THE EFFECTS OF MIRAA PRODUCTION AND TRADE ON SECONDARY EDUCATION IN KIRITIRI AND KIANJIRU ZONES, EMBU COUNTY

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DECLARATION

I confirm that this is my original work and has not been presented for award of a degree in any university.

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DEDICATION

This project is dedicated first and foremost to the Almighty God who has given me the opportunity and strength to do this work.

I also dedicate it to my children Robert, Arnold and Martin for their psychological and moral support during the research process. Their words of encouragement, prayers and vision made me forge ahead even when there were unexpected obstacles.
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# ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>DEA</td>
<td>Drug Enforcement Administration</td>
</tr>
<tr>
<td>DEO</td>
<td>District Education Officer</td>
</tr>
<tr>
<td>KIE</td>
<td>Kenya Institute of Education</td>
</tr>
<tr>
<td>NACADA</td>
<td>National Agency for the Campaign Against Drug Abuse</td>
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<tr>
<td>UNDCP</td>
<td>United Nations Drug Control Programme</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>US Embassy</td>
<td>United States Embassy</td>
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<td>WHO</td>
<td>World Health Organization</td>
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ABSTRACT

In Kenya miraa is of prime economic importance as it feeds a ever-growing national and international market. The purpose of this study was to investigate the effects of miraa production and trade on secondary education in Kiritiri and Kianjiru zones. The objectives of this study were to find out the extent to which miraa production and trade has affected secondary education in terms of enrolment, KCSE performance, retention and expansion. The study was guided by Merton's structural strain theory which states that deviant behaviour is the natural outgrowth of values, norms and structures in society. It adopted the survey design. The study was conducted in miraa growing zones of Kiritiri and Kianjiru. The total target population was all the students in the public secondary schools in the two zones, the head teachers and the class teachers. There are 10 head teachers, 58 class teachers and 852 students in the two zones which adds up to a total target population of 920. Purposive sampling techniques was used. All the ten secondary schools were included in the sample. Class teachers were sampled as follows; 8 from boarding schools, 12 from mixed day and boarding schools and 8 from mixed day schools. A total of 25 students in forms 2, 3 and 4 and from each school were selected for the study. The total sample was 288 respondents. Two research instruments were used to collect data; questionnaires and interview schedules. Piloting was done in one secondary school. Reliability of the instruments was done through test-retest method. Validity of the instruments was done through expert judgment of my supervisors at Kenyatta University. Qualitative data was organized into themes, categories and patterns relevant to the study. Quantitative data was coded and analyzed using statistical package for social sciences (SPSS). The results were presented using descriptive statistics such as percentages, means and frequency distribution tables. Miraa has boosted the standards of living of the people in the region making them lead decent lives. Miraa has also negatively affected education in that many youths have dropped out of school. The study recommends that the government should initiate programmes and policies as regards miraa trade and production. Similarly churches and NGOs should carry out elaborate campaigns to sensitize the community on pros and the cons of miraa chewing and should also initiate the introduction of other alternative cash crops. The study recommends further investigation on social-cultural and economic lives of the people in the region.
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Miraa is an evergreen tree grown in many parts of the world such as Middle East countries, Madagascar, Yemen and Kenya. Its international name is Khat and its scientific or botanical name is *catha edulis* (KIE 2005). Miraa production and use is illegal in countries such as USA, Tanzania, Canada, New Zealand and several other European countries (Brooke 1997). The earliest references to miraa dates back to the fifth century when Abyssinian tea was noted to be popular in Abyssinia and the Aden colony. It is thought to have been cultivated first in Ethiopia. To date, Ethiopia remains the largest producer of miraa, which is the country’s fastest growing export (Feyisa 2003). For many farmers in East Africa and Yemen, miraa is a very attractive crop to grow despite the disdain for it evident in the wider world (Klingere 1989).

Miraa has in recent years become more familiar outside East Africa and Middle East through the spread of the Somali Diaspora which led to the demand for miraa in Australia and New Zealand (US Embassy 2001). Miraa even reaches the USA on a regular basis despite being a schedule 1 substance which is heavily taxed (US Embassy 2001). In Kenya, miraa is largely grown in Mount Kenya regions namely Meru (Maua and Tigania), some parts of Embu and Mbeere (Carrier, 2005). Since miraa growing is not illegal in Kenya; it is grown, transported, sold and consumed openly. In Meru and Mbeere it is a major cash crop and a major source of income for the people of Kiritiri and Kianjiru zones (District Agricultural Office, Siakago 2000). The fresh succulent stems and leaves are harvested regularly from the trees and are highly valued for their stimulating
properties. These properties come from its Pharmacological constituents including cathine and cathinone (Carrier 2005). Cathinone affects the central nervous system in a manner similar to amphetamine; that is, it increases the heart rate, loco motor activity and oxygen consumption (Weir 1985). Cathinone is however unstable and the commodity requires a highly efficient network to deliver it to consumers while it is still potent (Kaguthi, 2006). Miraa is sold in different grades. The best grade tends to be succulent in texture, sweet in taste and of attractive purple hue. The poor quality tends to be much tougher, astringent in taste and green in colour (Edward, 1967). It is the cheaper miraa that has the most potent effect. The more expensive miraa has subtler effect and is considered more refined. Miraa seems to have a pleasantly excitant effect upon the organism (WHO 2004). A person who chews miraa becomes cheerful, talkative and remains wide awake. Some fall into pleasant dreams. The above effects are utilized to boost stamina and to preclude sleep where there is need. It is chewed much by long haul lorry drivers, by night watchmen and by students staying up revising (NACADA 2004). It is also prized at social occasions where the effects help to generate conviviality (Gebissa 2004).

Controversy surrounds miraa production and use due to its association with health problems such as insomnia and lack of appetite, violence and other social problems such as young children harvesting miraa when they should be at school (Taylor & Francis 2005). This not withstanding miraa has had a positive impact on the people in that it renders people sociable and gives traders and farmers economic advantage over others. Miraa also offers many young men and women the chance to earn decent money by trading in it either as agents or retailers themselves (Gikonyo. 2005).
In Kenya the production and use of miraa are formally unlawful and somewhat paradoxically; importation is subject to high rate of duty. However Kenya is the world’s number two miraa producer on the slopes of mount Kenya and on the hills near Nairobi totaling perhaps to $200 to $250 million. Of this 75% is exported to Somalia by plane with secondary exports to Heathrow; 25% is consumed locally mainly by the Kenyan Somalis and also the natives. Miraa growers are mainly the natives of Meru and Mbeere but the trade is largely controlled by the Somali merchants (Taylor & Francis 2005).

It is a violent trade with vicious turf wars over sources of supply. Its links with other aspects of organized crime in Kenya are not adequately researched. The police and the official norm view it as a useful source of purchasing power to farmers, foreign exchange earner for Kenya and occult income for blind eye turners and protectors (Taylor & Francis, 2005).

In Kiritiri and Kianjiru zones 75% of the farms are under Miraa plantations (Ministry of Agriculture returns, Mbeere South District 2009). Miraa growing is labour intensive especially during the harvesting period. Consequently parents encourage children to work in miraa farms to supplement family earnings (Muiruri, Standard Newspapers 2011, 11, 10). Most youths are engaged in miraa related business including picking, harvesting and marketing. In Mbeere young boys and girls are involved in picking Muguka (Miraa) and tying into small bundles for a fee (Mulei, Daily nation 2001, 02, 22).
1.2 Statement of the problem

Controversy surrounds peoples involvement in miraa production and trade especially due to its association with health problems such as insomnia, lack of appetite and tooth decay. Other social problems associated with the trade are violence, organized crime and mental discord caused by wives being deprived of attention and financial support by their miraa chewing husbands. Worse still is a situation where young children are seen planting, harvesting miraa and tying it into bundles ready for sale when they should be at school. While it may be true that the above ills indeed exist, it should be noted that miraa has boosted the economic status of the people while at the same time rendering them more sociable (Carrier, 2003) Henceforth, the moral panic surrounding miraa growing presently; with most of the leaders and education stakeholders dismissing it as a barrier to development (Carrier, 2003) needs further investigation. It is this limited knowledge on miraa and its association with child labour that prompted the researcher to engage in this study in order to investigate the effects of miraa on secondary education in Kiritiri and Kianjiru Zones.

1.2.1 Purpose of the study

The purpose of this study was to find out the effects of miraa production and trade on secondary education in Kianjiru and Kiritiri zones in Mbeere South District.
1.3 Objectives of the study

The main aim of this study was to find out the effects of miraa production and trade on secondary education in Kianjiru and Kiritiri zones in Mbeere South District.

The specific objectives included:-

1. To find out the extent to which miraa production and trade affects retention rates in secondary schools in Kiritiri and Kianjiru zones.

2. To investigate the effects of increased income from miraa on students’ participation in the learning process in secondary schools in Kiritiri and Kianjiru zones.

