being encouraged to grow more productive corn varieties. Although the study was carried out with a view to advancing knowledge in the field of rural sociology, it renewed interest in the diffusion of innovation S-curve and resulted in a renewed wave of research. The findings showed that "The rate of adoption of the agricultural innovation followed an S-shaped normal curve when plotted on a cumulative basis over time". This rate of adoption curve was similar to the S-shaped diffusion curve graphed by Tarde forty years earlier.

Ryan and Gross classified the segments of Iowa farmers in relation to the amount of time it took them to adopt the innovation, in this case, the hybrid corn seed. The five segments of farmers who adopted the hybrid corn seed, or adopter categories are:

(1) Innovators,

(2) Early adopters,

(3) Early majority,

(4) Late majority, and

(5) Laggards.

One of the most important characteristics of the first segment of a population to adopt an innovation, the innovators, is that they require a shorter adoption period than any other category.

Rogers identifies several additional characteristics dominant in the innovator type:

(1) venturesome, desire for the rash, the daring, and the risky,

(2) control of substantial financial resources to absorb possible loss from an unprofitable innovation.

(3) The ability to understand and apply complex technical knowledge, and

(4) The ability to cope with a high degree of uncertainty about an innovation.

Characteristics Rogers identified in the Early Adopters:

(1) integrated part of the local social system,

(2) Greatest degree of opinion leadership in most systems,

(3) serve as role model for other members or society,

(4) Respected by peers, and

(5) Successful.

Characteristics Rogers identified in the Early Majority:

(1) Interact frequently with peers,

(2) Seldom hold positions of opinion leadership,

(3) One-third of the members of a system, making the early majority the largest category.

(4) Deliberate before adopting a new idea.

Characteristics Rogers identified in the Late Majority:

(1) One-third of the members of a system,

(2) Pressure from peers,

(3) Economic necessity,

(4) Skeptical, and

(5) Cautious.

Characteristics Rogers identified in the Laggards:

(1) Possess no opinion leadership,

(2) Isolates,

(3) Point of reference in the past,

(4) Suspicious of innovations,

(5) Innovation-decision process is lengthy, and

(6) Resources are limited.

Rogers contributed significantly to the diffusion of innovation research by bringing together 506 studies of the diffusion process in various fields. He studied diffusion of innovations in various fields including medical practices, agricultural technology, educational changes, birth control methods and various other innovations.

He clarified the work of Ryan and Gross by identifying five major stages in the adoption process:

(1) Awareness, - this is where the potential adopter learns of the existence of the innovation, from, for example, the mass media, interpersonal contacts. Rogers suggested that the awareness about a certain innovation was fuelled by some sort of need that could potentially be satisfied by the new technology, that is, a potential adopter would become aware of a particular innovation if it had the potential to fill a certain gap in their lives e.g. A spare parts salesman would note the introduction of new spare parts in the market, which would probably not be noted by, for instance, a fridge repair technician.

(2) Interest – this is the second stage, which may or may not take place after the initial awareness has occurred. If no interest is aroused from awareness of the innovation, then the process ends at the second stage; however, if interest has been triggered, the potential adopter seeks actively for information about the innovation, so as to understand it better.

(3) Evaluation – this is where the individual evaluates whether the innovation will indeed meet the already-identified need. Rogers referred to this as a sort of 'mental trial' stage, where one does a mental weighing of the pros and cons.

(4) Trial – at this stage, the innovation is actually used, and, wherever possible, on a small scale.

(5) Adoption – this is the final stage of the diffusion process. It refers to where an individual has made a decision and the item or innovation has been acquired/purchased for permanent use.

Rejection and Discontinuance

Rogers pointed out that an innovation may be rejected during any stage of the adoption process. He defined rejection as a decision not to adopt an innovation. Note that

rejection is different from discontinuance. Discontinuance is a rejection that occurs **after** adoption of the innovation.

He noted that many "discountenances occur over a relatively short time period" and few of the "discountenances were caused by supersedence of a superior innovation replacing a previously adopted idea". One of the most significant findings was research done by Johnson and Vandan Ban (1959):

The relatively later adopters had twice as many discountenances as the earlier adopters. Previous researchers had assumed that later adopters were relatively less innovative because they did not adopt or were relatively slow to adopt innovations. This evidence suggests the later adopters may adopt, but then discontinue at a later point in time.

Rogers identified two types of discontinuance:

(1) Disenchantment discontinuance - a decision to reject an idea as a result of dissatisfaction with it's performance, and

(2) Replacement discontinuance - a decision to reject an idea in order to adopt a better idea.

Based on the above theory, the study sought to find out how agroforestry and general conservation information is being adopted and used by the Mtito-Andei community, if at all. The study aimed to ascertain if program content has made an impact on the community, whether the impact has been gradual and whether it is continuous or was a one-off effect. The study sought to discover if there is a direct link between the radio programs and adoption of 'new' (what is perceived as new, even if it is, strictly speaking, not totally new) farming methods in the community, specifically agroforestry and any other kind of farming that encourages the planting of trees.

The study sought to find out how effective radio is in bringing about the adoption of new behaviour vis-a-vis agro forestry. It also borrowed principles from the Yale Attitude Communication and Attitude Change program which is briefly summarized as follows:

The Yale Attitude Change Studies were carried out by Professor Carl Hovland, Janis and Kelley after World War II.

He did research on changing people's attitudes towards the war. He was concerned with propaganda and its effects on people's attitudes. His team was composed of both his students and his colleagues at Yale University. They researched on both the general public and the army.

The researchers sought to study both attitude and opinion, and differentiated them as follows: *"...while the term opinion will be used to designate a broad class of anticipations and expectations, the term attitude will be used exclusively for those implicit responses which are oriented toward approaching or avoiding a given object, person, group or symbol."*

They suggested that opinions may be verbalizable, but the term attitude is not restricted to verbalizable attitudes. The concept of attitude includes unconscious or non-verbalizable avoidance tendencies.

According to these studies, Attitude is seen as 'an implicit approach or avoidance response', that is, a favourable or unfavourable reaction to an attitude object. Thus an attitude is the affective or emotional reaction people have to the object; that is, their like or dislike of a person, object, group of people, symbol and so on. The Yale studies focused on the affective aspect of attitude which is made manifest in reaction, that is, attitude which is observed through behaviour or reaction.

They linked change of attitude to learning. They assumed that *"opinions, like other habits, will tend to persist unless the individual undergoes some new learning experiences. Exposure to a persuasive communication which successfully induces the individual to accept a new opinion constitutes a learning experience in which a new verbal habit is acquired."* Thus, the researchers clearly identified the process of attitude change with the process of learning.

In addition, attitudes are seen as enduring predispositions, but ones that are learnt rather than innate. Thus even though attitudes are not momentarily transient, they are susceptible to change.

Thinking of attitudes as learnt predispositions suggests that:

All the techniques that are known to increase or decrease learning should be employed to change attitude.

Secondly, rewards and punishments should be highly effective means of producing attitude change. It should be possible to use them to predict the amount of attitude change that will occur. Punishments should also involve social issues over and above legal punishment. Legal punishment may change behaviour for a time but does not necessarily change attitudes; it therefore may not lead to permanent behaviour change.

Thirdly, all the techniques relevant to learning any materials should be relevant to learning and changing attitudes and behaviour.

A practical consequence that follows from conceptualizing attitudes as enduring rather than momentary states is that it should be possible, by changing people's underlying attitudes, to produce long-lasting rather than transient changes in behaviour.

Thus if underlying attitudes are changed, more enduring and pervasive changes in behaviour should be produced rather than if only the specific behaviour is targeted.

The Yale approach states that *the affective components of attitude are influenced or changed by altering the opinions or beliefs (cognitive or knowledge component) that people have.*

This is one of the most important contributions of these studies. It is based on the thought that attitude is made up of three components:

- The affective component,
- The cognitive component and
- The behavioural component

The *affective* component refers to a person's evaluation of liking or emotional response to some object or person.

The *cognitive* component refers to a person's beliefs about or factual knowledge of the object or person.

The *behavioural* component involves the person's overt behaviour directed towards the object or person.

This conceptualization suggests that techniques designed to change only one's emotional reaction toward a person or object would be tackling just one component of attitude.

The affective component could be measured by physiological responses and verbal statements of likes and dislikes.

The cognitive component is the self-rating of beliefs and the amount of knowledge a person has about a specific topic.

The behavioural component is got by a direct observation of how a person behaves in specific situations or verbal statements concerning behavior.

The researchers then went on to outline a few of the general factors which affect the learning of an attitude.

First is the *'recommended opinion'* which the communicator presents in his/her communication. When exposed to the recommended opinion, a member of the audience is assumed to react with at least two distinct responses: he thinks of his own answer to the question, and also the answer suggested by the communicator. A comparison of both leads to a decision to either adopt or reject the recommended attitude change.

Second is *'incentive'*. They theorized that acceptance of a suggested opinion or attitude change is dependent on incentives; in order to change an opinion it is necessary to create greater incentives to choose the new response in place o the old one. In other words, it is not sufficient that a response be learned (that an individual understands or is capable of making the attitude response to a certain stimulus); it is also necessary that s/he have some motivation for choosing that particular response in preference to other available responses. According to the researchers, *"A major basis for acceptance of a given opinion is provided by arguments or reasons which, according to the individual's own thinking habits, constitute 'rational' or 'logical' support for the conclusions"*.

In addition, there are four main classes of variables that influence the extent to which an individual is motivated to make one attitude response in preference to another. One is:

The observable characteristics of the perceived source of the communication (source credibility) - This is the extent to which the person communication was believed to be

informed, insightful and willing to express his/her true beliefs and knowledge rather than trying to further his/her own ulterior ends by manipulating the audience. Persuasion is increased if the source is seen to be credible. However these credibility effects were seen to be short-lived. Indeed, increased persuasion due to a high credibility source disappeared over time. This is known as the 'sleeper effect'.

The setting in which the person is exposed to the communication, such as, for example, the way in which other members of the audience respond during the presentation (group factors) - They noted that members of a group are more likely to adopt or maintain a particular attitude based on the group opinion.

The communication stimuli, including content elements such as arguments or appeals (type of appeal) - Hovland and his team focused specifically on fear-arousing appeals. They noted that characteristics of the appeal could differentially affect the communication process, that is, attention to the content of the communication, comprehension of the content and acceptance of its conclusions. However, findings on this aspect of communication were not conclusive; in some cases fear arousing appeals stimulated greater behaviour change, while in others they had the opposite effect.

Organization of persuasive arguments - They looked at factors such as the effects of explicitly drawing a conclusion and one-sided versus two-sided arguments. They discovered that the communicator explicitly drawing a conclusion will not automatically make a message more persuasive; this effect might be altered with different kinds of communicators, different types of audiences and different issues being addressed. On the other hand, two-sided arguments were found to be more effective in the long run than one-sided ones, especially if the audience is likely to be subjected to opposing views in the future.

Another important concept that the Yale communication and attitude change program introduced is the elements of Attention, Comprehension, Acceptance and

Retention in the communication process. According to the Yale studies, these four determine the extent to which a person will be persuaded by communication.

Attention: No matter how logical information might be, if people do not pay attention to it, it is useless. Success in attracting attention is enabled by proper strategizing and making the message attractive. It is determined by message positioning.

Comprehension: people need to understand the message, otherwise it is useless. This necessitates pre-testing, monitoring and adjustment of the message.

