APPENDIX

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4. Malaria Research references KEMRI CDC 1990s
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1. **Examples of field notes which led to tensions to follow up historically**

*Background to a growing interest in collaborations*

This comes from reflection I noted down in some of the early stages of reading through the archive documents. While looking at an agreement document between the Kenya Medical Research Institutes and the Japan International Collaborating Agency, I was interested in the language used and how this may affect the working relationships. In these documents the Japanese scientists are known as ‘experts’ while the Kenyan scientists were known as ‘counterparts’. There was also interesting discussion regarding the issue of the meaning of scientific training. The Kenyans were requesting that training goes into MPhils or PhDs, while the Japanese said they could not afford long term training, then the Kenyans suggested financing students to go to institutions in Kenyan. The outcome of this discussion wasn’t quite clear. I started to think about the process of capacity building when it is ‘workshops’ and ‘training’ following the idea of the ‘experts’ and the ‘counterparts’ rather than approaches where it is intellectual capacity building.

In line with this it is interesting to think about why Kenya was collaborating with Japan, was it because Japanese scientists were considered ‘experts’ or because the situation offered money and opportunities for Kenyan scientists. On the other side was Japan collaborating because it wanted to improve the health of Kenyans, or to protect the health of Japanese, or access to data, or a combination?

Another example came from reading letters from the British Council to Kenyan Scientists. I for example support was given in the way of books in the 1980s, it wasn’t clear whether the books were being given or whether they were displaying what was for sale. When I thought about it I could not imagine this situation in reverse (where Kenya was announcing publication of books to Britain) and I thought that this was perhaps a way of enforcing the power structures between the two countries and given they were often text books would influence the outcome of research.
The changing epistemologies and technologies of medical research in Kenya with relation to the ethics of research

International research brings large amounts of money to research, which often means an increase in technological capacity, resulting in ‘ethics of new and emerging technologies’ becoming suddenly applicable at sites of extreme poverty. Through being at the research institute I felt that technologies also highlighted the imbalances in power or lack of national research for example when samples arising from trials have to be shipped to other countries for analysis. This raises ethical issues of ownership and care of human materials, but also the more pressing ethical issue of why it is that these technologies do not exist in Kenya, given it is a site of global health research. I became interested in approaches to exchanges of materials/samples between countries. This came up in archive documents and discussions. The changing nature of technology or specifically computers in medical research collaborations is an interesting line of enquiry to follow. Also how people thought about and discussed ethics pre and post the internet.

With the ethics committee discussions at KEMRI HQ some people on the board would be external to KEMRI, so at this stage the science would be looked at again. I discussed this with an administrator for ten years and she said that about 20% of the time or less would be discussions over scientific validity. An example she gave of these discussions would be how much blood was being drawn. Scientific calculations would be made to determine an ethically safe amount.

The administrator talked about the use of computers in her work as an administrator at KEMRI for example she was able to set notifications up on her computer so she could make sure that each research project was contacted after a year and also she had began using computers to order each protocol ever submitted to KEMRI into a database. This is an example of the way that computers would have had an effect on the way that protocols are dealt with which will have changed as the technology has changed. This was a reminder of the importance of thinking about medical research in the context with broader changes in technology and the co-constitutive outcomes of this.
2. **Map of KEMRI in Kisumu and Collaborators**

Drawn by me, through using archive documents and through discussions with experienced staff members.
'Local Health Care' private or public, managed through the local branchs.

Association of Kenya Medical Laboratory Scientific Officers
H. O. Karwia
ARMLSO
Professional organization for medical laboratory science. Supposed to register all members.

[Diagram]

ARMLSO Kisumu Branch
Chair: Dr. Kinyanjui O. Njiru

KEMRI Kisumu Station
1994: M.C. Puchercos and others. ARMLSO-KSM committee, President: Dr. G. W. Wanjala. 

3pm: Meet my arranging of arrangements ARMLSO from archive documents.

Things to clarify:
- What is Local Health Care?
- When did ARMLSO begin with KLM?
- Is there a Nyanza branch above the Kisumu branch, or are they the same thing?
- What happened with ARMLSO peri 1987?
- What is the IML? ARMLSO?
3. **Malaria Research KEMRI CDC Publications from Western Kenya**

**1980s**


4. Malaria Research KEMRI CDC publications from western Kenya

1990s


malaria in pregnant and non-pregnant women, Kakamega District, Kenya." BMJ 301(6750): 466-70.