3. To investigate the effects of miraa production and trade on secondary schools students’ performance in national examinations in Kiritiri and Kianjiru zones.

4. To assess increased income from miraa has boosted growth and expansion of secondary education in Kiritiri and Kianjiru zones.

1.4 Research questions

The research questions were aimed at gathering information on miraa production trade in relation to secondary school in Kiritiri and Kianjiru Zones.

1. What are the effects of miraa production and trade on students retention rates in secondary schools in Kiritiri and Kianjiru zones:-

2. To what extent has miraa production and trade affected participation of learners in the learning process in secondary schools in Kiritiri and Kianjiru zones?

3. To what extent does miraa production and trade affect performance of secondary schools in national examinations in Kiritiri and Kianjiru Zones?

4. In what ways has miraa production and trade boosted the growth and expansion of secondary education in Kiritiri and Kianjiru Zones?
1.5 Significance of the study

The proposed study explored the extent to which miraa production and trade affects participation in secondary education in Kiritiri and Kianjiru zones. The findings of the study would help policy makers to identify specific issues that the government should address in order to achieve desired performance in secondary schools and improve enrolment and retention levels in Kiritiri and Kianjiru zones. The education stakeholders in Kiritiri and Kianjiru zones will find it useful in sensitizing the community on the need to improve education standards in the two zones. The study may be used by teachers to come up with relevant programmes and strategies to guide and counsel students and parents. Future researchers who may wish to do research in similar fields may use the available data to identify gaps for further research.

1.6 Limitations of the study

The study confined itself to the miraa growing zones of Mbeere South District, Embu County namely: Kiritiri and Kianjiru zones. It was not possible to cover other areas such as Meru due to lack of time, finances and other logistics. Likewise, the opinion of parents and politicians in the two zones was not covered since tracing them would require a lot of time and would be expensive.

1.6.1 Delimitations of the study

The study was confined to only the public secondary schools in miraa growing zones of Mbeere South District, Embu County. Therefore the findings of this study would not be adequate to generalize to areas that do not grow miraa. Although several compounding
factors may exist which can influence participation in education in the two zones, only the effects of miraa were examined in this study.

1.7 Assumptions of the study:
1. All the respondents would provide reliable and honest responses.
2. All the secondary schools in the two zones had been exposed to the effects of miraa production and trade on education in the study area.

1.8 Theoretical framework
This study adopted Merton's structural-strain theory which states that deviant behaviour such as drug abuse is the natural outgrowth of values, norms and structure of society (Merton 1968). According to Merton, the society places a high value on certain goals such as economic success. The present study on the effects of miraa production and trade on secondary education in miraa growing zones of Mbeere South District examined the concepts and postulates that were seen to lie behind the inquiry.

In this study, the individual was assumed to interact with the other societal members and in the process conforms to the surroundings. Furthermore the surroundings are also influenced by the interplay between the individual and society at large. In this theory, Merton argues that not everyone in the society is given equal opportunities of achieving the set goals. Nevertheless, all are expected to meet the goals of the society and are judged on the basis of how well they meet them. Under the strain of incompatible goals and means, these individuals fall victim of ANOMIE. This is a situation that arises when the societal norms are unclear or are no longer applicable (Merton 1968). Anomie leaves
individuals without sufficient guidelines for behaviour. Hence, individuals turn to deviance. They want to be successful but find the goals too difficult or impossible to attain by acceptable means (Merton 1968).

Students want to be recognized and appreciated by teachers and peers but are unable to attain good grades even when they try their best. Such students may revert to abusing of drugs such as miraa, alcohol and tobacco. In this approach therefore, it was imperative to uncover the feelings and thoughts of individuals in the society through verstehen method. This is the emphatic understanding of the meanings others attach to their actions (Weber 1910). Following proposals made by Merton (1968) and Weber (1910), a theoretical basis has been advanced for the investigation of effects of miraa production and trade on secondary education in Mbeere South District.
1.9 Conceptual framework

Figure 1.1 The Correlation of Factors Affecting Secondary Education in the Miraa Growing Zones.

Antecedent conditions
- High labour requirements
- Increased income
- Interests and attitudes to school

Source: Adapted from Keeves J.P (1972) pg. 39
1.10 Operational definition of central terms

The following terms are defined with a view to make the reading of this research proposal understandable:

**Dropout rate**: - Refers to the percentage of students who leave school for some reasons vis a vis those who enrolled to join the schools

**Enrolment**: - Refers to those who join the schools and are fully registered in the attendance register

**Miraa**: - A drug that is locally grown and chewed to stimulate the central nervous system.

**Performance**: - Refers to student’s scores/results in the KCSE examination

**Retention**: - Refers to the ability to remain in school throughout an educational cycle.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Miraa is just one of the many names used to refer to Catha edulis, which is the scientific name for this small evergreen tree (Brooke, 1997). Miraa is the name most commonly used in Kenya, while elsewhere; it is more commonly known as khat (Somalia), chat (Ethiopia) and qat (Arabic). Miraa is widely grown in the highlands of Ethiopia and Yemen amongst settlements of Muslim cultivators (Brooke, 1997). In appearance Miraa is not grossly unlike the tea shrub. Miraa is tended for its small leaves and buds which are pleasantly stimulating and mildly euphoric when chewed and ingested in small amounts. It is intoxicating when consumed in large quantities (Taylor and Francis, 2005). Miraa is 'Arab tea' or 'Abyssinian tea' from the obsolete practice of some users who drunk a bitter infusion of dry powdered leaves (Klingere, 1998). Miraa grows on well drained soils under broad climatic conditions and tolerates drought for several months. Although miraa has been cultivated for many centuries in Africa and Arabia, it's only recently that small quantities of the leaf entered international trade. Its place in the economy of the region was obscure. However, currently miraa occupies a position of commercial importance chiefly due to the greatly increased demand of the leaf in the Aden Colony and French Somaliland.

Wild Miraa can grow as high as eighty feet, though the farmed variety is kept around twenty feet with constant pruning (Bernard, 1972). Miraa is cultivated on small holder plots, and offers farmers a very good return per acre in comparison with crops like cotton and tobacco (Nyaga, 1997). Goldsmith contrasts well the success of miraa; He argues that
every shilling invested in miraa brings back around four shillings while in cotton it brings back one shilling only. Farmers also appreciate the frequent harvests that miraa provides every few weeks or so depending on the season, pointing out that income from crops like cotton and tobacco is not only depressingly small, but also comes in just one yearly payment if at all (Goldsmith, 1994).

In Kenya miraa is largely grown in Mount Kenya regions namely Meru (Maua and Tigania), some parts of Embu and Mbeere. Since miraa growing is not illegal it is grown, transported, sold and consumed openly. In Meru and Mbeere it is a major cash crop and a major source of income for the people (Muthigani, 1995). Traditionally miraa was consumed by the elders amongst the Meru. It was believed to bring people together communally as they sat in groups to chew the leaf. In dispute solving miraa functioned as the elders’ fee for hearing cases (Nyaga 1997). The linkage of miraa with elders is further emphasized in the discourse in the past use of miraa by Tigania and Igembe people. Amongst them, any youth found chewing miraa would be stripped naked, smeared with white ash and paraded for all to see. The father would have to produce a bull to expiate fully his son (Bernard 1972). The young men were not allowed to eat it, the reason being that if they were allowed freely to indulge in this plant they would be apt to remain awake at night, and be tempted under the cover of darkness to gratify the desires which the light of the day forces them to curb (Kennedy, 1987). Today, miraa is no longer the preserve of elders amongst the Meru and Mbeere. Many women and children chew it regularly as do majority of young men who face no risk of undergoing the fierce lashings that their earlier counterparts might have faced if caught (Murungi, 2001). It is said that young men today reckon that circumcision, rather than marriage, is the rite that gives
them carte blanche to chew, though even some boys chew publicly. This purported change occurred in the course of the 20th Century, and although it appears dramatic, it’s hardly a unique phenomenon (Goldsmith, 1994). Today many young men and women from all ethnic groups throughout Kenya have taken to miraa chewing, and miraa itself can be seen to fit together with other elements of youth ethos. In Mbeere all the shopping centers along Embu-Kiritiri road are a beehive of activity every early morning as the trade goes on. Traders have built kiosks devoted to the sale of the stimulant plant miraa. Miraa in this region is a commodity considered so lucrative that it has earned the sobriquet ‘greengold’. One of the kiosks at Muraru is decorated with a sticker proudly announcing that ‘Miraa ni Poa’. This phrase can be translated as “Miraa is cool” in both literal and colloquial sense (Kennedy, 1987). Miraa consumption is both fashionable and functional for operators of matatus and those of buses. These operators (drivers and touts) are often young men and their vehicles used to be petrol–powered representations of youth ethos. It’s with this in mind that the researcher wishes to find out how far the youth are engaging in the trade at the altar of their education.