Acceptance: according to the Yale approach, acceptance of arguments and conclusions of a persuasive communication is the result of the rewards that are presented in the communication. Rewards should be very clear. If the rewards are attractive enough then people change their attitudes. But in social issues, rewards are often hard to realize immediately, yet people want quick, tangible rewards.

Retention: For communication to be effective it must be remembered when it is most needed, for instance when a message is provided for future use. This is facilitated by having short, easy-to-remember slogans.

LITERATURE REVIEW

Brief History on Impact of Radio around the World

Mass media has long been recognized as a change agent in society. At the beginning of the 20th century came the invention of the radio. It was first used to transmit simple experimental messages, but quickly gained more attention when on November 2, 1920, **Frank Conrad** and **Donald Little** broadcast election returns from 8:00PM till after Midnight. This event is credited with starting a rush to build stations, and purchase receivers. By 1924, 1,400 radio stations were broadcasting in the USA and by 1934, there was radio transmission between continents, primarily Europe and the USA.

During the 2nd World War, Germany made extensive use of radio for propaganda broadcasts. There was also extensive use of film in promoting political propaganda, with a classic example being the film entitled *Battleship Potemkin*, crafted by Eisenstein to promote Bolshevism. The fascist Joseph Goebbels, though himself a fanatical opponent of Bolshevism, said admiringly of that film: *'Someone with no firm ideological convictions could be turned into a Bolshevik by this film.'* The film was generally believed to be so powerful that members of the German army were forbidden to see it even long before the Nazis came to power, and it was also banned in Britain for many years.

The above is an example of the fact that mass media has previously been observed to have an impact on both personal and societal behaviour. Another pertinent example is the infamous 1938 radio broadcast of H.G. Well's science fiction story entitled 'War of the Worlds'. The drama was aired on CBS's 'Mercury Theatre on the Air' on October 30, 1938. It was intended as routine entertainment, but instead resulted in a wave of panic across the United States of America. Many thought the world was ending, resulting in hordes of people fleeing into the countryside, taking trains to unknown destinations, making panicked calls to their families, threatening to commit suicide and so on. As per Lowery and DeFleur, *"...(it) was one of the most remarkable media events of all time. If nothing else was proved that night, it was demonstrated to many people that radio could*

have a powerful impact on its audience."[10] The broadcast also provided a unique opportunity for social scientists to study panic behaviour triggered by a mass communication event.

Coming to more recent events, the 1994 Rwandan genocide is said to have been triggered, at least in part, by radio broadcasts that incited people to action. A radio by the name 'Radio Television Libre des Mille Collines' (RTLM), owned by top government leaders, became infamous as a result of its broadcasts inciting Hutus to kill Tutsis.

Prof. Frank Chalk, a Canadian scholar, has summarized the role of the radio in the Rwanda genocide as follows:

"RTLM whipped up fear and ethnic hatred more effectively than Radio Rwanda ever had, using dynamic, innovative programming which introduced to Rwanda's airways for the first time a unique cocktail of the liveliest African music and informal talk radio, blended with culturally-coded attacks on Tutsi and their defenders. Enormously popular and widely heard thanks to its special access to the facilities of Radio Rwanda, Radio RTLM severely damaged the bonds of solidarity between Hutu and Tutsi, people who lived and farmed together as neighbors on almost every one of Rwanda's thousands of hills. When the genocide began, its exhortations to Hutu peasants and militias—to go to work, to kill the snakes in the grass, to reach above the door and take down the useful tools, and to shift the focal points of the killing to new regions as the genocide advanced throughout the country—were highly effective in neutralizing Hutu by-standers, as well as mobilizing and maneuvering killers."[11]

From the above examples, it is clear that radio is a powerful medium that has great potential to change societal norms and behaviour, both positively and negatively.

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[10] '*The Invasion from Mars: Radio Panics America*' (p.45) Milestones in Mass Communication Research: Media Effects (3rd Ed); Lowery, Shearon A. and DeFleur, Melvin L.; Longman Publishers USA (1995)

[11] '*Radio propaganda and Genocide*', MIGS Occasional Paper, Prof. Frank Chalk, November 1999

Radio Coverage in Africa

Currently, radio is by far the most dominant mass communication medium in Africa. Ownership of radio sets is far higher than for any other electronic device. It is estimated for example that in 1997 radio ownership in Africa was close to 170 million and growing at a rate of 4% per annum. The estimate for 2002 was over 200 million radio sets. The corresponding figure for television sets is put at 62 million. It is estimated that over 60% of the population of the sub-continent is reached by existing radio networks whereas national television coverage is largely confined to the major towns. Some countries still do not have national television broadcasting stations and even relatively well-resourced Botswana only launched its national television broadcasting station in 2002.[12]

According to Barry Kiefl[13], Radio has been around for most of the 20th century and it will survive in some form well into the next millennium.

Satellite-based broadcasting has seen a major boost in activity on the continent in the last few years. In 1995, the South African company M-Net launched the world's first digital direct-to-home subscriber satellite service called DSTV. Subscribers have access to over 30 video channels and 40 audio programmes on C-band to the whole of Africa and on lower-cost Ku-band to Southern Africa, south of Lusaka.

WorldSpace Digital Radio

In October 1999, WorldSpace, a United States-based company, launched a commercial digital radio broadcasting satellite called AfriStar to which broadcasters in Europe, the United States, Egypt, Burkina Faso, Kenya, Mali, Senegal, and South Africa signed up. Its aim is to make over 80 audio channels available to listeners on the continent. To receive the broadcasts, however, one needs to purchase a special digital receiver.

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[12]   International Institute for Communication and Development on: http://www.iicd.org/

[13]   Barry Kiefl is the Director of Research, Canadian Broadcasting Corporation

As of 2007, the broadcasts are still in existence, although a drop in the number of Kenyan subscribers has contributed greatly to a decline in revenue for the company. This decline in subscribers was caused by the January 1, 2007, expiry of a contract between the firm and the Kenya Institute of Education to broadcast primary school education programmes throughout the country. The contract accounted for about 13,000 subscribers in Kenya. India is currently WorldSpace's biggest market, with more than 170,000 subscribers as at the end of the first quarter of 2007. Opinion is divided on whether WorldSpace's business model of offering entertainment and information over dedicated radios will remain profitable, given the proliferation of Internet-based download sites and cheaper ways of transmitting data, including the use of mobile phones.[14]

In Nepal, however, WorldSpace is experiencing significant success in the country's remote areas. In conjunction with the DOT-COM alliance (a coalition between USAID and several other funding agencies), WorldSpace airs a radio drama, Khura Khasra Mitha (Let's Talk Straight), which, apart from providing entertainment, raises critical issues such as HIV/AIDS and women's empowerment.

The current audience includes more than 400 community-based listening groups in 52 districts of Nepal, which discuss the aired content at the end of each broadcast. It is estimated that the direct audience is as high as 110,000 people. In addition, 10 community radios re-broadcast the content to an estimated audience of nine million people.[15]

Digital satellite radio has been found to be appropriate for this community because Rural Nepal is especially difficult to reach with information due to isolation, low literacy rates and poor infrastructure, which would not support the airing of programs over ordinary radio channels. The WorldSpace digital satellite system, in contrast, delivers a crystal clear signal that is not affected by weather.

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[14]   '*Worldspace revenue declines with fall in Kenya subscribers*', by A Correspondent, The EastAfrican, June 4-10, 2007 (p8)

[15]   '*Digital Radio Helps Overcome Rural Isolation*', DOT-COMments e-newsletter, Issue 19, March 2007 on http://www.dot-com-alliance.org/index.htm

According to the DOT-COM Alliance, *in the short time that the project has been operating, there is already documentation and anecdotal evidence of increased knowledge, attitude and behavior change in some communities. Changes such as:*

A whole village of house servants learned about trafficking from the program and decided they would no longer be lured to Kathmandu or to India, by the men that come to make them offers of a new "jobs" in the city.

A young Dalite girl in one village says that after learning about trafficking from the show, she saved her friend's life by outsmarting the man who was trying to bribe this friend to come with him to the city.

Several villages have sent their teenage girls for empowerment training after learning that this was available from the program. The characters in the show are proving to be great models for emulation.

Communities have indicated an increased knowledge about modes of HIV transmission and no longer fear tactile contact with HIV infected individuals.[16]

Community Radio in Africa: A Historical Perspective

Jean-Pierre Ilboudo, a communications researcher, has carried out extensive studies on the use of community radio in addressing developmental issues in Africa. He has aptly summarized the development of community radio in Africa as follows[17]:

'...the promotion of local rural radio in Africa is one that has been at the heart of debates among rural communication professionals since the early 1980s, discussed in various meetings organised by the Agence de coopération culturelle et technique (ACCT), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Union of National Radio and Television Organizations of Africa (URTNA) through its Inter-African Rural Radio Studies Centre in Ouagadougou (CIERRO).

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[16]   '*Digital Radio Helps Overcome Rural Isolation*', DOT-COMments e-newsletter, Issue 19, March 2007 on http://www.dot-com-alliance.org/index.htm
[17]   '*After 50 Years: The Role and Use of Rural Radio in Africa*' in 'The One to Watch – Radio, New ICTs and Interactivity' by Jean-Pierre Ilboudo

At the beginning of the 1980s, these reflections led to the conclusion that there was a need to question the methods hitherto experimented with for reaching rural areas, and to search for new ways to improve communication. In 1981, from 4 to 28 October, a training seminar was held in Ouagadougou (Burkina Faso) for rural radio programmers, organised jointly by the ACCT and CIERRO. It was attended by fifteen participants from Burkina Faso, Mauritania, Niger, Togo and Tunisia. At its conclusion, the seminar report stated that "rural radio stations have done well to communicate to farmers the knowledge they needed, but they have forgotten that to learn is to express oneself and to teach oneself, especially when the true goal is for the community to assume its responsibilities." Seminar participants agreed that local rural radio could provide a new basis for the possible renewal of communication in Africa, aiming for participatory methods linked to the problems of development.

In 1982, the community radio station of Homa Bay in the province of Nyanza in Kenya started regular broadcasts in the local language, Luo. Led by a producer of the national broadcasting service, the Voice of Kenya (VOK), with three assistants, it had a daily one-hour broadcast of local news. Health problems and family planning topics replaced the Ki-swahili news programmes from VOK. Most programmes were based on interviews held in the market place, on farms, in schools and with organised groups such as the local women's organisation. This community radio station was part of a UNESCO project which sought to create a low-cost radio station in rural areas, where the equipment would be designed and built using local labour. The station had a low-power FM transmitter (10 watts) and with its low energy consumption, it could use solar energy. The cost of imported material totalled US$900. The station later was later closed, due to disagreements between local people and the authorities.

In early 1983, a second CIERRO/ACCT seminar on local rural radio was held in Ouagadougou, with the goal of further developing what had been done in October 1981. The seminar discussion focused on the first seminar's report, "Towards a local rural radio".