Morality, Technology and Epistemology: The Biography of a Kenyan Research Institute 1979 - present

Student: Lauren Hutchinson
Supervisor: Dr. Wiciel Gebauer and Dr. Nemei Trawiamp
Anthropology of African Bioassumences, London School of Hygiene and Tropical Medicine

The project is concerned with what scientific knowledge is considered to be worth producing and how these narratives of scientific knowledge change and become durable over time.

The objective is to explore the ways in which narratives of science change and become durable over time.

Methodological Approach

I will explore the ways in which narratives of science change and become durable over time. This approach to the study is based on the interaction of narrative, idea, and context. I will be able to analyze the narratives and contexts of scientific knowledge production and dissemination of scientific knowledge produces over time.

In order to capture change over the past few years, I will focus on the rhetorical strategies and the narrative strategies used in science production.

Contents

1. Creating an Archive

2. Analysis

3. Case Study

4. Conclusion

6. **Further themes of interest I decided to follow**

Through time spend reading the documents and also just being based at the institute various themes of interest began to emerge. In line with the aim of this thesis, there were productive tracers for exploring what kind of science is produced in the international, yet geographically specific socio-cultural context of Kisumu and how this did and did not change over time.

**Maliology**

Following changes in approaches to the scientific study of malaria will capture epistemological changes and also epidemiological changes in the incidence and prevalence of disease in humans, and also environmental changes.

The name changed in 1983 to DVV... due to a change in the ethos of research at KEMRI, where it was decided that the focus was to be on scientific expertise rather than disease specifics.

Malaria was the main mandate of MOPDRC since it was set up in 1979, as the centre was originally named Malaria and Other Protozoal Diseases Research Centre. I began to realist that using the narrative malaria and how this changed over time made visible many changes in approaches to tackling disease. By paying attention to malaria I realised I would be able to capture the complex interplay between the negotiations between prevalence levels of disease, vectors and epistemologies of disease, with the politics of technologies of disease, such as the use of DDT locally and internationally. For example, in 1986, research mandates affected the functions of the biochemical section at Kisian in light of views that it was worthwhile examining the chemical controls of mosquitoes in Kenya, rather than other approaches. I was interested in the way in which this national level change then changed the day to day roles of the scientists involved, and the material outputs of the science produced.

**Data**

Following that way that data was both collected and analysed proved helpful in order to be able to trace the spatial and technological changes occurring over time. I found
that this could be broken down into three aspects of data, the collection, analysis and roles of scientists.

Collection – with the advent of computers at Kisian and PDAs local production events in the field become connected, through hardware condensed in spatial and temporal form, to anywhere in the world, deemed the correct place for data storage.

Analysis – The location of analysis of data, in the numerical or material specimen form appeared to lead to new questions with regards to ethics and structural inequalities. As technical requirements increase, the location of analysis becomes more specific. In the case of Kisumu, this has led to samples being shipped across national, or continental borders for analysis. In doing so raises traditional bioethical issues such as, what happens to the specimens wants analysis has been completed. However, for me it also raised wider issues such as why are the specimens being collected in the location of Kisumu, when the equipment is in other locations.

Roles - as the data collection and analysis methods change this changes the role of scientists in the field as job descriptions due to the changes in the technology.

Funding

Through reading funding applications, both successful and not, I realised that it would be possible to further explore the justifications of science. These are interesting as they are a combination of both, what is deemed relevant to be conducted and also what is considered to be ‘convincing’ the organisation being applied to.

Through looking at the archive there are hundreds of documents pertaining to funding applications. These include not only the applications themselves but also visits to the centre and scoping reports from potential donors. For example there are these hand written notes in preparation of a WHO/TDR visit.
Physical Structures and Departments

It became apparent that the physical structure of the scientific institute was indicative of the practice and knowledge of science globally and locally. Through archive documents it becomes clear that the laboratory structures strong in their materiality, change due to a variety of factors both global and local. Which in effect change structures of hierarchy in work and experience of doing science; technical staff become re-deployed. For example in April 1999, the re-deployments were made in the following table: [6] (photo 31st march folder f, 25.) Which outlines the changes in scientific specialisations and funding structures.¹

