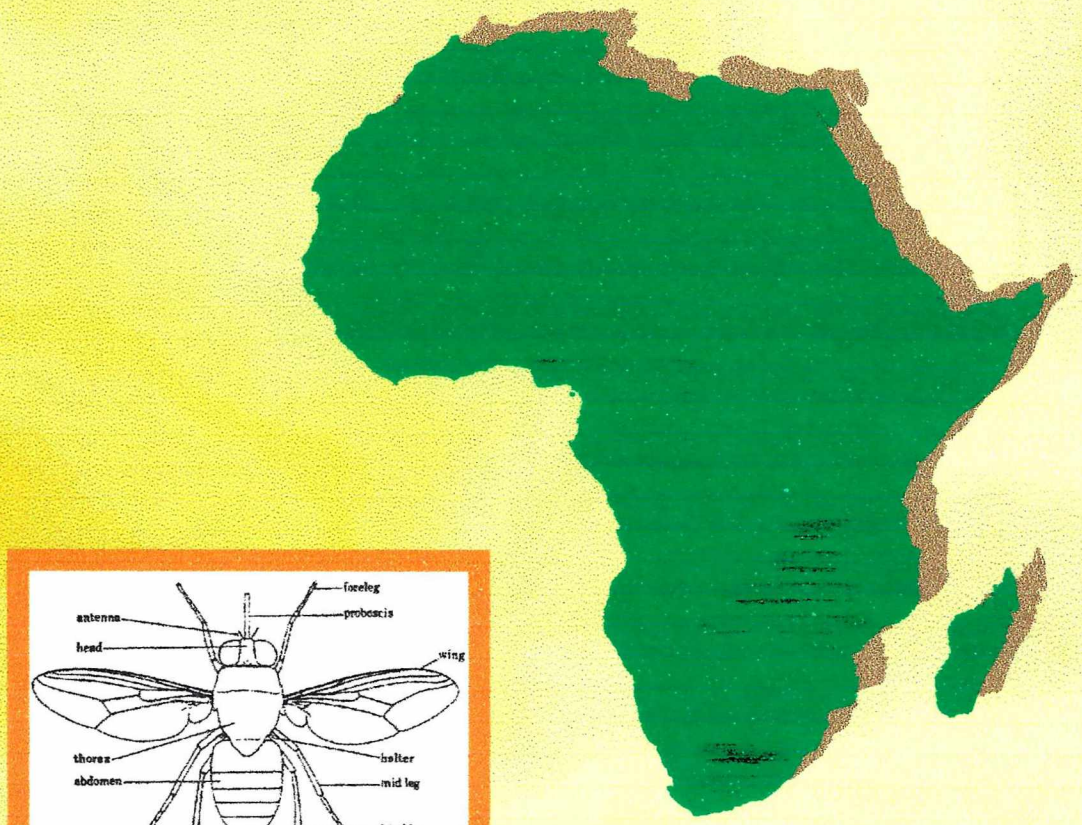
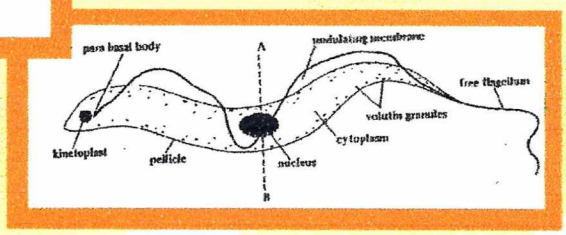




The 13th East African Co-ordination Meeting on Farming in Tsetse Control Areas of East Africa

Grand Imperial Hotel, Kampala, Uganda
7th - 8th May 1998

Prepared by OAU/IBAR
P O Box 30786
Nairobi

Opening Ceremony

The meeting was officiated by the Hon. Minister of State for Agriculture, Animal Resources and Fisheries Dr. Israel Kibirige-Sebunya, representing the Vice President and Minister of Agriculture, Animal Industries and Fisheries, Dr. Speciosa Kazibwe. He welcomed all participants and underscored the importance of the meeting, whose objective was to improve rural development in the East African Region through livestock disease control. Beginning with the Kenyan delegation, the Minister invited heads of delegations to introduce members of their delegations. This was followed by a general introduction of participants and then a speech from the Head of the European Commission in Uganda.