In late 1986, a workshop-seminar on the production of messages for community media defined the underlying concept behind the variety of terms in use: local radio, community radio, free radio and participatory radio. The same workshop – hosted by

UNESCO and URTNA – determined the characteristics of the content and orientation of messages to be broadcast by a rural radio station. In September 1990, a seminar-workshop was held at CIERRO with the assistance of the Swiss Romande radio and television service, on the linkages between national, regional and local radio....The overall observation to be made is that African rural radio stations were almost all created in the 1960s, following the various preparatory meetings launched by UNESCO and FAO, and in particular following the meeting held in Gisenyi in Rwanda which called for the general replication of debate-radio and radio clubs already set up in Ghana (1956) and in Niger (1962) in the Association of Radio Clubs of Niger (ARCN).'[18]

Community Radio in Africa: 90's Onward

Currently, community radio broadcasting has had a slow take-off and local community broadcast stations are still few with Ghana, Mali, South Africa, and Uganda being the exceptions with a number of new community radio licensees. There is also a growing interest in transforming community telecentres or at the very least linking them with community radio stations as the ultimate information convergence scheme using the same facilities to access the Internet, and for better radio programming. This project is however still very much in its infancy.

In South Africa, community radio began in 1994, when the county's broadcasting authority began the continuing process of assessing and granting license applications from groups as diverse as rural women's cooperatives, Afrikaner communities and a variety of religious bodies. The country now has over 100 community stations, broadcasting in a number of languages. Their scope and reach varies enormously - from the half-a-million Joburgers who make up the audience of Jozi FM to, for example, the mere one thousand people who listen to Ilitha Community Radio in the Eastern Cape town of Maclear.[19]

In Mozambique, under the auspices of the Media Development Project, funded by UNDP and implemented by UNESCO, 30 community radio stations were set up between

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[18]   'After 50 Years: The Role and Use of Rural Radio in Africa' in 'The One to Watch – Radio, New ICTs and Interactivity' by Jean-Pierre Ilboudo
[19]   'Community Radio in South Africa' by Mary Alexander on http://www.southafrica.info

1998 and 2006, to address development challenges. Most of the community radios work in conjunction with community communication centres, which are focal support points for both print and electronic media, having such equipment as scanners, printers, computers, fax, TV/video and office equipment. These facilities are shared by independent media organizations which would not individually be able to afford all the equipment required for their day-to-day operations. The centres are created and run by provincial Associations of Independent Media in support of the development and production of independent print media. Access to the centers is as such primarily for the local independent media, who have created the centre, but also to be used as a 'newsroom' by correspondents from media elsewhere in the country.[20]

In Senegal, 24 Community Multimedia Centres have been set up in villages and poor suburbs under the auspices of UNESCO and the Swiss Agency for Development and Cooperation. The centres work in tandem with community radio, and have enabled thousands of people living in isolated rural areas to gain access to Information and Communication Technologies (ICTs) such as community radio, computers connected to the internet and digital services. The centres allow people to locally access information on health, HIV/AIDS, agriculture, the environment, business and commerce, training, culture, local governance and so on, and at the same time give the people a voice. The centres, which are found in 11 regions of the country, constitute the most important network of community access to information and communication technology.[21]

In Zambia, as per a report in the year 2004 by Machova Musanshi[22], a member of the Zambian 'Media and ICT Network for Development', Zambia has witnessed an increase in the number of Community Radio Stations being set up. These are spread across the eight provinces of the country except for North-Western province. There is no

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[20]   Communication Centers: Strengthening Democracy and Governance through Development of the Media in Mozambique

[21]   *'Senegal CMC Scale up Project surpasses the goal of 20'* on UNESCO website. Web address: http://portal.unesco.org/ci/en/ev.php

[22]   *'The emerging of advanced ICTs address challenges that have continued to hinder development in rural communities'*, by Machova Musanshi, November 2004, International Institute for Communication and Development on: on http://www.iicd.org/

clear definition as to what constitutes a community radio station, but there are more than ten radio stations which have been branded so in the country's various regions.

They all broadcast within the range of 50 to 150 Kilometers, and concentrate on the communities' needs. In some areas, there has been the use of community focus groups, where farmers and other interest groups are asked to identify key issues, which are later aired on radio. Government officials are also invited to respond to some concerns raised by the groups.

With support from the donor community, the stations have distributed small radio sets to about 40 villages and people are able to listen to government officials responding to concerns raised.

The same initiative has also facilitated the setting up of *literacy classes for women* who were unable to read and write. The women complained through the radio that they were unable to read and write and wanted government to help them by opening literacy classes. The government, through the district administration, responded by setting up literacy classes for women in Ndeka Township in Mazabuka. There are now 32 women attending literacy classes in the area.

A similar project is currently being undertaken by PANOS Southern Africa called *Development Through Radio* (DTR). The aim of this project is to promote the use of radio as a vehicle for increasing women's access to relevant information, encouraging debate, and thereby strengthening democratic and development processes. The project also aims at providing a network for the exchange of information, expertise and resources between women in Zambia and to break down the sense of isolation felt by many marginalized communities and in particular rural women. The project was established in 1998 and as of 2004 there were 13 listening groups divided into three groups, each of them with a radio cassette recorder. They meet at a local venue on a weekly basis to listen to their programmes at 13:30 hours and later record a programme.

Each week, listening groups of a particular community gather to listen to a programme based on issues that are relevant to them. Topics include the lack of clean and safe drinking water in villages and income-generating projects for women. The project coordinator then collects the recorded tapes on a weekly basis. The project producer from the national broadcaster, Zambia National Broadcasting Corporation (ZNBC) then

arranges to record responses from relevant actors to the problems and issues of interest expressed by the clubs. Outside actors include government officials, health professionals, business executives, and local NGO's or international organizations.

However, the community radio stations face one major constraint – funds. They are often not well equipped in terms of equipment and also lack transport e.g. vehicles to be able to go to the field and gather stories. One solution to this has been an initiative known as 'Micro-Link', which networks selected radio stations through the internet. All the stations involved in this project will be able to access programmes from each other through the internet. If interested in any of the programmes, any of the stations connected could either record the programme or transmit it live as being transmitted. The advantage is that there will be sharing of information on key issues such as HIV/AIDS and many other issues.

Sustainability of the stations has also been an issue. Unlike commercial radio stations that depend on commercial advertisements, community radio stations depend entirely on community contribution. This is being addressed in various ways, for example by approaching commercial farmers to sponsor the production of farming programmes. Some NGOs are also coming forward to sponsor programmes on HIV/AIDS, human rights and other issues.

In conclusion, Musanshi states that the advantages of community radio "surpass that of commercial and national broadcasters. This is because community radio is low cost, easy to operate, reaches all members of the community in their own languages and, as a local, grass-root media, it maximizes the potential for development to be drawn from sharing information, knowledge and skills within the community."

In Kenya, community radio has not been widely implemented, mostly due to lack of political will. Since the shut-down of the Homa Bay community radio in 1982, there has been no firm initiative until in the year 2003 when Radio Mang'elete, a community radio station run by women's groups in Eastern province, was licensed, and subsequently started airing programmes in 2004.

One more community radio has been set up in Kibera slums in Nairobi in 2007, but even this is at its infancy.

Use of Radio in Community Development

a) Radio and Community Education

The use of radio in community development has been studied and recommended over the years by various scholars. One such scholar is Andrew Moemeka, who makes the following definitions[23]:

- Information: *'news and facts about events and activities'*.
- Communication: an *'exchange of ideas which involves participation and access'*.

He stipulates that the access referred to above is 'access to receive (information) and access to participate in production'[24] (of that information)

- Development: *'the degree to which a society has control over its environment – social, economic, cultural and political'*.

Rural community education is advocated by Moemeka, arguing that community education entails all activities – social, economic, educational, political and cultural – which touch on the lives of rural communities, knowledge of which is essential to purposeful living and progress.

He quotes J. Lowe who states that 'All attempts to change attitude and behaviour involve the educative process, since, in order to change, people must first acquire fresh knowledge, insights and skills'[25]

He proposes radio as the most effective tool for this task (community education) and gives several advantages of radio as follows:

- Immediacy: messages can get to the furthest parts of the country just as the event is happening
- Availability: radio is more widely distributed than television in Africa
- Radio beats literacy barriers
- Message content can easily be delivered in native languages
- Radio has a personal touch that lends urgency to change

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[23]   Moemeka, Andrew A; *'Local Radio: Community Education for Development'*, Ahmadu Bello University Press Ltd, Zaria, Nigeria, 1981
[24]   Ibid
[25]   Lowe, J., 'The Education of Adults: A World Perspective' (Paris and Toronto 1975), p. 23

- It is a populist medium and therefore enhances chances of getting educational messages across a very wide segment of the rural population

Moemeka divides radio into several categories, broadly summarized as open broadcast and instructional radio.

Open broadcast refers to programs that are produced on the initiative of a broadcasting house, and usually are broadcast to a wide audience such as nation-wide. The main characteristic is that the media house, and not the audience, sets the agenda.

Instructional radio on the other hand is very deliberate. It is employed mostly for formal instruction, and makes use of learning groups which meet on agreed dates and times to listen to specific radio broadcasts. The groups then explore through discussion the relevance of the information received. They often have printed material to guide the discussion, and also have a group leader or facilitator, whose role is to ensure that everyone participates in the discussion.

This method is best exemplified by the school broadcasts available in several countries, such as that aired by the Kenya Institute of Education (KIE) in Kenya. These broadcasts were especially popular in the eighties. The basic format of such broadcasts is that students are scheduled to listen to a radio lesson at a specific time of the day, after which the teacher facilitates a discussion on the aired content.

A slight variation of instructional radio is the radio rural forum, which also makes use of listening groups, but heavily relies on audience feedback to determine what content to air.

The idea of listening groups is based on the Two-Step Flow Theory, which works on the premise that for a message to reach a target audience, it needs to move from the communication medium to opinion leaders, who then diffuse it to the community by word of mouth. Most listening groups therefore tend to have community opinion leaders incorporated into them, usually as facilitators for the discussions.

In Kenya, instructional radio has been used on and off. In an early report on the radio learning group approach to mass education[26], the Kenyan delegation reported that radio had been employed as a tool for mass education with the use of listening groups,

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[26]   A Report on an International Workshop on the Radio Learning Group Approach to Mass Education; held at the Cooperative Development Centre, Ezulwini, Swaziland, 20-30 November 1982

guided listening to programs aired nation-wide at a certain time and then discussions and questions. The facilitator would then fill in and submit the feedback form to the studios (stamps were provided for this). However, the effort was not sustained due to various issues such as desertion of the radio groups by both teachers/facilitators and students, spoilt radio receivers with no available spare parts, lack of stamps and so on. As a result, there was no recorded tangible change in the community since the programs were short lived and were not evaluated.

For both open broadcast and instructional radio, the challenge is that the message is centralized and thus does not take into account local peculiarities. As a result, sometimes the programs lack relevance.

There is therefore need to decentralize broadcasting if local needs are to be met. It is in this niche that community radio fits since, ideally, community radio is run by the community and makes use of locally generated content.

b) Radio and Agriculture

The use of radio for dissemination of farming information has also been studied in the past. One such study was done by Albert Hilbrink. In his paper 'Radio as a tool in Rural Extension: the Indonesian Radio Farm Forum'[27], Hilbrink states that 'new farming methods can be introduced most effectively by a combination of different extension methods, such as farm visits, demonstrations, group discussions, radio, publications, lectures and so on.

According to P.R.R. Sinha, a communication scholar from India, radio can reach a larger audience cheaper and more quickly than any other means of communication. Sinha states that radio can create <u>awareness</u> of innovations and stimulate a sense of involvement, but at other stages of the development process, especially at the crucial stage of <u>adopting</u> innovation by the rural people, the role of radio is less effective. This is because of several reasons:

- Radio cannot provide very detailed information,
- The listener soon forgets,

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[27]   Sinha, P. R. R. (Ed), 'Communication and Rural Change, Asian Mass Communication Research and Information Centre, 39 Newton Road, Singapore II, 1976 (p. 112)

- The message cannot be kept for later use and reference (unlike written material), and,

- Radio is a one-way communication since it does not have immediate audience feedback[28].