This entry point will enable me to explore the transnational collaborations in their material, structural form.
Summary

While I have outlined each of these themes separately, what I am sure of is that these traces will converge. For example, funding applications will be guided by novel approaches in malariology, and data collection and analysis will depend on the contemporary theories of malariology. The value of each of these themes is that they will enable me to shift back and forth between morality, technology, epistemology and epidemiology, following what I find in the archives and through talking to those who have been involved. The convergence of these themes is what will enable me to tell the story of research in a place from 1978-present.
**Introduction**

We ask you to take part in a study. This study is about the history of Malaria Research at The Kenya Medical Research Institute in Kisumu (KEMRI - KSM). Our study is done by the London School of Hygiene and Tropical Medicine (LSHTM) and The Kenya Medical Research Institute (KEMRI). It has been approved by the LSHTM Ethics Committee.

**Purpose of the research**

This study is about the practice of malaria research and changes over time – 1977 to present. We will only talk with people and observe what they do and look at past documents. We will not examine or treat people. You have worked with KEMRI in medical research and/or health programmes on Malaria and you have seen other research projects and programmes going on, or heard about them. Therefore, we can learn from you about the past, present and future of Malaria research in Kenya. This information will help you to decide whether you want to be part of this study. You are free to say no without explanations. This is your choice. It will not be reported
to anybody in KEMRI or CDC. It will have no influence on your present or future involvement with KEMRI and CDC, or on your employment prospects.

**If you choose to take part**

If you choose to participate, we would like to do one or more interviews with you. Each interview will take between 1-3 hours. We can do the interview at work, in your home or another place of your choosing. We will tape record the interview, if you allow us. If, at any point, you would like the recorder turned off, we will do so.

During the interview, we will ask you about:

- your experiences working on KEMRI Malaria research or programmes
- your past experiences of working on KEMRI Malaria research programmes;
- what research should be done in the future, and how it should be done.

Our discussion will be open, and it is important for us to hear your personal views. Anything you find interesting or of concern about your work with research or research in general will be interesting to us. If you do not feel like talking about certain issues, you are free not to do so. If you want to say things we did not ask about, feel free to do so.

**If you choose not to take part**

If you chose not to take part, you will not have any disadvantage from this, and your name and your decision will not be taken forward to your employers or anybody else.
Your decision not to take part in this study will not influence your present or future career prospects or employment status with KEMRI/CDC research or programmes.

**Risks**
Taking part in this study does not expose you to any risk. Some discussions may have to do with pasts which you do not want to remember; if this makes you uneasy, you can skip questions or stop the conversation. You can choose to stop taking part at any time.

**Benefits**
You may find taking part in this study useful, because it gives you a chance to share your views about malaria research and, and to raise issues that you think should be changed or improved, as well as things that you liked and would like to see more of. You have contributed to the study of malaria and it is your chance to let us know about your’s and your colleagues’ input to Malaria research in order for them to be remembered. This will potentially lead to better health research and programmes and better working conditions and training in the future.

**Confidentiality**
This is a history project, so the extent to which you want your input to be confidential is up to you. In the consent form you will see a range of options which you can choose from. Your participation and what you say will not affect your ongoing and future participation in KEMRI/CDC activities. If you agree for your name to be used then it is important to remember that this will be included in reports, publications and presentations available to the public. It is essential to make this decision carefully. You may contact us and change your mind at any point, until the reports/publications
have been written. All tapes and reports will be kept safely and nobody except us will have access to them.

**Cost to you**

Taking part in this study will be of no cost to you. It will only require some hours of your time during the next year, and we will avoid disturbing your work schedules. If you have to use public transport to meet with us, your expenses will be refunded, based on standard public transport rates.

**Rights to refuse or withdraw**

Participation in this study is voluntary. You are not obliged to participate in this study, and even if you agree to participate today, you can change your mind later. If you do so, you will not have disadvantage from this, and your name and your decision will not be taken forward. If you refuse or withdraw, you will not suffer any negative results in your work or in other relations with KEMRI/CDC in the future.

**Persons to contact if you have questions**

If you would like to ask questions related to this study, you can always call the leader of this study, Lauren Hutchinson, personally, on this telephone number or through a letter [particulars to be added]. You can also contact any of the other study team members instead [names and contact details to be added]. If you would rather speak to another person from KEMRI/CDC who is not part of this study, please contact [name and details to be added].