Speech by Head of the European Commission - Dr. B. Riland

The EU Delegate, Dr. Riland thanked the chairman and said he was pleased to participate in the meeting. He indicated that because tsetse flies are a major threat to agricultural development in East Africa, national Governments with the assistance of donor institutions, have undertaken measures to reduce the incidence of human sleeping sickness and trypanosomiasis but with limited success. He mentioned that it is only through a regional and continental approach that the disease can be successfully brought under control. Dr. Riland announced that the budget for FITCA regional project, which is being coordinated by OAU/IBAR, has been approved by the EU for an amount of 20 million ECU; 15.1 million of which is from the regional indicative fund. He said further that tenders have been formulated and are being processed, with distribution of the funds as follows: Kenya 4.6 million ECU, Ethiopia 5.6 million ECU, Tanzania 4.8 million ECU and the regional coordination unit 5 million ECU. Dr. Riland ended by reaffirming the EU's committment to support the FITCA project, adding that for a sustainable control of disease, issues of women participation and community involvement must be addressed by the project.

Speech by Hon. Dr. J. Wamukoya - Leader of Kenya Delegation

Dr. Wamukoya indicated that he was pleased that the EU has finally released funds for the tsetse project which was formulated since 1990. He thanked the host country for the warm welcome given to the Kenyan delegation adding that regional meetings of this nature are important for defining a common approach to the solution of development problems in the sub-region. Pointing out that success in the sub-region depends on the ability to produce food for the population, Dr. Wamukoya underscored the importance of bringing tsetse flies under control, but warned that unless there is cooperation among countries within the region, there will be limited success. Using Kenya as an example, he said 25% of the country is infested with tsetse flies which have affected medium potential and rangeland agricultural areas. He attributed the high incidence to the *El Nino* phenomenon, which has enabled tsetse flies to advance to higher altitudes.

Dr. Wamukoya indicated that the composition of the Kenyan delegation is a testimony of the country's commitment to the problem and that the Kenyan Ministry of Agriculture is

collaborating with ILRI, KETRI and ICIPE to control the disease and this collaboration has enhanced work efficiency and reduced the cost of implementation. He mentioned that KETRI and Kenya Veterinary Department have produced an updated tsetse map for Kenya.

Speech by Dr. B. J. Mtei - Head of Tanzanian Delegation

Dr. Mtei apologized for the absence of Dr. Melewas, Director of Tanzania Veterinary Services and Dr. Kimathi, Assistant Commissioner for Livestock Planning in the Ministry of Agriculture in Tanzania. Dr. Mtei indicated that the Tanzanian economy is basically agricultural with livestock accounting for 30% of the agricultural GDP. After highlighting the nutritional and economic importance of livestock, he indicated that Trypanosomiasis accounts for a significant portion of livestock losses in Tanzania. He added that the Tanzanian proposal under the FITCA project was finalized and submitted in 1997 to the EU for funding. He hoped that the meeting would lead to sharing of experiences for better control of tsetse in East Africa.

Speech by Dr. W. N. Masiga - Director of OAU/IBAR

On behalf of the Secretary General of OAU, Dr. Masiga thanked all participants and extended greetings from the Secretary General to the President of the Republic of Uganda. Drawing on the discrepancy between human population growth and food production in Africa, Dr. Masiga said achieving food security requires an annual growth in food production of 4%. He pointed out that as agriculture remains the key sector in African economies, it will require major attention in terms of funding in national budgets. He mentioned that Trypanosomiasis is a major constraint both to livestock and humans in Africa and that the OAU pays particular attention to such transboundary diseases through promotion of harmony in implementation of control programs.

Dr. Masiga thanked the EU for supporting livestock development in Africa, mentioning that he was pleased to know that Tender Documents for Technical Assistance for Kenya, Uganda and the Coordination Unit will be floated in May, 1998 for funds to be available by Semptember.