Jean-Pierre Ilboudo, on the other hand, advocates for more intensive use of community radio in promoting rural development. He states that the basic characteristic of community radio is that it belongs to the community, and that it aims at responding to the community's needs. It has the privilege of riding the wave of democratization of communication, which enables the broad participation of men and women of the local community, although the nature of this participation depends on the particular social context.

He outlines four phases in which the use of community radio can be implemented. The first is the sensitization phase, which lays emphasis on sensitizing rural people to the radio itself. Even though radio receivers are far from being ubiquitous, this stage has long been overtaken in most countries. The second phase is to encourage people, by radio, to adopt specific agricultural practices, by informing and initiating them in new techniques. It depends more on agricultural policy than on information policy. The third phase, taking an opposite approach, lets the farmers speak and has a positive impact on agricultural policy. The fourth phase comes from the challenge of democratization, given the propensity of the radio medium to enable the demanding goal of democracy. When this facet is well-understood and wisely used, it can confer upon local radio not the function of being a tranquilliser but that of an instrument of popular expression and education. A facet which could open up some excellent perspectives for farmers' self-improvement.[29]

He points out that there is a direct link between the period in which private, commercial, and community radio blossomed, and the rise of political demands in Africa. Radio stations which were linked to associations or to political parties made claims for frequencies in order to gain liberty and democracy.

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[28] Ibid
[29] '*After 50 Years: The Role and Use of Rural Radio in Africa*' in 'The One to Watch – Radio, New ICTs and Interactivity' by Jean-Pierre Ilboudo

Regardless of whether they were commercial, private or community radios, they all have one thing in common: they all broadcast programmes with information components, covering questions of health, environment, making skilful use of national languages and local music. In fact, many of them have started playing the initial roles and uses of rural radio with even a greater degree of attention in targeting specific audiences (youth, women, farmers, fishermen) or entire communities. All this raises the question of what rural radio will be like five years hence.

He further states that radio is well able to play the following roles:
• A means for the rapid dissemination of key information, in a great many languages, and in geographically vast or restricted areas;
• A platform for dialogue and debate among development stakeholders;
• A platform for rural and urban communities to express themselves;
• A tool for awareness-building and social mobilisation;
• An instrument for research, providing genuine information about rural communities (upwards) to decision-makers.

Challenges in implementation of Agro forestry and Forestry in Communities

Various aid organizations and governments have in the past and even presently continue to initiate and encourage planting of trees as a way of conserving the environment and achieving sustainable food production. Such initiatives draw varied community reactions and experience different levels of effectiveness. Various studies have been done to determine the impact of such projects. An example is one that was carried out in the Blue Nile region of Sudan[30]. The evaluation sought to find out the impact of an afforestation programme initiated by the Finnish government. The project had mixed successes, in some areas succeeding in the creation of forest cover and in others, having to adopt a change of strategy.

The researchers noted that despite some successes, there were various obstacles to sustainable forestry:

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[30] Hisham, Mohamed Ahmed; Sharma, Jan & Ngaiza, Anthony; Whose Trees: A People's View of Forestry Aid. Panos Publications Ltd, London, UK, 1991

One is that environmental decline seems to feed on itself; the denuded areas prove the most difficult to regenerate, not least because the poorest people are fighting for survival and can seldom afford to wait for the slow process of afforestation.

This is because for most poor families, obviously, the first priority is food. Any attempt to encourage tree planting must first address their food requirements. Education and literacy programs explaining the benefits of tree planting are also necessary.

In the Sudan programme, food aid was used as an incentive. This served to spark the interest and action of several farmers since it spoke to their immediate needs. However, it later became apparent that desperate farmers may be persuaded to take part in afforestation due to expediency, but may not believe in the project, and therefore change their minds when there are no immediate benefits or when the payments cease.

Tree ownership must also be sorted out in advance. In the Sudan project, the trees were taken to be government property and therefore the farmers who had them on their farms could not cut them down without permission, regardless of the pressing need at hand (e.g. firewood). It is therefore necessary to define whether, if farmers plant trees on their private land with government support, do they have a right to cut them down or do they need government permission to do so?

There is also the issue of competing needs between forest and grazing land, that is, there is need to protect tree seedlings, but also to provide fodder for animals: how can these two competing needs be managed without one being detrimental to the other?

In addition, nomadic farmers provide a challenge in the implementation of any tree planting initiative; this is because they don not usually have their own land on which to graze animals or on which to plant trees, but rather, the land is owned communally.

Water is also a constraint in most areas which are in need of trees. Most such environments are dry, and experience water scarcity. Yet tree seedlings need regular watering in order to survive. Anyone implementing a tree planting project in such an area therefore needs to address how to convince the community to water tree seedlings when they themselves do not have water for domestic use.

METHODOLOGY

The methodology was informed by the objectives of the project, which were as follows:

To analyse the role of radio in the transmission of agro forestry information to the rural Mtito-Andei community

This was done through face to face discussions with the station manager and staff at Mang'elete radio station to find out in exactly what ways Radio Mang'elete has been/is being used to transmit agroforestry information. The discussion covered the station's aims and an evaluation of whether they feel that their interventions have made a difference in the communities they serve. They were interviewed not only on what they hoped to achieve, but also on their opinion on the impact they believe their programs have had so far on the community with regards to agroforestry.

This information was also obtained by a content analysis of Radio Mang'elete agroforestry programs. This was done by listening to several agroforestry programs to get a feel of what information is incorporated into them and what style is used to do so (e.g. documentaries, radio dramas, studio interviews and so on).

- To find out whether there is any link between programming on local radio and community attitude towards agro forestry and also to find out if and how conservation information obtained from radio is affecting the community's attitude and behaviour. In other words: What has been the community's attitude towards conservation? What is the community's attitude towards conservation after obtaining information on the same

This information was gotten via questionnaires to the community. The questionnaires were distributed to opinion leaders including village elders and baraza chiefs. In addition, and primarily, the questionnaires were administered to the community members, and especially those who own farms or make decisions on what is planted on the farms. Not only did the questionnaire seek to assess the people's opinions, but also contained questions designed to find out if there has been any implementation of

agroforestry in their farms that is as a result of information gathered via Radio Mang'elete.

This section relied heavily on self-reporting by the community, and was researched through focus group discussions and key informant interviews. The key informants were community leaders and facilitators, such as those in charge of tree planting projects in the community and the local chief. This section of the study aimed to gain an opinion-based view of the community's attitude towards agro-forestry and to gather information about any agro-forestry initiatives that may exist.

The analysis also sought: *to establish **who** seeks **what** kind of information from **which** channel in terms of age and gender and how the information is implemented. It also sought to map the radio-listening patterns in the community with specific focus on agroforestry issues, seeking to answer the following questions: When is radio listened to? Who listens to radio? For what purpose is radio listened to? Is the information specifically gotten from radio implemented? How?*

This link was inferred through looking at individual information-seeking behaviour patterns. That is, what kind of information the community members look for and consider important, how they get that information and how they subsequently utilize that information. This aspect of the study is incorporated into 'Part C' of the questionnaire. It sought to establish not only what information the community seeks in radio, but also via other media channels, namely television and newspapers. This was for purposes of comparison.

For all the sections of the study, the questionnaires were administered orally so as not to limit the research to the literate members of the community only.

The respondents were randomly sampled, so as to have 200 people interviewed. However, effort was made to select farming members of the community (as opposed to those who work in town). The questionnaire is attached (appendix 5).

CONSTRAINTS TO THE RESEARCH

The community radio covers a wide radius which is not well serviced by public transport; at best, public transport is rare and erratic. In the absence of private transport, it was not possible to administer questionnaires to all the locations covered by the radio station. There was therefore use of cluster sampling – the community sampled was drawn from the two locations nearest the community radio station: Nthongoni (where the station is located) and the neighbouring location (Nzambani).

It was not possible to have a focus group discussion with the women's groups' representatives (the founders of the station) as in the duration of the researcher's stay in the area they were not available.

Language was a major barrier in carrying out questionnaire administration. The researcher was aware that the majority of the community are not fluent in English as they mostly have elementary education, thus the questionnaires were to be administered in Swahili. However, once on the ground, it was clear that more than half of the prospective interviewees were not able to clearly understand or clearly express themselves in Swahili. This meant that the questionnaire, though in English, was administered primarily in the Kamba language by the research assistants and in Swahili by the researcher. Translation and rephrasing of the questions led to slower administration of questionnaires. In addition, translation carries with it the inherent risk of alteration of the questions, or alteration of the content of the questions such that they become leading rather than objective. This could influence the answers received.

FINDINGS

OVERVIEW OF MANG'ELETE COMMUNITY RADIO

The community radio in question is known as radio Mang'elete, named after a river that flows through the community. It broadcasts primarily in the community's vernacular language – Kamba, though some of the broadcasts are in Swahili. It enjoys coverage of 100 sq kilometres, in contrast to the recommended about 50 km radius for community radios. It is owned and managed by 33 women's groups in the area, and, by extension, by the community.

The radio station is located in Mtito Andei district, in a small town known as Nthongoni, at the base of Chyulu Hills. The turn-off to the town is about 16km before Mtito Andei town when approaching from Nairobi.

The town is primarily a trading centre with several shops, and is surrounded by extensive farms. The area's main economic activity is farming, although some seasons are extremely dry, making food production a major challenge. However, there is a move to diversify from planting maize for direct consumption to growing fruit trees for sale (sale of fruits), particularly mangoes and pawpaws.

The idea of a radio station was mooted in 1993, when the women's groups were identified by AMREF who were working with them on health programs and food distribution programs.

There was also a UN Convention in Rio de Janeiro, Brazil, on desertification at around the same time. Before the meeting the people attending wanted information from various parts of the world and thus involved AMREF and the women's groups to this end. The convention discovered that there was an information gap when it came to agricultural and development information and the community; rural communities were not being reached by important development information which had the potential to promote sustainable food production and promote general standard of life in the communities.

After the Convention, radio listening groups were started under the auspices of EcoNews, a Non-Governmental Organization that focuses on trade, community based

organizations and community development programs. This was because the AMREF/women's group project had come to an end at that time. The radio listening groups were formed in 3 east African countries: Kenya, Uganda and Tanzania.

However, these groups did not have wide coverage, and as a result, the idea of community radio was born. Three organizations in the three countries collaborated to start the community radio projects in their countries as follows:

- Tanzania: Institute of Orkonerei Pastoralist Advancement (IOPA) – a predominantly Masai community radio
- Uganda : Uganda Rural Development and Training (URDT)
- Kenya: Mang'elete Community Integrated Development Program (MCIDP)

These three organizations together formed the East African Community Media Project, which aimed to have community managed resource centres and FM stations.

The overall objective of the programme to develop community-based information and communication structures in East Africa was to formulate, articulate and implement their development agendas and successfully negotiate among themselves with external development agents[31].

Uganda was the first to implement community radio, followed by Tanzania, and lastly, Kenya. This was because due to bureaucratic constraints, Mang'elete did not get licensed until the year 2003, and started airing in the year 2004.

Mang'elete Radio has the following objectives:

Vision:

An informed community through participation for development.