2.2 Economic Value

Miraa is one of the Kenya’s biggest horticultural exports. Available data shows that the value of miraa (khat) exports has been growing at an average 9.7% annually. Miraa earned the country shillings 16.5 billion in the past five years, most of it from Somalia according to a report by USAID. Somalia was Kenya’s main trading partner, accounting for 90% of the exports. Other markets included Djibuti, Mozambique and Malawi. Currently, Middle-men and owners of chattered flights operating from Wilson Airport in Nairobi to Somalia have emerged as the biggest beneficiaries of trade in Kenyan Miraa.
Apart from the 20 tonnes of the crop that heads to Somalia from Nairobi every week, Amsterdam consumes 5 tonnes, London 7 tonnes and the local community 40 tonnes (Muthoki Mumo, Daily Nation, 2011, 09, 05).

Both socio-economic and agro ecological reasons have contributed to khat/miraa expansion in Mbeere South District. The driving forces have probably increased market opportunities and favourable prices. Miraa production is mainly located close to the road network and on farms with limited irrigation facilities (Feyisa 2003). The profitability of miraa production is considered by 78% of the farmers as the primary reason for the expansion of miraa growing in the area. Miraa is intercropped with maize and sorghum to a given extent. On average, the income from the intercropping system is 2.7 times higher than the mono-cropping system where maize was grown separately (Klingere, 1998).

The high profitability of miraa has also motivated farmers to hire labour for its production. Other factors contributing to expansion is low risk and low labour inputs compared with cereal crops, such as maize, green grams and beans. Decrease in the productivity of the land makes farmers prefer miraa production to cereal crops. Miraa is also less vulnerable to drought (Griffiths, 1998).

Farmers also lack the financial resources to purchase fertilizers necessary for growing cereals. Miraa producers can also more readily gain access to labour because they can offer miraa to the workers in return for their labour. Credit is also more available for miraa growers (Bernard, 1972).
Miraa production has become a major source of income in the district. It is estimated that 70% of the farmers' income in the district is gotten from miraa. A consequence of miraa expansion is that farmers need to buy cereals to meet their food requirements (Alkamel, 2001). Each family has an average of 6.3 members.

Data from the present study does not allow the conclusion that miraa growers in the district are better off than non-miraa growers. However, the general impression is that miraa growers have better houses, wear better clothes, have better household equipments and are in a better position to send and sustain their children in schools but the extent to which this is true needs to be ascertained. In addition, miraa production has created employment in transport and miraa trade (Siakago District Agricultural Office, 2000).

Nevertheless, miraa consumption has its own drawbacks to the community. Miraa consumers show up late for work, take frequent rests, spend time chewing miraa and are generally more careless. Miraa consumption is widespread among both males and females (Nyaga, 1997). All the male heads of the surveyed households consume miraa and 81% of the population above 15 years of age in the surveyed households use miraa. In the secondary schools in the two zones, the survey done showed that 88% of the female students and 96% of the male students use miraa. This increased use of miraa among the younger generations is worrisome and detrimental to their educational achievements (Obot, 2005).
The basic cases against miraa are socio-economic, household welfare/interpersonal relations and macroeconomic. Amongst the Somalis and the Mbeere homelands, it is the largest single consumption item. It literally eats up the money to feed children, pay for their healthcare and to educate them (Weir, 1985). Obot (2005) further describes the Malindi beach boys as having a sharp appetite for miraa as they go about their unofficial services of guiding the tourists. The consumption of miraa has serious social consequences as consumers spend a high portion of their income to purchase miraa. Miraa consumption is known to induce mild euphoria and excitement. Individuals become very talkative under the influence of the drug and may appear to be unrealistic and emotionally unstable (Getachew, 1996). This translates to brain drain in the society.

2.3 Miraa effects on the individual

Miraa or *Catha edulis* has been described as a “stimulant narcotic” or “inebriant in arcotic”. The specific clinical effects of miraa chewing may be discussed under physiological, psychological and behavioral headings (Carrier, 2003).

The signs and symptoms in general are rather similar to those from amphetamine. The physiological effects are varied and depend very much on the amount of drug taken. Dry mouth and thirst is usually the first effect to be noticed, presumably because of astringent local action. There is increased wakefulness with relief from fatigue and hunger (Gebissa, 2004, WHO, 2004). In large doses, the wakefulness passes on to drowsiness and deep sleep. The partaker of the drug is hypersensitive to outside stimuli and startle is enhanced (Kariuki, 1998). While sex interest is heightened first, depressed libido leading to sexual impotence may occur. Large doses may induce nausea and vomiting. Excessive doses
may lead to loss of articulation, neuro-muscular inco-ordination and collapse, hyperthesia, spasticity convulsions and death (NACADA, 2004).

An individual with the above symptoms can hardly learn nor be productive in the society. The psychological effects in general may be summarized as increased rate and amount of intellectual and emotional activity. The user thinks more clearly though his concentration is impaired. He also thinks more quickly and is more alert (Mulei, 2001). Increased incentive and speed of association may lead to flight of ideas in extreme cases. The users’ shows impaired judgment, may be argumentative, easily provoked to anger and is quarrelsome (Griffiths, 1998). Anxiety and tension are increased and emotional reaction may be quite unstable, with quick change from humour to tearfulness. Mood is inclined to be one of elation, exhilaration or euphoria which may culminate into depression (NACADA, 2004). If an individual is dependent on miraa only without using alcohol, bhang and other drugs, they are likely to become disoriented, have impaired judgment, delusions, illusions and hallucinations. The behavioral effects include restlessness, over activity and general hypomania, even in a non-addict (Taylor & Francis, 2005).

In most cases, the user may be described as ‘high’ or ‘hyper’. In large doses the addict may be pushed to actual violet mania. Occasionally, crimes of violence may be triggered by miraa, but in these cases there may be alcohol and or other drugs to be considered as additional factors. Organic brain deterioration may be seen to occur especially if miraa is used for a long time (WHO, 2004).
Whether or not addiction to miraa exists is not clearly stated in the available literature because no one really knows. It depends on semantics, what one understands by the word “addiction”. However, most early writers termed miraa ‘addicting’ and hospital and field workers today agree with them. It is certainly ‘habituating’ and users apparently become tolerant of it (Ominde, 1976). There is a slight withdrawal effect but it is hard to define how much of it is reactive on a psychological level and how much is physiological (Githinji & Njoroge, 2004). Cases of miraa psychosis have been reported from Mathari hospital and in the countryside of Mbeere and other parts of the world. However, early researchers do not seem to agree conclusively on the degree to which miraa affects a person’s psychology. Psychic dependence on the drug affects an individual’s concentration and intelligence (Kennedy, 1987). This needs further investigation in relation to secondary education in areas of retention, enrolment and performance.

Further it is worth noting that options about the harmful economic and health consequences of miraa use abound throughout many magazines and newspapers. These occur primarily in the short speeches of government officials from various countries and other opinion leaders. However, not much hard evidence is presented to back up the claims of physical, social and economic harm associated with miraa or to support pleas for legal action against its use. Thus am in full agreement with one of the cautious remarks by A Portos, Minister of Interior in the Democratic Republic of Madagascar that “...inspite of our seriousness and the wide-ranging debates, khat remains for us a plant open to question. By means of our discussions, sometimes passionate, we have been able to throw a little light on certain aspects of khat that are still obscure...” He continued to
say that we expect much more research on this drug in the near future (Taylor and Francis, 2005).

A report by Muthoki Mumo, Daily Nation, 2012 January, 18, indicates a spirited campaign in Britain to ban the sale of Miraa in their markets citing health and social concerns. The proposal by the British government to implement a minimum consumption age and introduce stricter regulations on miraa use may be well received in the world over, though there lacks clear cut evidence on the effects of miraa in relation to education and other social concerns. Hence, there is need for this research to be undertaken in order to unearth the mysteries and fears that surround the consumption of miraa in our country.

**2.4 Summary**

A lot of controversy surrounds miraa growing and trade amongst both elite, leaders and the general public across the world. Apparently there is very little knowledge and facts about the crop as evidenced by the different views upheld by various persons in the society. These varied opinions have led to a lot of misunderstanding about the crop. Some dismiss miraa as a drug with adverse effects on the users while others view the crop as a major source of income that has boosted the standards of living of the growers and traders. This prompted the researcher to carry out the study at hand.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter provided a description of the research methodology to be used in investigating the effects of Miraa production and trade on secondary education in Kiritiri and Kianjiru Zones in Mbeere South District, Embu County. The survey design was adopted. The target population and the sample size are clearly indicated. The sampling procedure, research instruments used and the piloting of the project is clearly demonstrated. The validity and reliability of the instruments used was ascertained. Data analysis techniques plus the logistical and ethical considerations are clearly spelt out.