If you have any questions about the study right away, please ask them now. If you should have questions later, please telephone or send us a text message [numbers and names to be added]. If you send a message, we will call you back.
8. CONSENT FORM

CONSENT FORM

Pasts, Presents and Futures of Malaria Research in Kenya

Miss Lauren Hutchinson
Anthropology of African Biosciences, Public Health and Policy, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT
Phone number ...

Do you agree to join the interview?

Yes/No

STATEMENT OF CONSENT

I have read the information sheet concerning this study and I understand what will be required of me and what will happen to me if I take part in it. I was told the reasons for the interviews. I am aware of risks and benefits. My questions concerning this study have been answered by ..........................................

I understand that:

1. I can choose whether I want to be part of this study or not.
2. I can drop out at any time without giving reasons and without any negative results.
3. Regarding confidentiality:

I permit the use of my name with quotations from the interview [ ]

I wish to be consulted before publication of named quotes [ ]

I wish quotes to be used anonymously and in such a way that I cannot be identified [ ]
I do not want to be quoted at all, even anonymously

By signing below, I agree to take part in the study.

_____________________   ______________                _______________________
Participant’s name                Date                      Signature or thumbprint

_____________________   ______________                _______________________
Witness’ name                       Date                                     Signature or thumbprint

IF NO, WHAT ARE THE REASONS FOR REFUSING?

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9. PHOTO RELEASE FORM

PHOTO RELEASE FORM

Pasts, Presents and Futures of Malaria Research in Kenya

Miss Lauren Hutchinson
Anthropology of African Biosciences, Public Health and Policy, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT
Phone number .......

Place, date and location of photo:

I permit the use of the photo with my name in publications [    ]
I wish to be consulted before publication of this photo [ ]
My photo may be taken but not used in research outputs [ ]

By signing below, I agree to have my photo taken.

_____________________   ______________                _______________________
Participant’s name                Date                                     Signature or thumbprint

_____________________   ______________                _______________________
Witness’ name                       Date                                     Signature or thumbprint

230
IF NO, WHAT ARE THE REASONS FOR REFUSING?

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### TABLE OF PEOPLE INTERVIEWED

<table>
<thead>
<tr>
<th>POSITION</th>
<th>Gender</th>
<th>RELEVANT YEARS</th>
<th>DATE INTERVIEWED</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Senior Researcher and on occasion acting director</td>
<td>Male</td>
<td>19 years</td>
<td>30th August 2010</td>
<td>1hr 15</td>
</tr>
<tr>
<td>2 Longstanding secretary of Kisian Land Committee</td>
<td>Male</td>
<td>1979 - present</td>
<td>2nd September 2010</td>
<td>1hr 07 mins</td>
</tr>
<tr>
<td>3 Resident of Kisian, messenger to Director since 1991, worked with KEMRI since 1988, helped contractors build site from 1985</td>
<td>Male</td>
<td>1985- present, also involved before that</td>
<td>6th September 2010</td>
<td>1 hr 30mins, also walked around grounds with him and many meetings</td>
</tr>
<tr>
<td>4 Principle research officer, acting as director for one week/occasional acting director</td>
<td>Male</td>
<td>1998 as masters stud. 2002 as PhD and 2006 as post doc</td>
<td>7th September 2010</td>
<td>30 mins</td>
</tr>
<tr>
<td>5 Senior Lab. Technician</td>
<td>Male</td>
<td>1979 - present</td>
<td>7th September 2010</td>
<td>1st 30 mins 2nd 40 mines</td>
</tr>
<tr>
<td>No.</td>
<td>Position Description</td>
<td>Gender</td>
<td>Age</td>
<td>Start Date</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td>6</td>
<td>Kisian Land committee since 1990 (father was on it before)</td>
<td>Male</td>
<td>21</td>
<td>7th September 2010</td>
</tr>
<tr>
<td>7</td>
<td>Deputy Entomology Section Head KEMRI/CDC, also from Kisian</td>
<td>Male</td>
<td>21</td>
<td>8th October</td>
</tr>
<tr>
<td>8</td>
<td>Librarian</td>
<td>Female</td>
<td>16</td>
<td>11th October</td>
</tr>
<tr>
<td>9</td>
<td>Laboratory Technician</td>
<td>Female</td>
<td>31</td>
<td>15th October</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20th October</td>
</tr>
<tr>
<td>10</td>
<td>Retired secretary of current director</td>
<td>Female</td>
<td>30</td>
<td>20th October</td>
</tr>
<tr>
<td>11</td>
<td>Illustrator at KEMRI now, was technician at the beginning</td>
<td>Male</td>
<td>31</td>
<td>22nd October</td>
</tr>
<tr>
<td>12</td>
<td>Senior Technologist</td>
<td>Male</td>
<td>27</td>
<td>25th October</td>
</tr>
<tr>
<td>13</td>
<td>Senior Scientist</td>
<td>Male</td>
<td>20</td>
<td>25th October</td>
</tr>
<tr>
<td>14</td>
<td>Section Head Entomology</td>
<td>Male</td>
<td>Seven</td>
<td>26th October</td>
</tr>
<tr>
<td>No.</td>
<td>Position</td>
<td>Gender</td>
<td>Years</td>
<td>Date</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------</td>
<td>--------</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td>15</td>
<td>Senior Scientist</td>
<td>Male</td>
<td>Since</td>
<td>26&lt;sup&gt;th&lt;/sup&gt; October</td>
</tr>
<tr>
<td>16</td>
<td>Director</td>
<td>Male</td>
<td>15 years</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; October</td>
</tr>
<tr>
<td>17</td>
<td>Librarian</td>
<td>Male</td>
<td>About 20 years</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; October</td>
</tr>
<tr>
<td>18</td>
<td>Technologist, retired from KEMRI in 1993 but works on contract currently with CDC</td>
<td>Male</td>
<td>Since 1957 EA Amani Tanzania then KEMRI KSM</td>
<td>31&lt;sup&gt;st&lt;/sup&gt; October</td>
</tr>
</tbody>
</table>
11. Interview Guide