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[31]   Report by Jallov, Birgitte, Team Leader on behalf of Danicom and Sida, January 2007: *'Community Radio in East Africa: An Impact and Sustainability Assessment of EACMP*' (East African Community Media Project)

Mission:

- To uplift the standard of the community through information, education and communication
- To create awareness on development issues
- To empower the community to make informed decisions on sustainable development
- To enlighten the community on local, national and international matters
- To be a link between people with professional skills and laymen
- To research on what the community wants and needs are
- To be the voice of the community, and provide access for the community to express themselves
- To document community culture and history
- To promote local artists and to provide balanced entertainment
- To run a professional and sustainable radio station that services the people

Staffing

Mang'elete radio has no permanent staff but rather, makes use of volunteers from the community. Since its inception, there about 23 volunteers who have worked there regularly. They are not given a salary, but rather, are provided with a small allowance referred to as 'social mobilization' to enable them to meet their everyday needs.

Departments

Mang'elete radio is divided into 5 major departments:
- Production (which deals with programs)
- Finance
- Technical
- News
- Advertising

Each department has a section head and assistant.

Funding

Mang'elete radio has been a pilot project for the last 7 years, progressing from the Technical phase to the Training phase and finally, the Consolidation phase. The consolidation phase ended at the end of February 2007, and the station is in the process of applying to various donors for a fourth and final term.

Apart from funding from sponsors, the station also runs advertisements, greeting cards and a system of specific programme sponsors to generate income.

Power Source

The station previously ran on diesel and thus could broadcast for only 8 hours a day (4 in the morning and 4 in the evening), but since October 2006 it now runs on electricity, enabling broadcasts to run from 6am to 10pm each day.

Content

The station has programmes on community issues such as HIV/AIDS, business, agriculture and so on. Some are sourced from outside the country (especially the agricultural ones) and translated into the Kamba language, which is the primary language of broadcast of the station. There are also programs on gender issues, maendeleo ya wanawake, religious programs, drama programs, traditional music, storytelling and so on. These stories are mostly sourced from interviewing the community. Apart from radio programs, there are no practical projects so far.

Constraints

Funding:

This is the major constraint faced by the station. Lack of funds has led to a limited scope of news, as logistics (such as field reporters) are difficult to organize without funding. Due to lack of resources, the station has so far not been able to do formal research and evaluation on the impact their programmes have on the community; for example, at the moment, listenership is gauged through call-ins, informal research,

and letters written in. In addition, the equipment currently in use was donated and is now starting to break down, and repairs and maintenance of the same are a challenge as the required parts are locally unavailable.

Community perception

The community often expects to benefit financially from the station, rather than seeing it as an information channel that they can contribute to.

Scarce resource persons

The informative programs require resource persons must be transported to the station, or who require a stipend in order to give of their time and professional opinion. Due to finances, this aspect is still a challenge to organize.

Poaching of trained staff by FM stations

Once the programme producers and presenters have received sufficient hands-on experience at the station, they are frequently poached by other stations which offer better terms, leaving Mang'elete to scout for and train new talent afresh.

# EVALUATION OF COMMUNITY ACCESS TO MASS MEDIA

General Access to Mass Media

The questionnaire had a section on media use, and sought to do a comparative analysis of the community's access to the three major mass media: radio, television and newspapers. Frequency of access was broken down into the following categories: 'Every day', 'Every other day', 'About once a week', 'Less than once a week' and 'Never'.

Radio was found to unanimously be the most accessed mass medium, regardless of age, gender or occupation of the respondent, with a total of 160 out of 200 people (80%) having daily access to radio. This is in sharp contrast to the only 23 and 19 people (11.5% and 9.5%) with daily access to television and newspaper respectively. In comparison, only 5 people (2.5%) had no access to radio at all, while 88 people (44%) had no access to newspaper and 84 people (42%) had no access at all to television. Mass media access is further broken down in the table below and pictorially represented in the graph below it.

Total Media Access

	TV	Newspaper	Mang'elete	Radio
Never	85	89	20	5
Less than once a week	50	41	3	6
About once a week	36	35	19	14
Every other day	6	16	27	15
Every day	23	19	131	160
Total	200	200	200	200
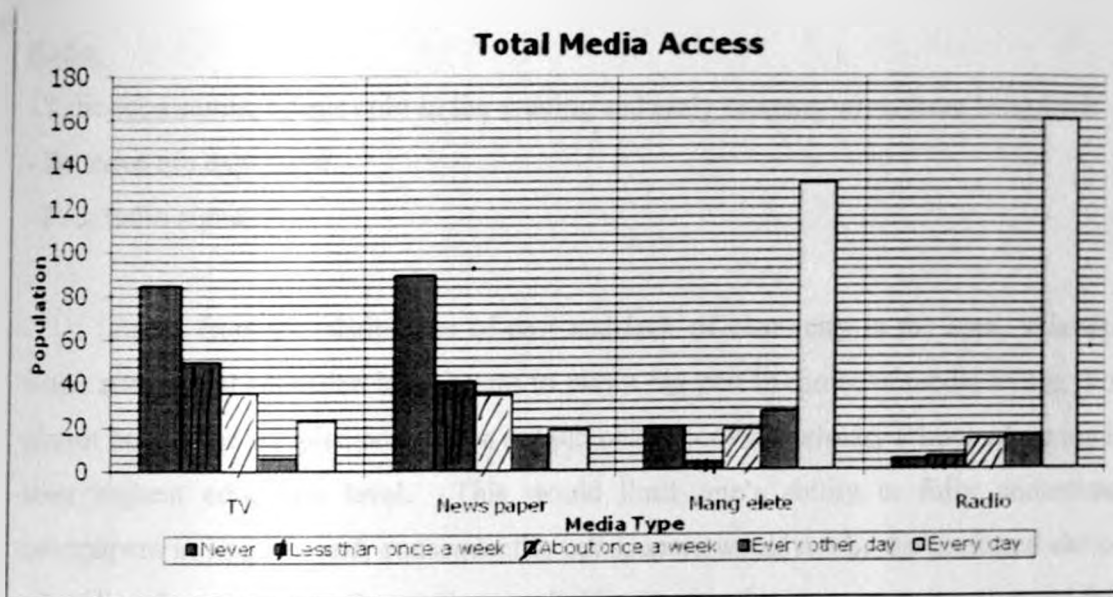
Total Media Access

Media access in this rural community is biased towards radio for various reasons. One is the number of challenges faced in accessing the other mass media, namely television and radio. There were several challenges cited as follows (quoted from the questionnaires):

Constraints to Accessing Mass Media

Television
- No finances to purchase a television set
- No electricity
- Too expensive to buy solar panels as an alternative power source
- Has to travel 10km to watch TV
- Poor TV signal
- Only one TV channel
- Car batteries as an alternative power source are very expensive

Newspapers
- Sometimes it is not easy to read the English in newspapers; it is easier to listen to radio
- Newspapers are hard to come by as they are expensive and newspaper vendors are far – over 10km away
- No kerosene to read newspaper in the house

<u>Radio:</u>

- Time constraints; listens only in the evening and early morning when there is no work

- Batteries are expensive

- Poor radio signal

Apart from the challenges of cost and lack of electricity in the area, it is also worth noting that education level seems to play a big part in choice of media to use. For almost half of the sampled population (98 out of 200 – 49%), primary school education is their highest education level. This would limit one's ability to fully understand newspapers in English, and, consequently, newspapers would not be the preferred choice of media when there are other options available. During the interviews, it was noted that most of the respondents, regardless of age, were comfortable expressing themselves in Swahili or Kamba (the local dialect) but were unable to adequately express themselves in English. Such a situation on the ground would naturally incline individuals to seek out media in a language they can understand, such as radio in Swahili and Kamba, rather than television, which is primarily in English, or English newspapers. The figures above (Table and Graph: Total Media Access) support this.

Media Access by Gender:

a) Television

There was a clear gap between the genders in terms of frequency of accessing television. 66% of all males watched television as compared to only 48% of females. Thus, while only 33% (about a third) of males do not watch television at all, 52% of females (over half) do not watch television at all. For the males who watched, they cited evening as their most frequent television watching time, mostly at the shopping centre before heading home, as in the majority of cases television is not available in their homes. In such a rural setting, the females would already be home doing household chores and therefore not in a position to watch television.

b) Newspapers

The gender disparity was even more apparent in newspaper access. 68% (more than two thirds) of males had access to newspapers, while only 41% (less than half) of females indicated that they read newspapers at all. This can be attributed to education levels, with males generally being more educated than females: out of 84 females 9 had no formal education at all (10%) while out of 116 males, only 4 (3%) had no formal education. This trend is common in rural areas, where more emphasis is placed on educating the male than the female, mostly based on the argument that the female will not always be in the household (as she will be married off to another household), and therefore will not help her 'original' home with the skills garnered through education.

c) Radio

In contrast, access to radio by females was much closer to that of males (though still exceeded by it); 97% of females tuned in to radio, compared to 99% of males. As per the figures, it is clear that for both genders access to radio was at close to 100%. This can be attributed to the fact that radio is a secondary medium, in that it can be listened to as one goes about other chores, and does not need undivided attention unlike television and newspapers. Also, most households own a radio, in contrast to television and newspapers which are widely unavailable in the community. Indeed, in this community, regardless of whether one works outside the home (as most males do) or inside the home (as most females do), radio is available. In addition, radio is also easily available in public places such as shops and open air markets.

ACCESS TO RADIO

The study then sought to further examine access to radio by analyzing access by age and education.

Access by Education

Based on the sample studied, regardless of education level, radio is accessed by almost 100 % of the population. Indeed, only three people with primary level education (3%), one person with secondary level education (2%) and one person with tertiary education (11%) cited no access at all to radio.

The varying percentages may be an indicator that the higher one's education level the less they tune in to radio, but this is subject to further research and the possibility of statistical error as the respondents with tertiary education were much fewer than those in other education categories, thus their preferences may not be generalizable to a larger population.

Radio Access By Education

|	Elementary	Primary	Vocational	Secondary	Tertiary	None
Never	0	3	0	1	1	0
Less than once a week	3	3	0	0	0	0
About once a week	2	2	1	6	0	3
Every other day	1	7	0	7	0	0
Every day	13	83	5	41	8	10
Total	19	98	6	55	9	13

Radio Access by Education
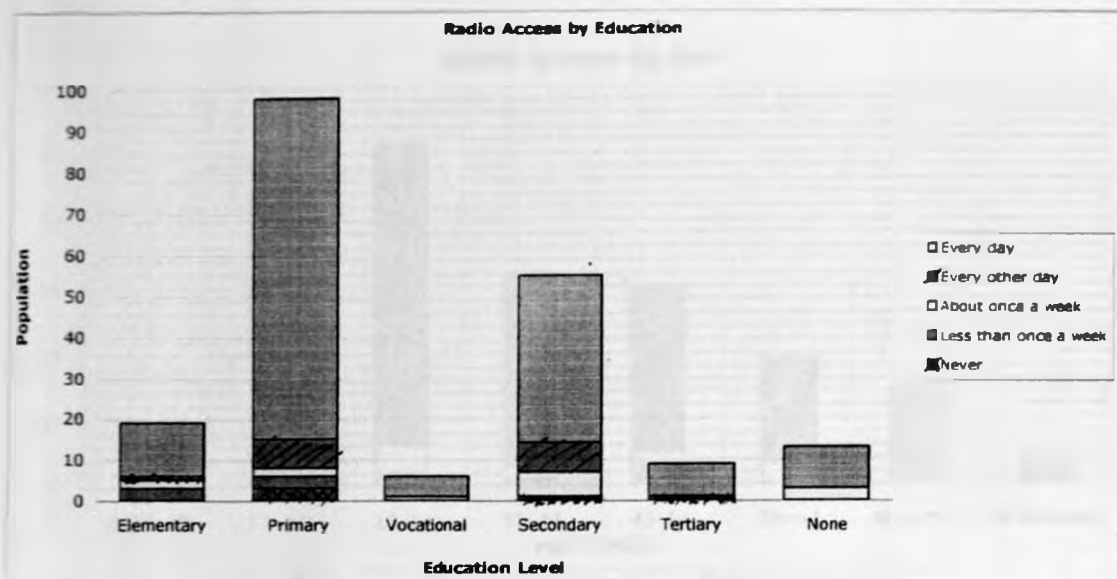
Access by Age

In terms of age. the radio listening figures were more varied as displayed in the following tables. with the scale seeming to point towards increased radio listenership as one grows older. This could be due to the fact that the more advanced one is in age. the more time he/she is at home (not out working) and therefore has radio at his/her disposal. This could be supported by the fact that 86% of the respondents cite evening as their radio listening time since they are busy or out of the home the rest of the day. An additional 8% gave morning and evening as their preferred listening times. as that is when they were free.