On behalf of the OAU, he thanked the Minister and the Government of Uganda for hosting the meeting and providing appropriate facilities. He also thanked all OAU/IBAR collaborators and partners - ILRI, ICIPE and KETRI.

Speech by the Guest of Honour, Minister of State for Agriculture, Uganda - Hon. Dr. I. Kibirige-Sebunya

On behalf of the Ugandan Government, the Minister of State welcomed all participants, indicating the honour given to Uganda to host the meeting. After emphasizing the significance of the tsetse fly and its effects on the human population and livestock, he thanked the EU for availing funds to the various countries and the Co-ordinating Unit for

fighting the tsetse fly. Because of the transboundary nature of tsetse, the Minister stressed the need for a co-ordinated effort among national governments. He then declared the meeting open.

Election of Bureau

Following the OAU tradition, Dr. Masiga introduced the host country as Chairman of the meeting. Kenya was nominated as Rapporteur assisted by LIRI and KETRI.

Chairman - Dr. T. C. Bamusonighe - Uganda

The Chairman proposed the adoption of the agenda. After a perusal of the minutes of the 12th FITCA Meeting, some minor corrections on pages 4, 9 and 11 were made and then the minutes were adopted.

On matters arising from the Minutes, the Minister of State suggested that the recommendations on page 17 be examined in view of the actions taken since they were made during the last meeting. In addressing the recommendations, Dr. Solomon indicated that because actions on the recommendations had financial implications, some of them could not be implemented because of no funds.

On **recommendation 1**, he indicated that co-ordinators in the participating countries liaised closely with the Co-ordinating Unit in Nairobi. He mentioned that only Tanzania did not submit a project proposal but that through arrangements with Brussels, a consultant was appointed to elaborate the project which was then submitted to the EU. Although a financial agreement was signed, Ethiopia did not finalize its project document despite several amendments.

Reacting to this, Dr. Wamukoya expressed concern about what was being done with respect to transboundary protection if neighbouring countries were not co-operating. Dr. Solomon explained that in cases such as Sudan, the security situation did not permit implementation. Dr. Lawrence Semakula indicated that one of the delays in including some countries is from differences in mandates to control diseases. He mentioned that all disease control programmes be carried out by OAU/IBAR given that it has the continenatal mandate. He sought clarification on progress toward recruitment of technical advisers and the views of the donors. Dr. Masiga replied that the OAU has been in the process of implementing projects for about 34 years and this is being done through sub-regional bodies. He added that because it is the responsibility of OAU to promote the control of livestock diseases in Africa, Tanzania, Rwanda and Burundi will be included in the project. With regard to tenders, he said they will be published by the end of the month.

Mr. Hursey observed that the objectives and goals of the project have not been altered since 1990 and that it is now eight years for the funds to be availed. Dr. Masiga said in 1991, 25 million ECU were allocated, 5 million ECU of which went to ICIPE. He stressed

that although it has taken long for funds to come, the funds should be spent with justification.

On **recommendation 2**, Dr. Solomon said OAU/IBAR is in partnership with ICIPE and ILRI and that ICIPE got their share sometime back but ILRI, whose role is to examine the environmental and economic impacts has not got any funds. He added that ILRI's role will be revised before implementation of the project begins and that under the regional programme, funds are available to work with national research institutions. Dr. Ndung'u of KETRI added that the role of national research institutions is defined in the Project Document and KETRI has undertaken project activities using resources from other areas hoping that when resources are availed under the FITCA projuect they will be reimbursed. Dr. Solomon talked of the need to identify relevant national and regional research institutions for inclusion in the project.

On **recommendation 3**, Dr. Solomon said a progress report will be provided during presentation of the respective Country Reports. He added that some of the issues recommended for East Africa were part of a continental program and were discussed and recommendations made during the ISCTRC meeting held in Maputo last year.

On **recommendation 4**, Dr. Wamukoya talked of the need to specify the various techniques to be used. Dr. Solomon agreed and took note of it. Mr. Semakula suggested that OAU/IBAR create an environment where countries can be introduced into the program.

On **recommendations 5 and 6**, Dr. Solomon recognized the presence of an increasing incidence of sleeping sickness and said in Southern Sudan, NGOs are doing a lot to treat patients. He said it is the task of this meeting to come up with a program for such areas.