3.2 Research Design
This study adopted a survey design which is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables (Mugenda & Mugenda, 2003). Survey design involves use of questionnaires or interview schedules. It is the most frequently used method in collecting information about people’s attitudes, opinions, habits or other social-cultural issues (Orodho, 2009). Using this method the researcher was able to collect data from students, secondary school leavers and teachers on the effects of miraa production and trade on secondary education in Kiritiri and Kianjiru zones in Mbeere South District, Embu County.
3.3 Location of the study

The study was conducted in the miraa growing zones of Mbeere South District, Embu County namely Kiritiri and Kianjiru zones. Mbeere South District is sparsely populated with an average of 82 persons per square kilometer. Most soils are sandy and infertile. The district has a bimodal rainfall pattern with the long rains falling between March and June while the short rains are experienced from October to December. In most parts, the rainfall is unpredictable and erratic, thereby giving the district a marginal status. The dominant crops grown are mainly cereals and root crops. The main cash crops grown are tobacco, cotton and miraa (Catha edulis). Mbeere South District is the second largest producer of miraa after Meru. In Kiritiri and Kianjiru zones, miraa business has become the major economic mainstay of the populace. The rationale for choosing the miraa growing zones in Mbeere South District to conduct this research was because the researcher is familiar with the region and wished to unearth the untold truths about miraa in relation to secondary education in the area.

3.4 Target Population

According to Mugenda & Mugenda (2003) the target population refers to an entire group of individuals, events, or objects having a common observable characteristic. The target population was all the public secondary schools in the miraa growing zones of Mbeere South District. The total number of public secondary schools in the zone is 10. Henceforth, the total target population included 10 head teachers, 58 class teachers and 852 students according to District Education Office enrolment returns.
3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

In this study all the public secondary schools in the two zones were used. They include boarding schools, mixed day and boarding schools and mixed day secondary schools. Purposive sampling technique was used to select the teachers and students to be involved in this study. Purposive sampling allowed the researcher to use cases that had the required information with respect to the objectives of the study at hand (Mugenda and Mugenda, 2003). The respondents were drawn from the following categories of target population of 10 head teachers, 58 class teachers and 852 students.

3.5.2 Sample Size

Orodho, (2009) defines a sample as a small population of a target population selected for analysis. For the purposes of this study, the entire target population of 10 head teachers in the public secondary schools was used. Head teachers were selected because they are in-charge of the school administration. For the teachers, purposive sampling technique was used. 28 class teachers out of 58 were sampled for the study. This is because they keep all the records of the students in their classes and therefore they had all the information about the students. Students in forms two, three and four were selected randomly because they had been in school for a longer period and hence forth understood better the challenges of miraa business. 25 students per school were randomly sampled out of 852 students. Table 3:1 below shows the sample size.
Table 3.1 Sampled respondents from target population

<table>
<thead>
<tr>
<th>NO</th>
<th>CATEGORY</th>
<th>TARGET POPULATION (n)</th>
<th>NUMBER SAMPLED (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Head Teachers</td>
<td>10</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Class Teachers</td>
<td>58</td>
<td>28</td>
<td>48</td>
</tr>
<tr>
<td>3.</td>
<td>Students</td>
<td>852</td>
<td>250</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>920</td>
<td>288</td>
<td>31</td>
</tr>
</tbody>
</table>

3.6 Research Instruments

In this study, the researcher used questionnaires and interview schedules to collect data. There were two sets of questionnaires for; Class teachers and students. Questionnaires were used because they are a fast way of obtaining comprehensive data on a wide range of factors as compared to other instruments (Mugenda & Mugenda, 2003). An interview schedule for head teachers was important because it made it possible to obtain data required to meet specific objectives of the study (Mugenda & Mugenda, 2003).

3.7 Piloting

The purpose of piloting is to assess the instruments used, their validity and reliability. Piloting was important because it enabled the researcher to identify the limitations in the instruments and improve them accordingly so as to obtain reliable results during the actual study (Orodho, 2009). In this study, one day mixed secondary school namely Mbita Secondary school within the target population was used for piloting purposes. This school was included in the sample.
3.7.1 Validity

Validity is the degree to which results obtained from the analysis of data actually represent the phenomenon under investigation. It is the degree to which an empirical measure or several measures of a concept actually represent that concept (Orodho, 2009). Mugenda & Mugenda (2003) define validity as the degree to which data obtained from an instrument meaningfully and accurately reflects or represents a theoretical concept. Validity of the instruments was done through the expert judgment of the two supervisors and other staff at Kenyatta University. They evaluated the content of the instruments and gave a feedback with a view to enriching them. Content validity refers to the degree to which the sample of the test represents the content that the test is designed to measure (Orodho, 2009).

3.7.2 Reliability

Orodho (2008) defines reliability as the degree to which a particular measuring procedure gives similar results over a number of repeated trials. It is a measure of how consistent the results from a test are (Kombo, 2005). It measures the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda & Mugenda, 2003). The researcher used test-retest method to determine the reliability of the instruments. The developed instruments were administered to Head teachers, class teachers and form two, three and four students in the sampled schools. The completed instruments were scored manually. After two weeks, the same instruments were administered to the same respondents and results scored manually again. The two scores were then compared using spearman’s rank order correlation coefficient in order to establish the extent to which the contents of the questionnaire supply similar or consistent
results every time the instrument is administered. A correlation coefficient of about 0.80 was considered reliable enough. Where need be, the researcher with the guidance of the supervisors and other staff at the university restructured the instruments.

3.8 Data Collection Procedure

The researcher made sure that the research instruments were complete and readily available. The questionnaires and the interview schedules were to be error free and the number of the copies to be supplied would be adequate. Other agents subscribed to supply the copies to the respondents were given well in advance. To be orderly, the researcher designed a schedule representing actual dates and time framework of each activity and event in this research study. The researcher sought permission from the Department of Educational Management, Policy and Curriculum Studies and Graduate School at Kenyatta University and the Ministry of Higher Education, Science & Technology, prior to arrangements with selected schools. The researcher made a pre-visit to the schools to make necessary arrangements with the Head teachers on the time and date for the study. During the pre-visit, the researcher familiarized herself with the respondents as well as assuring them of confidentiality of information collected. The interview schedules were administered to the head teachers. Data collection took a period of two weeks.

3.9 Data Analysis Techniques

After data collection with the questionnaires and interview schedules; the researcher cross examined the data and had it appropriately coded. The coded data was then entered into the computer for analysis. Computer entry of data was appropriate since most studies
undertaken by education and other research involved long questionnaires and large samples of respondents thereby making it cumbersome to code the responses either directly by counting or the use of tally mark (Orodho, 2009). Quantitative data obtained was coded, and then analyzed using statistical package for social sciences (SPSS-X). The results were presented using descriptive statistics such as percentages, means, frequency distribution tables, bar graphs and pie-charts. The findings were reported using themes derived from the study. Qualitative data was analyzed thematically in a narrative form. Data was organized into themes, categories and patterns relevant to the study through tabulation.

3.10 Logistical and Ethical Considerations

a) Logistical Considerations

The research involved a lot of funds in terms of printing, typing, binding, consultation and photocopying. In such circumstances it was advisable to tighten the budget in order to maximize the expenditure without distorting the whole exercise. Therefore, the researcher introduced wisely cost-saving measures to be precise. The factor of time was very crucial since the distance between the schools is great which consumed a lot of time to cover. It was advisable for the researcher to make prior arrangements for faster and efficient means of accessing the areas especially on the selected areas only. The scope of this study did not allow for 100% collection of data. This was because of the massive population of the potential respondents. Therefore, in this case simple random sampling was widely used by the researcher to collect data for inferential purposes.
b) Ethical considerations

The participation in research was voluntary and respondents had the right to refuse or divulge certain information about them. The participants were made aware of the positive and negative aspects or consequences of participation. The informed consent involved two main factors. First, the consent of the subjects was disclosed to the researcher, secondly, assurances of confidential use of research data collected on individuals. The consent helped the explanation that the purpose and nature of research benefited the participants. The researcher asked permission to conduct the research from the Ministry of Education Office through the Permanent Secretary. The researcher at all costs avoided plagiarism, which was tantamount to stealing other people’s works, which would have eroded the integrity of the researcher and leads to serious professional repercussions. The researcher also avoided fraud, in terms of the researcher faking the data or copying other peoples work.
CHAPTER FOUR

FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

In this chapter, the researcher presents the findings from the study. This was done through the methodology described in chapter three. The findings of the research are presented interpreted and discussed as guided by the objectives of the study. This also provided answers to the research questions. The results of the findings were discussed in the light of the reviewed literature.

The research findings were guided by the following objectives

1. To find out the extent to which miraa production and trade affects retention rates in secondary schools in Kiritiri and Kianjiru zones.