Radio Access by Age

	under 15	15-24	25-34	35-44	45-54	55-64	Above 65	Undisclosed
Never	1	2	1	0	1	0	0	0
Less than once a week	0	2	1	1	2	0	0	0
About once a week	0	3	4	2	2	3	0	0
Every other day	0	4	4	5	0	2	0	0
Every day	1	37	41	24	25	14	14	3
	2	48	51	32	30	19	14	3

Radio Access by Age

Radio Access by Percentage
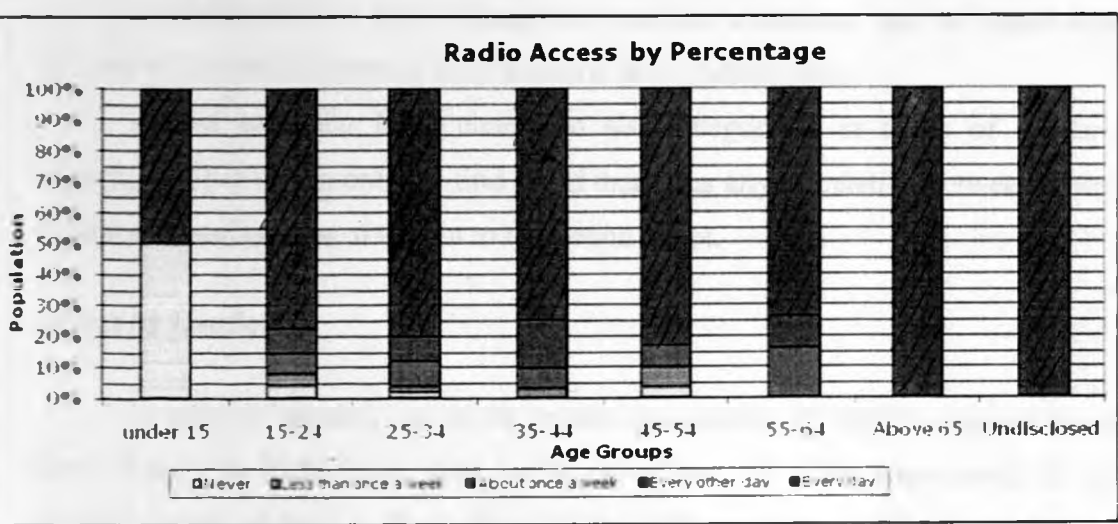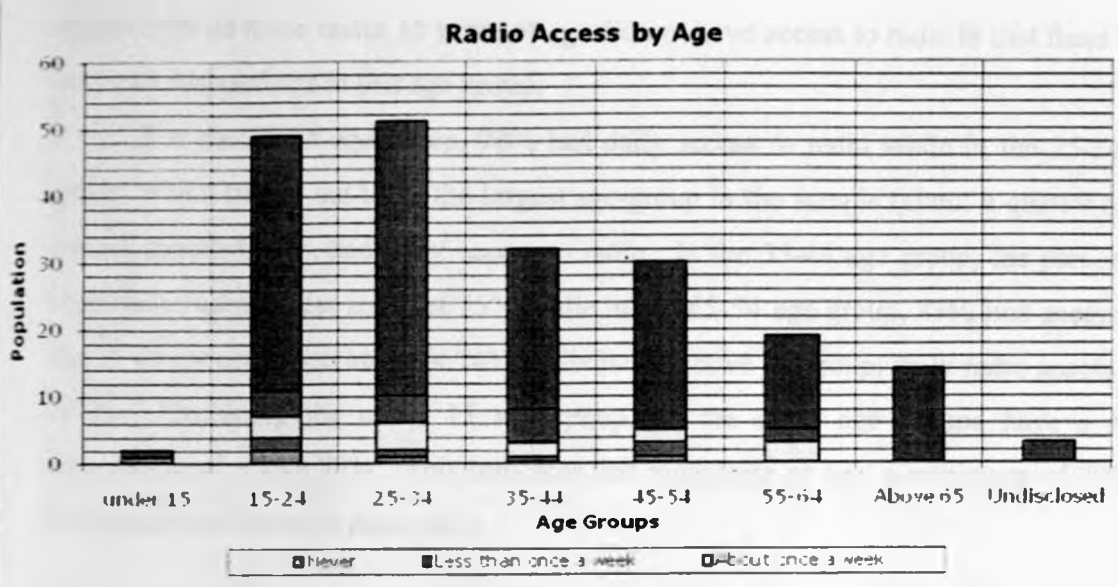
In the under 15 category, 50% were marked as having no access to radio, while the over 65 category had 100% access to radio. These figures, however, may not be reflective of the situation on the ground as concerns the 'under 15' category; in the fieldwork, effort was made to interview those in a position to make decisions on their farms, and therefore there was a conscious effort to avoid picking the young, who would still be under the care of their parents and thus not in a decision-making position as pertains to whether to plant trees or not. In this sense, the sample was biased and thus the

reason 50% of those under 15 years of age did not have access to radio is that there were only two respondents in this age group.

For the 15-24 age group, 78% had daily access to radio while in the 25-34 age group, which turned out to be the largest age-group in the sample (about a quarter of the overall sample), 80% had daily access to radio. In the 35-44 age group, the percentage with daily radio access stood at 75% while in the 45-54 age group, 83% had access. In the 55-64 group, access stood at 74% while in the above 65 group, daily radio access was 100%. Excluding the under 15 age group, all the other age groups have a radio listenership of above 70%. This indicates that regardless of age, a minimum of 70% of the population listens to radio daily.

ACCESS TO RADIO MANG'ELETE

Specific access to Radio Mang'elete was also examined, and the figure stood at 131 out of 200 (65.5%) having daily access to Radio Mang'elete.

Access to Radio Mang'elete was also categorized in terms of gender and education. This was in order to find out if there was any correlation between these two factors and one's choice to tune in to the station or not.

Access by Gender

In terms of gender, out of 84 female respondents, 55 (65%) reported that they tuned in daily to Radio Mang'elete, while out of the 116 males interviewed, 76 (65%) reported tuning in daily to Radio Mang'elete. This represents 65% of both males and females tuning in to Radio Mang'elete, which would seem to indicate equal interest in and access to Radio Mang'elete by both genders in the locality.

Access by Education

Usage of Radio Mang'elete filtered by education was also derived from the sample with the following results:

Out of the 98 primary school level respondents, 87 people in total (88%) tuned in to Radio Mangelete (regardless of frequency), and out of these, 73 (74%) cited daily use of the same.

Of the 55 secondary school level respondents, 47 (85%) in total reported to tuning in to Radio Mang'elete (regardless of frequency), while only 26 (47%) reported to tuning in daily. In this category, 8 people (14%) reported to never tuning in to Radio Mang'elete.

Of the 19 elementary level respondents (attained less than a primary school education), all 19 tuned in to Radio Mang'elete, and 11 of them (57%), daily.

Of the 9 with tertiary education, 6 tuned in daily (66%) and one (11%) never tuned in. Of the 6 with vocational education (training in a trade either after primary school or in lieu of primary school), all 6 tuned in to Radio Mang'elete, and 5 (83%) tuned in daily.

Based on the above figures, just as in the 'total media access' section, it seems that the more educated one is the less they tune into Radio Mang'elete. This could be due to the fact that the more educated one is, the more media choices he/she has: someone with tertiary education is not limited to listening to radio, but can also watch and understand television, and read and understand both English and Swahili newspapers. This is supported by the fact that for a majority of the respondents who stated they listened to Radio Mang'elete, they gave their primary reason for listenership as the fact that the station broadcasts in Kamba, while of the more educated, several stated that they did not listen to Radio Mang'elete specifically because the broadcasts were in Kamba.

These figures are represented in the chart and graph below:

Mang'elete access by Education

	Elementary	Primary	Vocational	Secondary	Tertiary	None
Never	0	11	0	8	1	0
Less than once a week	0		0	5	0	0
About once a week	0	4	1	8	2	3
Every other day	0	10	0	8	0	0
Every day	19	73	5	26	6	10
Total	19	98	6	55	9	13

Mang'elete Access by Education
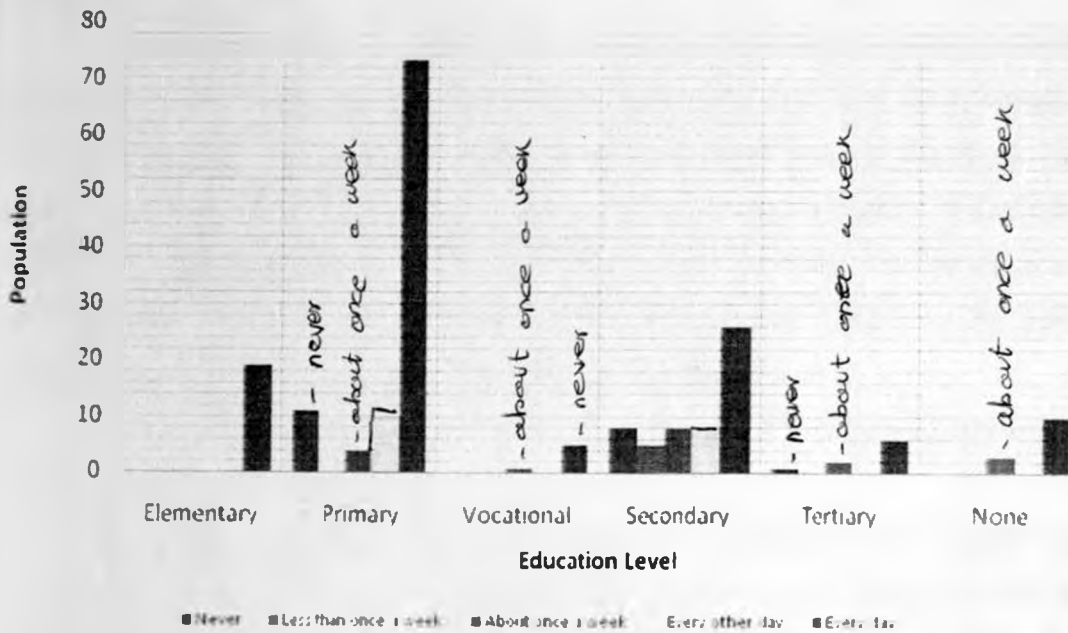
CONTENT ANALYSIS: MANG'ELETE ENVIRONMENTAL PROGRAMMES

Content and Information Sources

The environmental programme deals with several topics, among them tree planting. It works with groups that do tree planting, and deals with how to plant and tend trees, especially how tend them during dry spells. The also deal with how to irrigate especially horticultural crops i.e. different methods of irrigation. The groups visit the station and share what they do. In the process, they also receive advice on what they could do better.