On **recommendation 7**, the Minister of State asked for clarification on screening of refugees or Nationals returning from or moving into sleeping sickness endemic areas. Clarifications were offered by Dr. Masiga. Dr. Wamukoya suggested a modification of the recommendation to make it clear. Mr. Semakula added that before refugees are allowed to come into the hinterland, they should be screened to avoid transmission and that the High Commission for Refugees should be made aware of this recommendation. Dr. Kangwagye remarked that domestic animals moving with refugees should also be treated.

On **recommendation 8**, Dr. Solomon said communication is of a high priority and a communication component has been included to involve the community. He added that a regional program has not been elaborated and a logo for the FITCA program has not yet been identified and the IBAR communication unit will assist in creating one.

On behalf of the Uganda Government, Mr. Semakula thanked ICIPE for its work in most countries, now including Uganda, indicating that the work of ICIPE will now be of significant benefit to Uganda.

Report by Dr. Solomon H. M. - OAU Secretariat

Dr. Solomon gave a report on the previous FITCA meeting. He pointed out that the meeting gave the participants the opportunity to learn from each other and thus reinforced co-operation among member countries in East Africa. Reporting on the status of the FITCA project, he said the Tanzania component had been elaborated and submitted to the EU whereas the Ethiopia component will be delayed due to the implementation of a similar project by the Ministry of Agriculture. Concerning the 24th ISCTRC conference which was held in Maputo, Mozambique, Dr. Solomon reported that it was attended by 285 participants with presentations of 120 papers, most of which were from KETRI, ICIPE and ILRI. The conference, he said, was preceded by a training course on Tsetse and Trypanosomiasis Management.

Dr. Solomon concluded with a word of thanks to the Government of Uganda for hosting the meeting. He also thanked the EU for availing funds for the FITCA project and international and national institutions their support to OAU/IBAR.

Discussion Session on Country Reports

Correction on the Kenya Country Report: The date in Table 5.1.2 in the Kenya country report should be January 1998 instead of June 1998.

Question from the Uganda delegate: What is the Kenyan experience of community involvement on the control of animal trypanosomiasis?

Response from the Kenya Delegate: In Kenya, community involvement is very active. Community involvement is about getting the people together and discussing the strategy with them together with the roles of each party concerned. Once people are brought together the responsibility becomes theirs to control the disease.

Comment from Dr. Semakula: The Kenya country report talked about community participation in tsetse control. We believe there is a need to standardise the meaning of community participation all over East Africa.

Question from the Uganda delegate: Is there anything given for malaria when found positive in the course of tsetse surveillance activities?

Response from Dr. Makumi: A multidisciplinary approach is used during tsetse control activities. Malaria cases diagnosed in the course of these activities are commonly referred to medical clinics for treatment.

Discussion on the Uganda Report

Question from Dr. Mwongela: LIRI has confirmed that there is *G. pallidipes* in Uganda. The Uganda report indicated that no cases were found on the border with Kenya. Was there any screening done in order to arrive at this result?

Response from the Uganda Delegate: Active surveillance, mass surveys and passive surveillance were done on the Uganda side of the border with Kenya.

Discussion on the Tanzania report

Question: Pages 7 and 8 of the Tanzania report concerns animal trypanosomiasis. What are the exact species involved?

Question from the Uganda Delegate: Page 5 in Tanzania report has reported the resistance associated with the over-use of synthetic pyrethroids. Has this been verified?

Question from Dr. Ndung'u: Cases of sleeping sickness seem to be on increase in Tanzania. The report indicated that drugs for treating this were not available. Has Tanzania contacted the various people and drug suppliers in the region?

Response from Mr. Oloo: Majority are *T.vivax* and *T. Congolense*. *T. vivax* is mechanically transmitted. At the front-line there is more *T.vivax* although *T. congolense* is prevalent in hinterland areas. Continuous use of synthetic pyrethroids is questionable especially in the long term. The availability of sleeping sickness drugs is the responsibility of the Ministry of Health. Currently, the drugs situation is not very good due to the costs of these drugs.