2. To investigate the effects of increased income from miraa on students’ participation in the learning process in secondary schools in Kiritiri and Kianjiru zones.

3. To investigate the effects of miraa production and trade on secondary schools students’ performance in National Examinations in Kiritiri and Kianjiru zones.

4. To assess increased income from miraa has boosted growth and expansion of secondary education in Kiritiri and Kianjiru zones.
4.2 General Information and Demographic Characteristics

4.2.1 Gender

Included in the general information is the respondents’ gender composition, school category, teachers and head teachers’ duration of service in the current institution. This data is solicited to enable the researcher to get the background information on the schools in the study sample. The background information assists the researcher in generalizing the study findings to the sample population. Respondents’ demographic characteristics are presented in the following figures.

Table 4.1 Respondents Gender Composition

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Teachers</td>
<td>90</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>Teachers</td>
<td>66</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>Students</td>
<td>65</td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.1 indicates the gender composition of head teachers, teachers and students. Majority of the head teachers’ respondents 9(90%) were male while only 1(10%) were female. Majority of the teachers respondents were male 19(66%) while 9(34%) were female. The male students were 163(65%) while the female ones were 87(35%).
4.2.2 School Category

Table 4.2 gives the category of the ten schools involved in this research.

<table>
<thead>
<tr>
<th>School Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boarding</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Day/ Boarding</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Day</td>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 4.2 indicates that 4(40%) of schools involved in this research study were day schools as well as other 4(40%) day/boarding schools. Only 2(20%) were boarding schools. Figure 4.1 shows teachers’ service in their current schools.

Figure 4.1 Teachers Service in current Institution
Figure 4.1 shows that majority of the teachers 15(55%) had only served in their current stations for 5 years and below while 11(38%) had served for between 6 and 10 years. Only 2(7%) had served for 11 years and above. In Figure 4.2 show Head teachers' years of service in their current institution is analyzed.

**Figure 4.2 Head teachers Duration in Current School**

![Graph showing years of service for different schools.]

Figure 4.2 indicates that one respondent had headed a school for 9 years followed by another who had headed the same institution for 7 years. Those who had headed the schools for the shortest time, 2 years were 2 head teachers. This was an indication that all the head teachers were familiar with the miraa trade and production within the area of study.
4.3 Effects of miraa production and trade on students’ retention rates

The first task of the study was to examine the effects of miraa production and trade on students’ retentions rates in secondary schools in Kiritiri and Kianjiru. The students involved in this study were asked if their parents owned miraa farms and they gave the following responses showed in Table 4.3.

<table>
<thead>
<tr>
<th>Parents owning miraa farms</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>143</td>
<td>57</td>
</tr>
<tr>
<td>No</td>
<td>108</td>
<td>43</td>
</tr>
</tbody>
</table>

Table 4.3 shows that majority of the respondents 143(57%) said that their parents own miraa farms while 108(43%) did not. This concurs with information from District Agricultural Office, Siakago (2000) that in Meru and Mbeere miraa is a major cash crop and a major source of income for the people of Kiritiri and Kianjiru zones.

Students were asked if they had ever chewed miraa. They gave the following responses as indicated in Figure 4.3.
Figure 4.3 indicates that majority of the respondents 157(63%) who are students have ever chewed miraa while 93(37%) had not. Respondents who had ever chewed miraa gave certain effects of miraa which include lack of appetite for food, lack of sleep, that is one may spend a whole night chewing, lack of concentration in class due to hangovers, leads to school drop-out, indiscipline rate is high both in and outside the school. Miraa consumption among school students may adversely lower students retention rates as most of them choose to engage in miraa production and trade for quick money. These findings agree with Nyaga (1997) who states that miraa consumption is widespread among both males and females. All the male heads of the surveyed households consume miraa and 81% of the population above 15 years of age in the surveyed households use miraa. Other effects are discoloured teeth and wearing out and the mouth may develop wounds. Miraa chewing may lead to sterility especially among men, can also lead to mental incapacity, makes one very active in the work/chores and having over ambitious plans.
Chewing is costly as it needs one to have money to buy the so called chewing promoters like sweets and chewing gums. Miraa chewing creates false confidence and leads to addiction.

**Figure 4.4 Support Miraa Trade/Production**

![Bar chart showing support for miraa trade/production among students and teachers.](image)

Teachers and students' gave their opinions in favour of miraa production in the region since it's a major source of income to the miraa growers as indicated in the figure 4.5. Majority of the students' respondents, 118(47%) indicated that they supported miraa trade. Also, 88(35%) of the students respondents said they didn't support while 9(33%) of the teachers said they supported this trade. Parents encourage children to work in miraa farms to supplement family earnings according to (Muiruri, Standard Newspapers 2011, 11, 10). This research supports these findings as most youths are engaged in miraa related business including picking, harvesting and marketing. Respondents who supported miraa trade and production suggested that if the money earned from this trade is used well, it can help in payment of school fees hence reducing absenteeism.
This could be achieved by ensuring that the students are not involved in any miraa related activity. The growth and sale of miraa should be regulated to discourage school going children from actively participating in its production. Miraa should be a liberalized drug as well as be regulated by government on use and trade. Finally, miraa is good if it is grown for commercial purposes. People should not engage their children on production of miraa.

Also, 88(35%) of the students respondents said they didn’t support while 83(33%) of the teachers said they supported this trade.

The respondents interviewed were asked to give their opinion on miraa trade and production and they gave diversified opinions on this. Those who didn’t support miraa trade and production in the area gave various reasons like miraa being a drug which may have adverse effects on the young generation and that it should be banned. Exposure to miraa related activities leads to students dropping out of school, high levels of truancy and madness in the community due to drug abuse by miraa vendors. Respondents said we should encourage people to stop miraa farming and look for alternative sources of earning a living and improvement of standards of living like horticulture farming. Others felt that miraa should be abolished and uprooted; and the community be advised and encouraged to seek alternative income generating projects. Miraa is not a good product to produce since it only benefits the producer in terms of money but ruins the lives of the users. Most of the respondents indicated the schools.
Another group of the respondents were neutral on this. Their opinion was that, though miraa is a cash crop and it boosts the life standards of many families in the region, it is ruining the youth as they are engaging in chewing, selling and farming and hence shifting their concentration from books.

Table 4.4 indicates time when students attend to their miraa farms.

<table>
<thead>
<tr>
<th>Time for attending to miraa farms</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before school/Early in the morning</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>After school</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Weekends</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>School holiday</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td>School hours</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.4 indicates that majority of the students' respondents 11(40%) attend to miraa shambas during the school holidays while 9(33%) of them, mainly the day students worked in them over the weekends. Another 4(15%) and 2(10%) attend to the miraa farms early in the morning before leaving for school and after school respectively. Table 4.5 shows whether these schools have students dropping out of school.

<table>
<thead>
<tr>
<th>Presence of students Drop-out</th>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>88</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Students</td>
<td>92</td>
<td>8</td>
<td>100</td>
</tr>
</tbody>
</table>
On students who drop-out of school, Table 4.5 indicates that majority 230(92%) of the respondents who were students said they did while 25(88%) teachers also agreed with them. Causes of the school-drop out was analyzed and the response below was gathered. Other than miraa and its related activities, school fees, pregnancy among teenage girls, indiscipline and early marriages are causes of school drop-out among students in Kianjiru and Kiritiri zones as shown in Figure 4.5

Figure 4.5 Causes of Students Drop-outs

Figure 4.5 indicates that majority of the teachers respondents 18(42%) said that fees was the main cause of students drop-out from school followed by indiscipline at 8(28%). 53(21%) of the students’ respondents agreed that pregnancy was a possible cause of drop-out in schools followed closely by lack of fees and miraa related activities at 50(20%). Though miraa is a major source of money in this locality, some families are not able to fund their childrens’ education as much of what they earn is misuse through drinking. Pregnancy among school going children and early marriages are other causes of
school drop-out as these young teenagers are easily enticed by miraa traders using money from miraa trade.

4.4 Effects of miraa production and trade on learners’ participation

The second objective was to investigate the effects of increased income from miraa on students’ participation in the learning process in secondary school in Kiritiri and Kianjiru. The responses of both teachers and students are showed in Table 4.6

<table>
<thead>
<tr>
<th>Table 4.6 Absenteeism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students absenteeism</td>
</tr>
<tr>
<td>Teachers</td>
</tr>
<tr>
<td>Students</td>
</tr>
</tbody>
</table>

On absenteeism from school, majority of the students’ respondents 160(64%) indicated there was absenteeism among learners while 15(55%) of the teachers’ respondents concurred with them. The main cause of this absenteeism may be related to miraa. As Mulei, Daily Nation (2001, 02, 22) says in Mbeere young boys and girls are involved in picking Muguka (Miraa) and tying it into small bundles for a fee and may therefore find no reason to attend school. The Figure 4.7 shows the trend of this absenteeism.