Information sources for the environmental programmes are agricultural and environmental organizations such as AridSac, an organization in Kibwezi which deals with agroforestry. Information is also sourced from key informants such as the area chief, and government environmental officers. The Amboseli National Park officers and the Tsavo East National Park environmental desk officer have also been resource persons for programmes addressing wildlife conservation and tree cutting in the park (for charcoal, which has led to drying of the Mtito Andei River).

Environmental conservation information is rarely sourced from the internet due to lack of internet access in the area.

A related programme is the Agriculture programme, which covers various agricultural issues such as herding, beekeeping and honey production. There has been a special series about cash crop production, featuring apple-mangoes, which do well in the area and fetch a better price than the indigenous mangoes. For this programme, large scale farmers and the district development officers for Agriculture, Livestock and Fisheries have been the information sources.

Format

The programme samples listened to featured a standard format as follows:

Signature tune (animal and nature sounds)

Introduction by presenter

Signature tune interlude

Main body of the programme incorporating:

a) Field interviews with description of the environment (visual picture of the surroundings) and back-to-back interviews with several community members and local opinion leaders on environmental issues

OR

b) Studio Interview with local opinion leader on an issue e.g. tree planting

Signature tune interlude

Conclusion by presenter

Signature tune

Among the programmes sampled there was no use of the radio drama format or other radio production formats.

IMPACT EVALUATION OF TREE PLANTING PROGRAMMES

Evaluation of the impact of the environmental and specifically tree planting programs is divided into three: Evaluation by the programme producers, evaluation by a tree planting group and evaluation by the community.

Evaluation by Mang'elete Environmental Programme Producers

There is a programme that airs audience views especially during the national Tree Planting days, but there is so far no formal audience evaluation. The evaluation covered so far has mostly been concerned with whether the information aired gets to the community, and not on whether it is utilized or not. Indeed, no formal impact assessment has been done, but the producers state that the effects of their programmes are visible: more people have an interest in planting trees especially for fruit production, there has been a move to plant trees around boreholes so as to protect the water sources, and there is more interest by the community in seeking information on how to graft fruit trees in order to make them more productive.

Evaluation by a Community Tree Planting Group

The researcher held a focus group discussion with a tree planting group that was started in 2004, the same year Mang'elete community radio was started. The researcher chose to have a discussion with this group because, more than any other member of the community, such a group would specifically be seeking tree-planting information, and would therefore have a clear, practical knowledge of information sources for the same.

The group started with 53 members but now has only 18 active members. These members regularly buy trees from the group and plant them in their homesteads. The group was initially an adult education group but they eventually mooted the idea of starting a tree planting project in order to improve their livelihoods and to keep the group together. As part of the adult education, they had learnt the importance of trees and the role that trees play in the ecology. They therefore decided to start planting trees as a way of practically applying what they had learnt.

Their aim was to not only improve the environment, but also to get fruits for their own use and for sale. Therefore, a majority of the trees they plant are fruit trees (especially mangoes), but they also plant trees for fencing, firewood and windbreaking purposes. Apart from planting trees in their own homesteads, they also have a tree nursery at the Nzambani Chief's camp, from which other community members purchase tree seedlings. In this way, the group members profit financially, and in their own words, the trees have "helped a great deal to reduce poverty".

However, all has not been smooth. They face several challenges, most significant being water. Water is not easily available in the area, as it is a semi-arid region, and therefore the group has to purchase water to irrigate the seedlings. This is a constant cost that reduces their profits from seedling sales. The trees are also sometimes affected by tree diseases which the group does not have a solution for, and thus some seedlings do not survive. The group also cites seedling theft and people's poultry as a challenge – roaming chicken often feed on their seedlings, causing them to dry up and die.

Despite these challenges, the group has been largely successful. The members have started a 'merry go round' every month during which they visit each other to check on the progress of the seedlings. In addition, each member is given 10 seedlings per year for free to plant at home. They have been able to harvest fruits for sale, prevent soil erosion and improve the rain catchment. They say that as a result, most of their neighbours are motivated to start planting trees on their own compounds too.

The group cited random visitors (agricultural experts) and radio as their main information sources. They stated that few of them own a television set and even for those who do, there is no electricity to power them. As for newspapers, they are not sold locally at the local shopping centre – the nearest source is more than 10 km away in a larger town.

When asked to rate tree planting information received from Radio Mang'elete, they stated that they had heard programs about the importance of planting trees, but now required more technical information on how to best tend trees, the best type of trees to plant for the area and what seeds to use. They also expressed a need for information on

grafting[32] as they currently hire people to graft trees for them, which is expensive. They would also like to learn proper irrigation and manuring techniques, which have not been addressed on the Radio Mang'elete tree planting programmes so far.

Evaluation by Community

This evaluation was done through the use of questionnaires administered randomly to the community. Respondents were got through random visits to homesteads and also at shopping centres during market days, as a large number were not at home during the day. The researcher aimed to interview a larger number of farmers than those in any other occupation, which was done successfully; by the end of the research, it was apparent that most of the respondents, whether found at their homes or at the shopping centres, farmed for a living.

One of the questions in the questionnaire sought to know if the respondents had heard any tree planting information on Radio Mang'elete and was followed by a subsequent question asking them to rate the information in terms of usefulness to them.

Out of 200 respondents, 73 (36%) said that they had not heard any tree planting information on Radio Mang'elete. For those who had come across tree planting information, 106 (52%) rated the information as 'Useful' out of the possible options of 'Irrelevant', 'Not Useful', 'Useful', 'Quite Useful' and 'Extremely Useful'. 13 people (7%), rated the information as 'Quite Useful', 6 people (3%) while only 1 person (1%) respectively rated the information as 'Irrelevant' or 'Not Useful'. This is pictorially displayed in the chart below:

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[32]   Indigenous mango seedlings are initially planted as they are drought resistant, and once they are established, exotic mango shoots are grafted onto them as they are much more fruitful – they produce fruit of better quality (therefore fetching a better market price), in a shorter time, and in larger quantities.

Tree Planting Duration
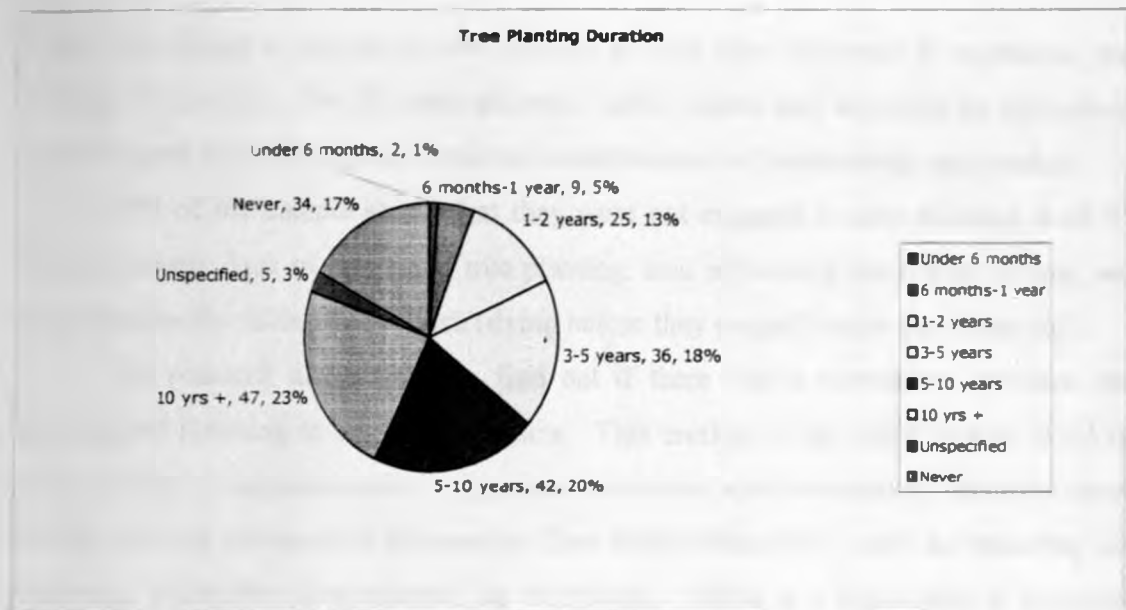
From the data above it is clear that the community listens to the tree planting information offered on Radio Mang'elete. and largely finds it useful especially when it comes to tending already-established trees.

The researcher found out that 71% of the population had planted trees for over 3 years. longer than the existence of Radio Mang'elete. therefore the initial decision to plant trees cannot be attributed to Radio Mang'elete. For this section of the population. they cited their first tree planting information source as agricultural extension officers. and subsequent tree tending information as coming from friends. family and extension officers. In addition. there are those in that section of the population who self-reported as using tree tending techniques garnered from Radio Mang'elete.

22% of the sample had planted trees for two years or less. and gave their main information sources (with regards to the importance of tree planting and how to tend trees) as being a combination of friends and family, school. radio and seminars by agricultural experts/extension officers.

This supports the Everett Rogers' Diffusion of Innovation theory. which states that new information is implemented by a few early adopters and then later taken up by a larger and larger percentage of the population once they realize that it is a viable idea. This was found to be true. as most interviewees. when questioned. cited observation of

friends and family's success in tree planting as their first motivator in embracing tree planting themselves. For the later adopters, radio, school and seminars by agricultural experts played a reinforcing role once the initial interest in tree planting was sparked.

17% of the sample stated that they were not engaged in tree planting at all for various reasons: lack of interest in tree planting, lack of farming land, lack of time, and trees consistently failing to establish (dying before they properly take root in the soil).

The research also sought to find out if there was a connection between tree planting and listening to Radio Mang'elete. This section of the study largely relied on self-reporting by the community. As pointed out above, most community members stated having received tree-tending information from Radio Mang'elete, such as manuring and mulching, which they implemented on their farms. While it is impossible to eliminate other variables in one's decision to plant and maintain trees unless it is a controlled experiment, the data indicates that more than half the farming community is engaged in tree planting, and more than half the population sampled listens to Mang'elete radio. In addition, out of those who listen to tree planting information on Radio Mang'elete, more than half (52%) find it useful.

CONCLUSIONS AND RECOMMENDATIONS

From the above data on media access, preferred media content and evaluation of radio Mang'elete listenership, it is clear that Radio Mang'elete is the most popular radio channel in the area. Given the average literacy levels of the area, Radio Mang'elete's choice to air content in the local dialect is very strategic and ensures that the majority of listeners are catered to.

Regarding content, feedback from the community indicates that they rely on the station for various information needs, some of which are met and some of which are not. The respondents had an opportunity to state which Radio Mang'elete programmes they did not like and also to give recommendations. In general, the most frequently cited dislike was the traditional 'dance' music, which the majority of respondents felt was given too much airtime at the expense of more constructive programmes. There was also a concern about the quality of non-local news, with respondents stating that only the local news was valid, but the news from outside the area was often out of date, as they had often already read it in the newspapers or heard it on other channels before the Mang'elete broadcast.