Comment: We should try to identify the specific trypanosome involved in order to devise effective control strategies.

Question to Dr. Juma on the Zanzibar Report: Is the projected increase in livestock income from US$80 to US$800 feasible in the given short span of time?

Question from Dr. Solomon: Was it cost-effective to use the SIT method for tsetse control in Zanzibar and what was the cost related to tsetse eradication in Zanzibar?

Question from Dr. Mwongela: Zanzibar has 45,000 cattle. Have they done block treatment to screen for carriers?

Response from Dr. Juma: The projections have been based on the incomes of dairy producers. Initially it was impossible to keep dairy cattle in Zanzibar. Presently these animals can be kept and they have higher production than Zebu cattle and hence higher incomes. On the cost effectiveness of SIT in Zanzibar, it was estimated that 2 million dollars per year accrue to the Government of Zanzibar (GoZ). The whole project costed 5

million dollars. This seems cost effective. The SIT method was primarily used to eradicate the fly in Zanzibar as previous efforts were not effective in eradication. Currently, monitoring of the fly and the disease is on-going. No block treatment was done mainly due to the costs involved and this was not seen as a high priority area.

Recommendations of the 24th ISCTRC Conference in Maputo - Dr. Solomon H.M.

Dr. Solomon led the participants through a summary of the recommendations made at this meeting. He stated that the responsibility of the implementation of these recommendations were left to Member States and the the concerned organizations. He urged Member States to try and implement the recommendations as in 1-2 years time, they will have to report on the progress made.

Report from FAO - Mr. Brian Hursey

Mr. Hursey reported on the PAAT program, which he said is a joint effort between WHO, IAEA, FAO and OAU/IBAR. The objectives of this program are to promote and facilitate integrated and effective control of trypanosomiasis, achieve food security and help to define priorities and co-ordinate the investment of resources. Mr. Hursey said brochures containing details about the PAAT program will soon be available. PAAT's activities consists of Human Animal Trypanosomiasis (HAT) and African Animal Trypanosomiasis (AAT) action plans; the identification of research priorities, position papers on various issues such as socio-economic impact of tsetse control, drug management, cultural impact of HAT, integrated control, evaluation of the delivery and privatization. Information services is also another key activity of the PAAT program some of the services include ISTRC conference services, TTIQ newsletter, PAAT-Link through electronic mail and a PAAT information database system.

Human Sleeping Sickness - Dr. Georgianna Platt, Regional Director, International Medical Corps (IMC)

Dr. Platt reported on the activities of the IMC. She said IMC is an emergency relief organization. In Africa, IMC is present in Sudan, Ethiopia, Rwanda, Burundi, and Somalia. IMC started its activities in Southern Sudan in 1994. Until the 1980's the prevalence rate for Human Sleeping Sickness (HSS) was 0.5% and this rose in 1994/95 indicating that there was a resurgence of HSS in the area. An emergency sleeping sickness project has been launched recently in collaboration with other NGO's in Western Equatoria area of Sudan. Dr. Platt showed slides on the implementation of this project in Taboa county in southern Sudan. Approximately 90-120 CAT stage two positive patients are being treated each month. Over 10,000 individuals have been screened for HSS in this county over the last three months. A 14% prevalence rate was obtained. At the end of March 1998, over 1,000 people have been treated for HSS in Taboa county. The relapse rate of the HSS in treated patience is 12% with over 90% of these cases relapsing into stage two HSS. IMC is trying to expand its activities to other counties. Present donor

funding for IMC is limited to the next six months only and thus the organization is limiting its prevalence surveillance.

Human Sleeping Sickness epidemics in Uganda - Lessons of history - Prof. Ian Maudlin

Prof. Maudlin started his presentation by highlighting the characteristics of HSS epidemic as low endemicity for long periods of time and that ancient foci of infection are not location related but tsetse fly populations related, contrary to popular belief. Using the example of the HSS epidemics in Busoga Uganda, Prof. Maudlin said that the control of HSS epidemics has been largely due to active use of insecticides to control tsetse fly. The remedies for long term tsetse control is to intensify agricultural activities in tsetse control areas coupled with integrated pest management control.