<table>
<thead>
<tr>
<th>Table 4.7 Trend of Absenteeism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trend of absenteeism</td>
</tr>
<tr>
<td>Teachers</td>
</tr>
<tr>
<td>Students</td>
</tr>
</tbody>
</table>
Majority of the students' respondents 182(3%) and 16(56%) teachers' respondents indicated that the trend of absenteeism was not frequent while 11(38%) of the teachers and 48(19%) students indicated that the trend was frequent. These findings may be attributed to the fact that most students involved in this study were day students who attend to miraa production and trade before school and after school.

Figure 4.6 addresses the issue of failure to hand-in assignments in good time as an effect of miraa consumption, production and trade.

**Figure 4.6 Assignments Handed-in in Good Time**

![Bar graph showing the distribution of students and teachers who handed in assignments in good time, sometimes, and never.]

Figure 4.6 indicates that majority of the students' respondents 160(64%) handed-in class assignments in good time while 77(31%) indicated that they sometimes did. Another 12(44%) of the teachers' respondents said that students didn't hand-in these assignments in good time. Those who failed to submit assignments in good time said that most students complaint that they lacked adequate time to complete their assignments because
they were also involved in home chores. Students had no much time to do their assignments as they lacked adequate money to buy paraffin to be used in their studies at home. Also some students are just lazy and poor time managers as they lacked commitment and dedication in their class work. Students were not taking their work seriously. They lacked interest in learning. Some students spent most of their time at home due to lack of school fees and illness. Others were busy in miraa farms to enable them earn a living.

Those who responded by saying that they submitted assignments in good time gave the following reasons for doing so. Students’ were generally disciplined as they worked hard and were also very determined and focused. Follow-up by teachers who demanded that assignments were handed-in in good time contributed to handing in of assignments in good time. Failure to do hand them in contribute to the culprits being punished or giving a satisfactory reason for this failure. Discipline and diligence among students is emphasized. To ensure good time management, some students note down all work and find appropriate time to do the assignments. Some students avoid attending to miraa related activities at night, and so have a chance for doing assignments. Strict parents monitor students assignments and some utilizes time properly hence creating more extra time so as to complete assignments. Some students do not use or chew miraa or other drugs that can make one not to carry out assignments in good time. As day students, they are relieved from home chores by their parents enabling them complete any given assignment.
Some respondents indicated that they at times are able to hand-in assignments in good time while sometimes they are unable to. Reasons advanced by these respondents were as follows; they sometimes have a lot of work, therefore are unable to finish all assignments given by different teachers. Unreliable source of power occasionally affects students’ effectiveness in handing-in assignments. Also uncomfortable environment back at home as parents are fully engaged in miraa related activities leaves students attending to home chores.

Figure 4.7 Activities Affecting Learning in Schools
On activities that affect learning in schools, Figure 4.6 indicates that 8(29%) and 7(25%) of the teacher’s respondents cited low level of concentration and dozing in class respectively. The students 58(23%) cited low level of concentration while 48(19%) cited dozing in class and truancy as activities affecting learning in schools. These findings agree with Kennedy (1987) who states that psychic dependence on the drug affects an individual’s concentration and intelligence. Some miraa related activities that students engage in include miraa trade and selling in the miraa market, chewing, growing miraa in large farms, pruning, watering the miraa plants, picking miraa for marketing and spraying. Objectively, chewers can be seen to show a wide range of experiences, from minor reactions to the development of a psychotic illness. Minor reactions include over-talkativeness, over activity, insomnia, anxiety, irritability, agitation and aggression. Broadly, the main psychiatric manifestations linked to the use of Khat are a short-lived Schizophreniform psychotic illness, mania (Yousef and Huq, 2009) and more rarely depression (Andualem, 2010). On occasions these presentations are associated with episodes of self-harm or harm to others. Several authors describe depression associated with chewing Khat, but nearly all these entire reports, document that the depression arises on cessation of use. This has on occasions, been associated with self-harm and suicide. Such behaviour has also been reported following amphetamine use and cessation (Kebede, 2008).
4.5 Effects of miraa production and trade on students' performance

The third objective was to investigate the effects of miraa production and trade on students' performance in national examinations. Head teachers interviewed gave varied opinions on how miraa affects performance in their schools. Some indicated that miraa affected performance negatively as many boys and girls who had done well ended up dropping out of school. Worse still, there are those who choose to remain in school but their concentration on studies is low. Thus their performances remain poor and are not ready to work hard to improve. Reason for this poor performance was the easy and quick money from miraa business. Most of them hardly complete assignments as they take their studies for granted. Others exhibit minimal performance in both internal and national examinations. This increased use of miraa among the younger generations is worrisome and detrimental to their educational achievements (Obot, 2005). Their attitude towards education is negative. It's difficult to make them realize the importance of education.

Other Head Teachers said that miraa slightly affected few students who got low grades because they think that easy money from miraa is what counts. Others said miraa had not affected the performance of the school at all as most students were quite hard working and are least involved in miraa business. Also some parents are able to pay fees from miraa money. This is in agreement with the findings of Murungi (2001) which states that miraa offers many young men and women the chance to earn decent money for use by trading in it either as agents or retailers themselves. Performance from the schools involved in this study was gathered to show the schools performance in national examination as shown in Table 4.8(a)
Table 4.8 (a) KCSE Results Year (2007 – 2011)

<table>
<thead>
<tr>
<th>School</th>
<th>Category</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mbita</td>
<td>Day/Boarding</td>
<td>6.100</td>
<td>5.417</td>
<td>4.347</td>
<td>3.861</td>
<td>5.000</td>
<td>4.9450</td>
</tr>
<tr>
<td>Mayori</td>
<td>Boarding</td>
<td>6.662</td>
<td>6.743</td>
<td>6.588</td>
<td>7.475</td>
<td>8.848</td>
<td>7.2632</td>
</tr>
<tr>
<td>Machanga</td>
<td>Day/Boarding</td>
<td>6.280</td>
<td>5.964</td>
<td>6.000</td>
<td>6.000</td>
<td>6.108</td>
<td>6.0704</td>
</tr>
<tr>
<td>Kirima</td>
<td>Day/Boarding</td>
<td>4.315</td>
<td>5.322</td>
<td>5.152</td>
<td>5.019</td>
<td>6.343</td>
<td>5.2302</td>
</tr>
<tr>
<td>Gikiiro</td>
<td>Day</td>
<td>3.646</td>
<td>3.577</td>
<td>3.153</td>
<td>2.842</td>
<td>2.8260</td>
<td>3.2088</td>
</tr>
<tr>
<td>Ngenge Sec</td>
<td>Day/Boarding</td>
<td>4.111</td>
<td>3.577</td>
<td>4.0244</td>
<td>4.5758</td>
<td>4.8444</td>
<td>4.2265</td>
</tr>
<tr>
<td>St. Mary’s Gataka</td>
<td>Day (new)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.8489</td>
<td>3.8489</td>
</tr>
</tbody>
</table>

Table 4.8(a) shows KCSE results analysis in the 10 secondary schools in Kiritiri and Kianjiru zones. It further indicates that performance in KCSE examinations is below average in some schools like Gikiiro, Kerwa and Mbita secondary schools recording 3.209, 5.198 and 4.945 respectively. Geographically, these three schools are located in areas where miraa is largely grown. This performance was compared with those of other schools in the neighbouring Rwika Zone and Kiambere Zone. Incidentally, the trend is almost the same yet in these zones, miraa activities are minimal. Table 4.8 (b) shows this:
Table 4.8 (b) KCSE Results Year (2007 – 2011)

<table>
<thead>
<tr>
<th>School</th>
<th>Category</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Clares Kangeta</td>
<td>Boarding</td>
<td>4.4500</td>
<td>2.9237</td>
<td>3.5769</td>
<td>4.3333</td>
<td>4.6087</td>
<td>3.9785</td>
</tr>
<tr>
<td>Yoder Karwigi</td>
<td>Day</td>
<td>4.1429</td>
<td>4.2778</td>
<td>5.4732</td>
<td>5.5909</td>
<td>6.0000</td>
<td>5.097</td>
</tr>
<tr>
<td>Mariari Girls</td>
<td>Boarding</td>
<td>4.2667</td>
<td>4.5853</td>
<td>5.0871</td>
<td>5.4666</td>
<td>5.3448</td>
<td>4.9501</td>
</tr>
</tbody>
</table>

4.6 Miraa production, growth and expansion of secondary education

The final objective was to examine the extent to which miraa has boosted growth and expansion of secondary education in Kiritiri and Kianjiru. Class teachers gave their opinions on miraa trade and production in Table 4.9 below.