Documents/history
What is KEMRI KSM?
How did KEMRI KSM begin?
Why was it set up?
By whom?
What is the role of KEMRI KSM?
What does it mean to be employed by KEMRI?
How has KEMRI KSM changed during the time you have worked here? The biggest change?
What is the future of KEMRI KSM?
What documents do you think it would be helpful for me to look at if I am trying to find out about the history of KEMRI KSM?
Do you have any photos or pictures you are willing to share?
(further questions which will come up with how people tell their history)

Malaria research generally
Tell me about Malaria in Kisumu? (currently)
What was Malaria in Kisumu like when you began your career?
How has Malaria changed?
Why are you working on malaria research?
What is the purpose of Malaria research? What are the expected outcomes?
Are there differences between malaria research and research on other diseases?
What have been your greatest achievements while working on malaria science?
What was the best piece of malaria research you have heard of? Worked on?
What was the worst malaria project you have heard of? Ever worked on?

What do you see as the future of your career?

What do you see as the future of Malaria in Kisumu?

Further comments on the past present or future of malaria research?

Further people I should speak to about Malaria research at KEMRI KSM?

Guide for second interviews with KEMRI staff (or previous employees of) who meet the inclusion criteria
Experimental techniques
Describe the research project you are currently working on
What is your role in the project?
Explain the way that data is collected entered and analysed?
What equipment (technologies) are involved in this?
Could you describe the above for the first Malaria project you worked on?
What date was this?
What have been the biggest changes in the practice of Malaria research since you began?
What have been some of the worst changes since you began?
What has been the most impressive piece of equipment you have used?
What equipment would make the most difference to malaria research in Kisumu?
Could you describe the future of the techniques of malaria research in Kisumu?
Further comments?

Computers
Do you use a computer as part of your malaria research?
If so describe what role the computer has in the research?
What do you use it for?
Were there computers at the beginning of your career?
Do you remember when computers were introduced to KEMRI?
Have computers contributed to malaria research? In what way?
Could malaria research continue without computers?
What is the best impact computers have had on research?
Have computers had any negative impact on malaria research?
How have computers impacted communications? Learning? Employment?
Further comments?

Techniques of ethical accountability (discussion)
What are research ethics?
What are the ethical issues of research in Kisumu?
12. **Description of Data Storage and Management**

Storage: all electronic data will be stored on my pass-word protected computer, also backed up on a hard drive which will be locked away. Any hard documents will be stored in a lockable drawer and office.