The sample studied indicated that there is a felt need for more informative programmes on Radio Mang'elete. The most frequently proposed content was agriculture/farming, religious programmes, family issues (such as morality and reproductive health), environmental conservation, international news, AIDS education, more detailed tree planting programmes, information on the use of fertilizers and pesticides for both crops and trees, and sports news. A more detailed list of recommendations by the community is in the annex 'Community Recommendations'.

Recommendations on Language

The Kamba language used in most of the programming is appropriate for the community, as it addresses them in the language they are most familiar with. Much as there may be those who will not tune into the station due to language, the target audience is well catered for and thus the station should continue broadcasting in the Kamba language.

Recommendations on Content

Radio Mang'elete is a station strategically placed to serve a niche in the community that no other medium does, and therefore has an opportunity to directly influence the community through the provision of much-needed information. From the community's sentiments, it is clear that the station is a vital information source relied on for accurate and in-depth information on diverse issues ranging from international news to local farming activities. This strategic position can be capitalized on by:

- Investing in more diverse information sources such as the internet for more up-to-date news,
- Investing in field reporters from different parts of the region.
- Allocating more time to informative programmes, which can be generated through pre-recording as there is a shortage of live presenters and resource people to be interviewed live at the studios

Recommendations on Tree Planting Information

With regards to tree planting, the radio is so far doing a good job in providing information on the importance of tree planting and how to tend trees. There is however need for more comprehensive information on the specifications of *which* trees are suitable for planting in the area, and on how exactly to tend them. There is also a need to incorporate information on the more technical aspects of tree management such as tree grafting.

Recommendations on Quality of Programmes

The programme producers should diversify from the standard 'magazine' format for the environmental programmes, and venture into more creative radio formats such as drama. This would enable them to stay relevant and interesting to their audience. To achieve this, it may be necessary to train the programme producers on the various production techniques, through use of resource persons who can visit the station and offer training at scheduled times.

Recommendations on Time of Airing

As most of the community cited their prime radio listening times to be morning and evening, Radio Mang'elete would receive more listenership by concentrating its more informative programmes (which the audience is inclined to) at around that time, such that when listeners tune in for the news, they continue listening rather than switch to other channels which may offer more attractive programming at prime time. This strategy will also ensure that information specifically packaged for the community has better chances of reaching its target audience, as there would be limited chances of people missing informative programmes (unlike those aired in the daytime which are often missed as people are out working).

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APPENDIX 1: RADIO FREQUENCY COMMUNICATIONS BANDS

Frequency range	Name	Abbr.	Main use
Less than 300Hz	Extremely low	ELF	Submarines
300Hz-3kHz	Infra low	ILF	Voice band
3 KHz-30kHz	Very low	VLF	Audio band
30kHz-300kHz	Low	LF	Broadcast/long range
300kHz-3MHz	Medium	MF	Broadcast/long range/sw
3mHz -30mHz	High	HF	Shortwave band
30 mHz-300mHz	Very high	VHF	Mobile radio/paging/ VHF/TV
300mHz- 3 GHz	Ultra high	UHF	Mobile/microwave/TV
3GHz-30GHz	Super high	SHF	Microwave/satellite
30 GHz-300GHz	Extremely high	EHF	Microwave
300GHz-3000GHz	Tremendously high	THF	Experimental

APPENDIX 2: BUDGET

Transport

Nairobi – Site (return) @ Ksh 500 pp one way	Ksh	2,000
Within research locale @ Ksh 100 pp per trip (x 4 ppl x 5 days)	Ksh	2,000

Stationery

Pens x 4 @ Ksh 10 each	Ksh	40
Notebooks x 4 @ Ksh 50 each	Ksh	200
Recorder x 1 @ Ksh 2,900	Ksh	2,900
Audio tapes x 5 @ Ksh 75 each	Ksh	375
CDs x 5 @ Ksh 20 each	Ksh	100
Batteries x 2 packs @ Ksh 280 each	Ksh	560
Questionnaires x 200 @ Ksh 6 per questionnaire	Ksh	1,200

Human Resource

Research Assistants x 3 @ Ksh 500 per assistant per day x 5 days	Ksh	7,500
Accommodation x 5 days @ Ksh 300 per day	Ksh	1,500
Meals x 5 days @ Ksh 300 per day	Ksh	1,500
Facilitation of Focus Group Discussions x 2 @ Ksh 250 per session	Ksh	500
Miscellaneous	Ksh	2.000
Total	Ksh.	22, 375

APPENDIX 3: COMMUNITY RECOMMENDATIONS

The following were the community recommendations (unedited):

Preferred content:

- Gospel programs
- Educative programs
- Agricultural/farming programs
- Environmental programs
- More constructive programs on social development &family values
- Bring informative programs instead of too much music
- Weather reports
- More international news
- AIDS education
- More interactive programs
- Introduce children's programs
- Live calling instead of SMS
- Have a request hour
- Hourly news program
- Increase signal strength
- Extend time for educative programs
- Extend duration of programs
- Extend hours of operation
- School broadcasts
- New farming ideas and methods from different parts of the country
- Content on tree planting should be given more time so that people get the chance to listen
- Explain more about corruption e.g. the Goldenberg issue
- Put up Kiswahili programs
- More on development, especially worldwide
- Spend more time on topics that we are interested in e.g. scouts
- More information on parliamentary happenings and politics
- More academic information
- Increase sports programs
- Reproductive health/morals for the youth
- More interesting programs eg lottery programs like in KBC
- More Kamba gospel music
- More information on entrepreneurship
- Have Swahili news
- Rights of children and women
- Insecurity issues
- More drama
- Humour programs

Comments on human resources:

- Train presenters for more professionalism
- Bring professionals on technical programs, not 'local men'
- Traditional programs should have experienced persons

APPENDIX 4: DISCUSSION GUIDES FOR FOCUS GROUP DISCUSSIONS

1. Discussion Guide for Focus Group Discussion (FGD) with Women's Group

What were your motivations for starting a community radio station?
Nini ilikuwa chanzo cha nyinyi kuanzisha Mang'elete community radio?

Why the name?
Kwa nini mkaiita Mang'elete – yani, jina Mang'elete ina maana gani?

What issues have you most wanted to see addressed?
Ni mambo yapi ambayo mmetaka sana yazungumziwe katika hii redio?

Would you say they are adequately addressed?
Na je, kwa maoni yenu, yanazungumziwa ya kutosha (yani kwa kiasi kile mnataka) au la?

What challenges have there been when it comes to running the radio station?
Mmepata ugumu wowote katika kuendeleza stesheni hii? Kama vile nini?

Do you determine the content? To what extent?
Je, ni nyinyi huamua vipindi vinavyoletwa katika Radio Mang'elete?

In your view, has radio Mang'elete had an impact on the community? In what way?
Kulingana na nyinyi, Radio Mang'elete imeleta tofauti yoyote katika area hii? Gani?

What recommendations would you make with regards to content?
Ni vipindi gain mngependa viongezwe au vipunguzwe katika redio Mang'elete?

2. Discussion Guide for Focus Group Discussion (FGD) with Tree Planting Group

When did this group start?
How many are you?
What is your coverage area?
What are the aims of this group?
What challenges do you face in achieving your goals?
What are your successes so far?
What kind of information do you need in regard to tree planting/tending?
Where do you get such information from (for tree planting, tending etc)?
What constraints are there when it comes to getting this information?
Does mass media play any part in providing such information? Which mass medium and how?
What part of these information needs do you feel the mass media could meet but are not currently doing so?
What access do you have to: radio/TV/newspapers?

APPENDIX 5: QUESTIONNAIRE SAMPLE

Questionnaire for **Radio Audience Interviews:**

Part A (Interviewee data):

1. Gender: ☐ male ☐ female

2. Age: ☐ under 15 ☐ 15-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ above 65 ☐ undisclosed

3. What do you do for a living? _____

4. What is your level of education?

   ☐ Elementary ☐ Primary ☐ vocational ☐ Secondary ☐ Tertiary ☐ None

Part B (Farming):

5. Are you engaged in farming? ☐ Crop farming ☐ Animal farming ☐ Both ☐ None

6. Do you plant trees on your farm? ☐ Yes ☐ No Why? _____

7. For how long have you planted trees on your farm?

   ☐ under 6 months ☐ 6 months - 1 yr ☐ 1-2 yrs ☐ 3-5 yrs ☐ 5-10yrs ☐ over 10yrs ☐ unspecified

8. How did you first learn about the importance of planting trees?

   ☐ Friends/family ☐ radio ☐ newspaper ☐ TV ☐ school ☐ Other. Specify_____

9. Where do you get information about which trees to plant?

   ☐ Friends/family ☐ radio ☐ newspaper ☐ TV ☐ school ☐ Other. Specify_____

10. Where do you get information on how to tend your trees?

    ☐ Friends/family ☐ radio ☐ newspaper ☐ TV ☐ school ☐ Other. Specify_____

11. Has planting trees been of benefit to you? ☐ Yes ☐ No Explain? _____

Part C (Media Use):

12. Do you watch television?

    ☐ Every day ☐ Every other day ☐ about once a week ☐ less than once a week ☐ never

13. Which channels do you watch?

    ☐ Citizen ☐ KBC ☐ Nation ☐ KTN ☐ Other. Specify_____

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14. What time of the day do you watch television? Why?

☐ Evening   ☐ Afternoon   ☐ Morning   ☐ Other. Specify_____

15. What are your favourite programmes?

☐ News   ☐ Informative   ☐ Entertainment   ☐ Other. Specify_____

16. Do you use information from television in your daily life? ☐ Yes   ☐ No Explain? _____

17. Do you read newspapers?

☐ Every day ☐ Every other day ☐ about once a week   ☐ less than once a week   ☐ never

18. Which newspapers do you read?

☐ Kenya Times   ☐ Taifa ☐ Nation   ☐ Standard ☐ Other. Specify_____

19. What are your favourite sections of the paper?

☐ Business ☐ Politics   ☐ Educational   ☐ Other. Specify_____

20. Do you use information from newspapers in your daily life? ☐ Yes   ☐ No Explain? _____

21. Do you listen to radio?

☐ Every day ☐ Every other day ☐ about once a week   ☐ less than once a week   ☐ never

22. Which stations do you tune into?

☐ Citizen   ☐ KBC ☐ Mang'elete   ☐ Other. Specify_____

23. What time of the day do you listen to radio? Why?

☐ Evening   ☐ Afternoon   ☐ Morning   ☐ Other. Specify_____

24. What are your favourite radio programmes?

☐ News   ☐ Informative   ☐ Entertainment   ☐ Other. Specify_____

25. Do you face any challenges in accessing the mass media? What challenges?

☐ Television ☐ Radio   ☐ Newspaper

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26. How often do you listen to Mang'elete radio?

☐ Every day ☐ Every other day ☐ about once a week ☐ twice a month ☐ once a month

☐ I have never heard of it ☐ I know it but I don't listen to it. Why? _____

27. What are your favourite programmes? Why?

☐ News ☐ Informative ☐ Entertainment ☐ Other. Specify_____

28. What programmes don't you like on this station? Why?

29. Do you receive any information on tree planting or tending from this station?

30. What kind of information?

31. How do you rate this information (on tree planting) by this station?

☐ Irrelevant ☐ Not useful ☐ Useful ☐ Quite useful ☐ Extremely useful

Explain._____

32. Have you implemented any tree planting information received from Mang'elete?

☐ Yes ☐ No Explain? _____

33. What kind of content would you like to have more of?