Table 4.9 Respondents Opinion on Miraa Trade and Production

<table>
<thead>
<tr>
<th>Respondents opinion on miraa trade and production</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Parents pay school fees with cash</td>
<td>• Adversely affects health of the consumer</td>
<td></td>
</tr>
<tr>
<td>• Family support as a source of income</td>
<td>• Causes school drop-outs</td>
<td></td>
</tr>
<tr>
<td>• Creates self employment in the region</td>
<td>• Has many disadvantages</td>
<td></td>
</tr>
<tr>
<td>• The trade should be supported by the government and it should ensure that the students are not engaging in its trade and production activities through the help of chiefs, sub-chiefs and other local leaders.</td>
<td>• Encourages social crimes</td>
<td></td>
</tr>
<tr>
<td>• Led to the growth of shopping centres within the region. These shops should be sold by adults only and production should be in large scale</td>
<td>• Misuse of miraa money</td>
<td></td>
</tr>
</tbody>
</table>
Head teachers and class teachers' gave the following suggestions on the way forward on miraa trade and production in the region. First, miraa trade should continue but strict rules should be enforced to hinder people below 18 years and all students engaging in its trade and production. It should be only for the parents. Secondly, production should be restricted to people above the age of 25 years. Thirdly, a better option should be introduced as a source of income. Thorough research should be carried out on alternative cash crops that can be grown in the region and other possible economic activities, implementation of the same and ensure full community participation. Sustainable alternative livelihood initiatives should be introduced by the government, churches and NGOs to reduce negative impact of miraa on education. Fourth, prices of miraa should be regulated by the government through its aggressiveness in the implementation of the policies. Fifth, miraa farming should be banned and farmers advised on appropriate means of getting money which has no effects on students like replacing miraa economy with growing of cotton or Aloe Vera. Sixth, miraa trade and production should be abolished to protect the youth and future generations and also to enhance strong family bonds. Seventh, growers can be educated on the negative effects of its usage and be advised to be more interested in the income rather than their personal consumption. Growers should be discouraged from chewing miraa. Eighth, farmers should be advised to form co-operatives to sell miraa on their behalf and also form miraa Sacco's to enroll members and lock out the youth/students. Regular workshops and chief barazas should be held to educate the people and collectively agree on the way forward for the community. Miraa be sold through cooperatives and credit savings societies since it earns income for other forms of development on top of education. Lastly, the trade should be banned in
order to save the community from retrogression in the field of education. This will help raise up strong and healthy youth that will take over the running of the County in future.

From the interview schedule with school head teachers, views against and in support of miraa trade were outlined as follows in Table 4.10.

Table 4.10 Head Teachers’ Views on Miraa Trade in the Region.

<table>
<thead>
<tr>
<th>Views against miraa trade</th>
<th>Views in support of miraa trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The government can also introduce alternative cash crops like cotton and tobacco and do away with miraa production slowly. An immediate ban on miraa trade may lead to a rebellion.</td>
<td>• Miraa may not be bad per se. The government should put mechanisms in place to ensure that only adults are involved in miraa trade and production.</td>
</tr>
<tr>
<td>• Children and the youth should not be involved. There is need for elaborate youth education and campaigns for them to stop chewing miraa because it has affected their health adversely.</td>
<td>• Money accrued from the business if used responsibly could boost the standards of living for the people in the area e.g. pay fees, start businesses, build better homes</td>
</tr>
<tr>
<td>• Infact miraa will ‘kill’ a generation unless everyone is educated fully on how to handle the crop.</td>
<td>• Miraa as a cash crop is not bad. What is needed is for the youth to be educated on the rights and ills of miraa.</td>
</tr>
<tr>
<td>• Miraa should be banned. Many bright boys are chewing miraa excessively and they end up becoming ‘zombies’, mad, confused and wasted. At the family level, women are crying because their husbands are unable to perform.</td>
<td>• Again parents and youth need to be taught on how to handle the ‘easy and quick’ money from miraa business.</td>
</tr>
<tr>
<td></td>
<td>• Those in miraa business should be encouraged and advised to use their money productively as this will boost their standards of living.</td>
</tr>
</tbody>
</table>
The information gathered from the head teachers' shows that while miraa may have adverse effects on the users and the community, it may not be advisable to ban its growth. Instead clear policies and guidelines should be developed to assist the growers to use for self development and contribute towards the economic growth of the society and the country at large.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter the results of the study are discussed and recommendations made thereafter.

5.2 Summary of the Findings

i) Majority of the head teachers' respondents 90% were male while only 10% were female. Majority of the teachers respondents were male 66% while 34% were female. The male students were 65% while the female ones were 35%. 40% of schools involved in this research study were day schools as well as other 40% day/boarding schools. Only 20% were boarding schools. One respondent had headed a school for 9 years followed by another who had headed another institution for 7 years. Those who had headed the schools for the shortest time, 2 years were 2 head teachers.

ii) Majority of the respondents 63% who are students' have ever chewed miraa while 37% had not. Respondents who have ever chewed miraa gave certain effects of miraa which include lack of appetite for food, lack of sleep, that is one may spend a whole night chewing/insomnia, lack of concentration in class due to hangovers, leads to school drop-out, indiscipline rate is high both in and outside the school

iii) Majority of the respondents 92% who were students said they did while 88% teachers also agreed with them.

iv) Majority of the teachers respondents 42% said that fees was the main cause of students drop-out from school followed by indiscipline at 28%. 21% of the
students' respondents agreed that pregnancy was a possible cause of drop-out in
schools followed closely by lack of fees and miraa related activities at 20%.

v) On absenteeism from school, majority of the students' respondents 64% indicated
there was absenteeism among learners while 55% of the teachers' respondents
concurred with them.

vi) Majority of the students' respondents 73% and teachers' respondents indicated
that the trend of absenteeism was not frequent while 38% of the teachers and 19%
students indicated that the trend was frequent.

vii) Majority of the respondents 57% said that their parents own miraa farms while
43% did not.

viii) Majority of the students' respondents 40% attend to miraa shambas during the
school holidays while 33% of them, mainly the day students worked in them over
the weekends. Another 15% and 10% attend the miraa shambas early in the
morning before leaving for school and after school respectively.

ix) Majority of the students' respondents 64% handed-in class assignments in good
time while 31% indicated that they sometimes did. Another 44% of the teachers'
respondents said that students didn’t hand-in these assignments in good time.

x) On activities that affect learning in schools, 29% and 25% of the teacher's
respondents cited low level of concentration and dozing in class respectively. The
students 23% cited low level of concentration while 19% cited dozing in class and
truancy as activities affecting learning in schools.
xi) Some miraa related activities that students engage in include miraa trade and selling in the miraa market, chewing, growing miraa in large farm, pruning, watering the miraa plants, picking miraa for marketing and spraying.

xii) Majority of the students' respondents, 47% indicated that they supported miraa trade and production while 39% of the teachers' respondent did not support this kind of trade. Also, 35% of the students' respondents said they didn't support while 33% of the teachers said they supported this trade.

5.3 Conclusion

Findings from this research indicate that miraa trade has boosted the standards of living of the people in the region thereby making them lead decent lives while being able to pay school fees for their sons and daughters in the schools. On the other hand it has negatively affected education in the region in that many youths have dropped out of school. Others have little regard for education because of the easy money gotten from the miraa business. This means the government and other relevant authorities need to address the issue of miraa trade in the region with a view to streamlining the activity so that it continues to benefit the people while not destroying the future generations.

5.4 Recommendations

5.4.1 Policy Recommendations

The government should initiate programmes and policies that are geared towards discouraging the youth from being involved in the miraa trade and production. Heavy and stiff penalties are imposed on those who contravene the same.
The government, churches and NGOs should carry out elaborate campaigns aimed at sensitizing the community on the pros and cons of miraa chewing and trade. This way the community members will make informed decisions as they continue with the crop production and trade.

The government and other agencies should support miraa farmers to market the crop. They should encourage them to form cooperatives and to start small scale income generating projects in order to curb the challenge of irresponsible spending of money accrued from miraa amongst the community members.

The government, church and NGOs should educate the people in the region on the ills of miraa and advice them to have alternative cash crops in the region such as cotton, aloe vera and tobacco. Further, farmers should be assisted with seeds and fertilizers freely as a way of motivating them to grow alternative cash crops.

Service industries and factories should be started in the region. These will provide alternative employment to the people, assist them to market their produce and motivate them to start meaningful savings schemes.
5.4.2 Recommendations for Further Research

This study covered the effects of miraa production and trade on secondary education in Kiritiri and Kianjiru zones; Mbeere South District in Embu County. Further research can be done on:

i) Effects of miraa production and trade on primary education in Kiritiri and Kianjiru zones in Embu County.

ii) The impact of miraa on social-cultural and economic lives of the people in Kiritiri and Kianjiru zones in Embu County.

iii) Effects of miraa production and trade on secondary education in other parts of Embu County.
REFERENCES


APPENDICES

APPENDIX A: QUESTIONNAIRE FOR CLASS TEACHERS

This questionnaire is aimed at gathering information that will be essential in trying to determine the effects of Miraa on Secondary Education in Kianjiru and Kiritiri Zones. All information provided will be for the purposes of research and will be kept confidential. You therefore need not indicate your name.