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Storage before analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Format: Recorded using an Olympus voice recorder. Electronic audio files stored as WAP files. Also stored as written transcripts in word documents.</td>
</tr>
<tr>
<td>Documents</td>
<td>Format: Digitised using cannon and Nickon camera, stored as JPEG files. Catalogued in excel with a database created in endnote. Creates new copies of the images. Photocopies will be stored from documents held in official archives. These will be catalogued in the endnote data base but not digitised.</td>
</tr>
</tbody>
</table>

13. **Time Table of Data Collection and Analysis in 2010**

<table>
<thead>
<tr>
<th>Month</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>In Nairobi and Kisumu reading documents and preparing for the interviews,</td>
</tr>
<tr>
<td>May</td>
<td>Continued document analysis and collection</td>
</tr>
<tr>
<td>June</td>
<td>Continued document analysis and collection and preparing interviews</td>
</tr>
<tr>
<td>July</td>
<td>Continued document analysis and first phase of interviews</td>
</tr>
<tr>
<td>August</td>
<td>Continued document analysis, finishing first phase of interviews, analysis of these interviews – spend time back in Nairobi at National archives (take stock, consider the various themes arising) formulate further interview questions</td>
</tr>
<tr>
<td>September</td>
<td>Continued document analysis and second phase of interviews</td>
</tr>
<tr>
<td>October</td>
<td>Clarifying issues, feeding back initial concerns to staff, finalise interviews and document collection</td>
</tr>
</tbody>
</table>
14. **Summary of Malaria research conducted and planned at KEMRI in Kisumu during the eighties**

<table>
<thead>
<tr>
<th>Project</th>
<th>Time frame&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Researcher(s) and Institutions</th>
<th>Background</th>
<th>Focus</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey of Malaria Vectors in Agricultural Industries</td>
<td>Duration three years</td>
<td>One research officer (to be recruited) Two assistant research officers (to be recruited) Khamala, C. P. M.</td>
<td>Agricultural practices and human settlement problems in Kenya are changing rapidly. For example, large-scale irrigation projects or large-scale sugarcane plantation programmes may alter ecological conditions for vectors of human disease, in addition to attracting a new population of susceptible persons. It is therefore necessary to give priority to the study of vectors in such areas in order to identify and incriminate the particular species involved in disease transmission.</td>
<td>Malaria vector Mosquitoes and agricultural practices</td>
<td>Awendo sugar industry in South Nyanza, Mumias sugar industry, Kakamega District, Ramisi Sugar Industry, Kwale District and sisal estates in Taita-Taveta District have been selected for these studies in the first instance.</td>
</tr>
<tr>
<td>Biochemistry of Anopheles Mosquitoes and Vectors of Malaria in Kenya</td>
<td>Duration three years</td>
<td>Adungo, N. I. Githeko, A. K. Cooperating institutions: Dept. Of physiology, University of Nairobi, Prof. X. Thairu Dept. Of Biochemistry, University of Nairobi.</td>
<td>The present control measures for malaria: Chemotherapy and use of insecticide are both being rendered increasingly ineffective by increased resistance of parasites and the mosquito vectors. It is necessary to investigate the feasibility of immunotherapy as a control. Preceding this should be a study on biochemical factors which sustain the sporozoites in the mosquitoes.</td>
<td>Malaria vector Immunotherapy</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>The Bionomics of Malaria Vectors in Kenya: Study of Anopheles gambiae at Huma Hills Hot Water Springs and Lake Simbi Salt Lake, South Nyanza District, Kenya.¹</td>
<td>Kamunvi, F. Adungo, N. I. Githeko, A. K. Khamala, C. P. M.</td>
<td>Some species of Anopheles gambiae species D is known to live only in hot mineral springs in Uganda. Two species A. Melas from West Coast and A. Merus from the east coast of Africa, retrospectively breed in salt water. It is deemed necessary to conduct a study of the Anopheles gambiae species found in some</td>
<td>Malaria vector Mosquito behaviour</td>
<td>Huma Hills Hot Water Springs and Lake Simbi Salt Lake, South Nyanza District, Kenya.</td>
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<tr>
<td>Laboratory Colonization of Anopheles Mosquitoes</td>
<td>Schedule to start March 1983, continuous</td>
<td>One Research Officer (Principal) to be recruited Khamala, C. P. M.</td>
<td>Interest in mosquitoes as disease vectors, their susceptibility and resistance to insecticides and repellents, their nutrition, basic physiological reactions, and even the new systematics demand increased production of large captive colonies of mosquitoes suitable for experimental work. So the entomology division of MOPDRC will attempt to rear in the laboratory the commonly occurring Anopheles mosquitoes in Kenya which have so far not been reared before. The species to be reared under this project are Anopheles funestus, An pharoensis and other Anopheles</td>
<td>Malaria vector</td>
<td>Growing of mosquitoes</td>
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</table>
Studies of T. Brevipalpis Larvae as Predators of Other Mosquito Larvae in the Field

Research Officer (To be recruited) (Principal) Assistant Research Officer (To be recruited) Khamala, C. P. M.

Because of the growing concern worldwide about the use of pesticides and the consequent pollution problems, more ecologically sound control methods for disease vectors and crop pests are being constantly sought. Search for natural predators and or pathogens that can be used in the control of malaria vectors in Kenya is necessary, e.g. the larvae of T. Brevipalpis which in nature have been known to feed on the larvae of other mosquitoes breeding in the same habitats, e.g. Aedes aegypti; and several fish species which have been recorded to be natural enemies of mosquito larvae.

Biological control of malaria vectors
Search for natural predators of mosquitoes

Observations on the Bionomics of T. Brevipalpis in
The project will start September 1982 colonisati
One research officer (to be recruited)
T. brevipalpis normally breeds in tree-holes or containers. Both male and female mosquitoes do not

Biological control of malaria vectors
on of *T. Brevipalpis* and their use for control experiments will be continuous.

### The study of the relationship of Malaria infection to human blood group G6-PD and haemoglobin types

| Duration: three years | Kamunvi, F. (Principle) Adungo, N. I. Githeko, A. K. Khamala, C. P. M. | Attempts have been made to establish the relationship between A, B, and O blood groups and diseases such as hysteria, leprosy, smallpox, chicken pox, and cholera. No such similar works has been done in Kenya on malaria, or between malaria vectors and human blood groups. | Epidemiology and clinical studies Relationship between blood groups and malaria |

### A study of the sensitivity of Plasmodium falciparum to Chloroquine and other

<p>| Duration: Three years | Kamunvi, F. Githeko, A. K. One medical research officer (to be recruited) | The drug in common use for the treatment of malaria is Chloroquin. In recent years there have been a number of reports of resistance by <em>P. Falciparum</em> to Chloroquin in | Epidemiology and clinical studies Resistance of <em>P. Falciparum</em> to chloroquine |</p>
<table>
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<tr>
<th>Antimalarials in Kenya</th>
<th>One assistant research officer (to be recruited)</th>
<th>Africa. But these reports of resistance have been substantiated. Further investigations are required to establish a more scientific evaluation of malaria parasites resistant to Chloroquin and other antimalarials in Kenya.</th>
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<tr>
<td>A comparative analysis of Clinical Malaria and Laboratory Diagnosed Malaria by Ordinary Microscopy</td>
<td>Kamunvi, F. Muniu, E. M. One medical research officer (to be recruited)</td>
<td>Malaria treatment is most often carried out in rural health centres lacking laboratory facilities and personnel with adequate training. Diagnosis is often carried out clinically and is bound to be inaccurate at times. It is necessary to monitor clinical diagnosis against the more reliable laboratory diagnosis in order to avoid over diagnosis which is expensive and of no use to the patient.</td>
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<td>A possible Model for Malaria</td>
<td>Duration: continuous</td>
<td>Kamunvi, F.</td>
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| Surveillance in Urban Areas: The Kisumu Municipality Case Study | Muniu, E. M. Olel, O. | different groups in communities is an important contribution. In the past malaria was kept in check in towns and over large rural zones where Governments and agricultural or industrial enterprises recognised the importance of this infection and its consequences for the community. In some countries the eradication programs were frustrated by technical constraints such as resistance of mosquitoes to insecticides. But more often the obstacles were administrative, financial or of organisational nature. Some countries experienced serious reverses. | clinical studies
Qualitative study of behaviour and malaria |
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<td>A country wide study of the problem of diagnosis of malaria in rural</td>
<td>Proposed at conference in 1982.</td>
<td>Dr F. Kamunvi, Dr. S. Kanani (MoH), Mr. E. Munia, Mr. M. L. Owaga</td>
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</table>
### Current national and practical procedures for malaria control