Please tick in the appropriate box or give brief comments in the space provided. In the tables provided, you can tick more than one response.

A. BACKGROUND INFORMATION

1. Name of the school

2. Gender
   Male [ ]
   Female [ ]

3. How long have you served in this institution?
   Below 5yrs [ ]
   6 – 10yrs [ ]
   11yrs and above [ ]

B. STUDENTS RETENTION RATE

4. Do you have students drop outs in your school?
   Yes [ ]
   No [ ]
5. What are the possible causes of dropouts in your school? Please tick

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>(✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Miraa related activities</td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Fees</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Pregnancy</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Indiscipline</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Early marriage</td>
<td></td>
</tr>
</tbody>
</table>

C. PARTICIPATION IN THE LEARNING PROCESS

6. Do you have chronic absenteeism in your class.
   
   Yes [ ]    No [ ]

7. How do you rate the trend of absenteeism in your class? (Tick).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>(✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Frequent</td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>Very frequent</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Not frequent</td>
<td></td>
</tr>
</tbody>
</table>

8. a) Are the class assignments handed-in in good time?
   
   Yes [ ]    No [ ]

b) Give reason s for the answer stated above.

................................................................................................................................................

................................................................................................................................................
9. Tick the activities cited below which you think affect learning in your school?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Truancy</td>
<td>(√)</td>
</tr>
<tr>
<td>b)</td>
<td>Dozing in class</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Failure to complete assignments/Homework</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Low levels of concentration</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Absenteeism</td>
<td></td>
</tr>
</tbody>
</table>

10. a) List down three miraa related activities that the students are engaged in.

........................................................................................................................................................................................
........................................................................................................................................................................................
........................................................................................................................................................................................

MIRAA AND ITS BENEFITS

11. Do you support the miraa trade/production in the region?

Yes [ ] No [ ]

12. What is your opinion on miraa?

........................................................................................................................................................................................
........................................................................................................................................................................................
........................................................................................................................................................................................

13. Give suggestions on the way forward on Miraa trade and production in the region.

........................................................................................................................................................................................
........................................................................................................................................................................................
........................................................................................................................................................................................
APPENDIX B: QUESTIONNAIRE FOR STUDENTS

Dear student,

You are provided here below with questions to answer. These questions will not be marked. So, be free to give your opinions accurately. Be as truthful as you can. You don’t need to write your name on this paper.

A. BACKGROUND INFORMATION

1. Name of your school

........................................................................................................................................

2. Zone: ........................................ Form ..................................................

3. Gender: Male [ ] Female [ ]

B. STUDENTS RETENTION RATES

4. a) Have you ever chewed miraa

Yes [ ] No [ ]

b) If yes, state two effects of chewing miraa

........................................................................................................................................

........................................................................................................................................

........................................................................................................................................

5. Do you have students drop outs in your school?

Yes [ ] No [ ]

61
6. What are the possible causes of dropouts in your school? Please tick

<table>
<thead>
<tr>
<th></th>
<th>(√)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Miraa related activities</td>
</tr>
<tr>
<td>b)</td>
<td>Fees</td>
</tr>
<tr>
<td>c)</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>d)</td>
<td>Indiscipline</td>
</tr>
<tr>
<td>e)</td>
<td>Early marriage</td>
</tr>
</tbody>
</table>

C. PARTICIPATION IN THE LEARNING PROCESS

7. Do you have chronic absenteeism in your class.
   Yes [ ] No [ ]

8. How do you rate the trend of absenteeism in your class? (Tick).

<table>
<thead>
<tr>
<th></th>
<th>(√)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Frequent</td>
</tr>
<tr>
<td>b)</td>
<td>Very frequent</td>
</tr>
<tr>
<td>c)</td>
<td>Not frequent</td>
</tr>
</tbody>
</table>

8. a) Do your parents have a miraa farm?
   Yes [ ] No [ ]
b) If yes, when do you attend to the miraa shamba

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Before school/Early in the morning</td>
<td>(✓)</td>
</tr>
<tr>
<td>b)</td>
<td>After school/in the morning</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Weekends</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Holidays</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Schools hours</td>
<td></td>
</tr>
</tbody>
</table>

9  a) Are the class assignments handed-in in good time?

- Yes [ ]
- No  [ ]
- Sometimes [ ]

b) Give reasons for the answer stated above.

................................................................................................................................................
................................................................................................................................................
................................................................................................................................................

10 Tick the activities cited below which you think affect learning in your school?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Truancy</td>
<td>(✓)</td>
</tr>
<tr>
<td>b)</td>
<td>Dozing in class</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Failure to complete assignments/Homework</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Low levels of concentration</td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Absenteeism</td>
<td></td>
</tr>
</tbody>
</table>
11 a) List down three miraa related activities that the students are engaged in.

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

MIRAA AND ITS BENEFITS

12 Do you support the miraa trade/production in the area?

   Yes [ ]
   No [ ]
   Neutral [ ]

13 Give your opinion on miraa trade and production in the region

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

14 Give suggestions on the way forward on Miraa trade and production in the region.

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

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APPENDIX C: INTERVIEW SCHEDULE FOR HEAD TEACHERS

This interview schedule is aimed at gathering information that will be essential in trying to determine the effects of Miraa on Secondary Education in Kianjiru and Kiritiri Zones. All information provided will be strictly used for the purposes of research and will be kept confidential.

Name of the School __________________________________________________________

Gender _____________________________________________________________________

Category of the School ______________________________________________________

Duration in the School _______________________________________________________

1. How do activities related to miraa affect learning in your school?

2. Is there any relationship between miraa trade, production and discipline in your school?

3. How does miraa affect performance in your school?

4. In your assessment, does miraa have any positive effects in the learning process in your school?

5. What is your opinion on miraa trade in the region in relation to secondary education?
The table below described the budget the researcher anticipated to incur during the study:

<table>
<thead>
<tr>
<th>Item</th>
<th>Activity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stationery (Pens, photocopy papers, flash disk)</td>
<td>5,000</td>
</tr>
<tr>
<td>2</td>
<td>Research assistant services</td>
<td>5,000</td>
</tr>
<tr>
<td>3</td>
<td>Printing cost</td>
<td>4,500</td>
</tr>
<tr>
<td>4</td>
<td>Binding</td>
<td>3,000</td>
</tr>
<tr>
<td>5</td>
<td>Transport cost</td>
<td>6,000</td>
</tr>
<tr>
<td>6</td>
<td>Telephone services</td>
<td>3,000</td>
</tr>
<tr>
<td>7</td>
<td>Miscellaneous</td>
<td>3,500</td>
</tr>
<tr>
<td></td>
<td><strong>Total expenditure</strong></td>
<td><strong>30,000</strong></td>
</tr>
</tbody>
</table>
APPENDIX F: WORK PLAN

Time framework

<table>
<thead>
<tr>
<th>Item</th>
<th>Approximate time in months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of the research proposal</td>
<td>2</td>
</tr>
<tr>
<td>Data collection and field study</td>
<td>1</td>
</tr>
<tr>
<td>Data analysis</td>
<td>1</td>
</tr>
<tr>
<td>Compilation and submission</td>
<td>$\frac{1}{2}$</td>
</tr>
</tbody>
</table>
APPENDIX G: PERMIT

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 224349
254-020-310571, 2213123, 2219420
Fax: 254-020-318245, 318249
When replying please quote
secretary@ncst.go.ke

Our Ref: NCST/RCD/14/012/724

Jane Njoki Muturi
Kenyatta University
P.O.Box 43844-00100
Nairobi.

Date: 20th June 2012

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “The effects of miraa production and trade on secondary education in Kiritiri and Kianjiru zones in (Mbeere South District),” I am pleased to inform you that you have been authorized to undertake research in Mbeere South District for a period ending 31st July, 2012.

You are advised to report to the District Commissioner and the District Education Officer, Mbeere South District before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioner
The District Education Officer
Mbeere South District.
Research Permit No: NCS7/RCP/14/012/724
Date of issue: 20th June, 2012
Fee received: KSH 1,000

Prof./Dr./Mr./Mrs./Miss
Institution

Jane Njoki Muturi
P.O.Box 43844-00100, Nairobi

has been permitted to conduct research in

Location

Mbeere South

District

Eastern

Province

and trade on secondary education in Kithiri

and Kianjuri zones in Mbeere South District

for a period ending 31st July, 2012

Applicant's Signature

National Council for Science & Technology

The effect of miraa production

COUNCIL FOR SCIENCE AND TECHNOLOGY

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