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<tr>
<th>Health units in Kenya</th>
<th>Kamunvi, F.</th>
<th>The Kisumu Municipality it has been reported that in 1979 the Council provided £23,677 for malaria control, out of which £21,835 were spent on staff salaries leaving only £1,842 for actual antimalarial activities. Expenditure on malaria control ranges from 9 to 10% out of the total health expenditure of the council of which only 7% is spent on chemicals. Furthermore, it is interesting to note that for instance out of £100,000 provided by one urban authority for malaria control, £80,000 is spent on staff salaries and allowances and only £20,000 is spent for actual antimalarial activities annually. It has also been observed that local authorities are not usually</th>
<th>Epidemiology and clinical studies</th>
<th>Planning of malaria control activities</th>
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<td>Continuously</td>
<td>One research officer (to be recruited) One assistant research officer (to be recruited)</td>
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</table>
interested in training their health personnel even when training facilities have been locally availed.

| A study of the Social and Cultural Determinants of Malaria Among Rural Communities in Kenya | Duration: five years | Kamunvi, F. One Sociologist (to be recruited) Prof. Banguero | The close relationship between disease and socio-economic advance of developing tropical countries had been abundantly proved. The study of the mosquito and parasite has occupied a proportionately gibber share of study over the decades. Today the world is faced with an expanding problem of resistance. The mosquito is increasingly becoming resistant to known insecticides, while the parasite is becoming resistant to the known antimalarial. The World Health Organisation in the “Report of the First meeting of the Scientific Workshop Group on Social

Social, cultural and economic research in protozoal diseases in Kenya | Man’s role in malaria
Economic Research” on the UNDP/WorldBank/WHO Special Programme for Research and Training in Tropical Diseases pinpointed the importance of developing methods for social and economic research and their application in the control of tropical diseases.

Therefore man’s position in the problem of malaria needs emphasis in the light of these events. Such knowledge could be applied in the establishment of feasible intervention measures. Indeed if the above problems surrounding the vector and parasite continue, the latter approach may well become the only measure at our hands.

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<tr>
<th>Socio and cultural determinants of Malaria in Kenya</th>
<th>Proposed at conference in 1982¹</th>
<th>Dr. F. Kaunvi, Mr. O. Nyaoke (Kisumu Municipal)</th>
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</thead>
<tbody>
<tr>
<td>Bionomics of malaria vectors: a survey of malaria vectors in Awendo sugar factory, outgrower s and un-disturbed areas</td>
<td>Proposed at conference in 1982</td>
<td>Dr. Kamunvi Mr. W. Obundo</td>
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<tr>
<td>Programm e on vector mosquito egg desiccation experiments</td>
<td>1986. All publications below comes from.¹</td>
<td>Marangalla, G. M. Principle investigator Serony, I. K. Co-investigator Obala, A. A.</td>
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<td></td>
<td>Investigation into the conditioning mechanisms by which mosquitoes survive adverse conditions in nature is pertinent with those vector control measures that aim to suppressing vectors during their low population phases to minimum numbers as an eradication measure. Cost: Ksh 1,100</td>
<td>Biological control of mosquitoes</td>
</tr>
<tr>
<td>The functional response of toxorynchites brevipalis in the predation of vector</td>
<td>Marangalla, G. M. Serony, I. K. Obodhu, W. O. Obala, A. A.</td>
<td>Cost: all materials employed in this study were available at the centre, hence no purchases were experienced. The materials involved larvae available in the Centre’s larvae</td>
</tr>
<tr>
<td>Program of field trials of toxoxynchites control of malaria vectors</td>
<td>Duration: The experiments are set to run for at least six months starting October 1986 through March 1987.</td>
<td>Marangalla, G. M. Principle Investigator Serony, I. K. Co-investigator Obodho, W. O. Obala, A. A.</td>
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</tbody>
</table>
14. Footnotes from Chapter 8


development of antimalarial antibody responses in preschool children. XVI. Asembo Bay Cohort Project. J Infect Dis. 187, 1756-1764