Discussion Session

Question from Mr. Oloo: Theere is a 60% concentration of the HSS in some parts of Southern Sudan. Is this possible?

Question from Dr. Kansiime: Is CAT test picking all the positives in Southern Sudan as it has been observed that this is not the case in Uganda?

Comment from Dr. Wamukoya: Aerial spraying has been tried in Kenya very many times but showed relapse in tsetse fly populations compared to ground spraying.

Response from Dr. Platt: This was the status before the IMC activities began in Southern Sudan. Given the circumstances available in S. Sudan and the associated costs and applicability of the method, CAT is most appropriate in this area.

Response from Mr. Hursey: May be the operation was not effectively carried out in Kenya. If done well, aerial spraying is very effective.

Comment from Dr. Maudlin: IMC has been working in West Africa for 20 years. Recommended that something be done as quickly as possible as cost of relapse of HSS caused by *G. gambienses* is quite high (US$900 per person). Funding for the community trapping programs has been delayed for quite a long time.

Comment from Dr. Ogwal: Ground and aerial spray have been used to effectively control tsetse fly elsewhere. But most environmentalists and donors do not want to fund developing countries to use these methods as they are associated with high costs and have some effects on the environment.

Dr. John Kabayo's presentation

Dr. Kabayo's presentation underscored the need to re-examine past approaches used for tsetse control since the impact of past control efforts have been less successful. He

suggested the need for a continental approach to tsetse control through the creation of a continental organizaiton for tsetse control in Africa. He highlighted the need to pull together financial and material resources for tsetse control activities.

Report from KETRI - Dr. Joseph Makumi

Dr. Makumi's report concentrated on KETRI's activities on tsetse control. He highlighted some of the results achieved by KETRI. These include the establishment of an entomology unit at Alupe in Western Kenya and the initiation of a project to manage tsetse and trypanosomiasis by dipping livestock in *Deltamethrin*. This a collaborative effort between KETRI, MALDM and Coopers Kenya Ltd. Another achievement of KETRI is the initiation of a project to determine the social factors and practices associated with the movement of livestock in the spread of disease. Dr. Makumi added that results of this project indicate that livestock trade play an important role in disease transmission. A community based tsetse control program has thus been initiated as a collaborative effort between GTZ, TDP, MALDM and KETRI. He reported that a collaborative study between KETRI, ILRI and the University of Glasgow, funded by EU has been carried out and a tsetse and trypanosomiasis database has been established at KETRI. A community outreach program has also been established.

Report of ILRI - Dr. Robin Reid

Dr. Robin Reid gave an overview of research on tsetse and trypanosomiasis at ILRI. She stated that ILRI collaborates with various partners in these research activities. A client-focused orientation is being adopted by ILRI. Decision support systems research is a new area in which ILRI is getting into. She highlighted the land use and environment research activities which she leads at ILRI. Most research projects are jointly funded and implemented. Also, some activities are carried out using ILRI's core funding such as GIS modelling. Research on land use and environment has an effect both on humans and animals. As farm systems intensify after tsetse control, there is an increase in total species population but diversity of species declines. The main message on land use and environment research is that interventions have to be done sooner for the benefit of present and future generations.

Report of ICIPE - Dr. A. J. van der Zipp, Deputy Director ICIPE and Dr. Saini

Dr. Zipp introduced ICIPE's activities. She stated that ICIPE was created 27 years ago as an African initiative unlike other international organizations. ICIPE has 40 scientists and is funded by a number of donors. About 75% of ICIPE's budget is utilised for human and animal health. A multidisciplinary and collaborative approach is used at ICIPE. Dr. Saini then presented the tsetse control activities being carried out by ICIPE through a tsetse mega project. He presented some of the results of the EU funded tsetse projects at ICIPE including training of 66 technicians from Africa on integrated pest management, 5 post-doctoral, 4 Ph. Ds and more than 500 farmers. He also outlined the achievements of the Austrian funded project. ICIPE has comparative advantage in development of integrated

vector control technologies, socio-economics research and has considerable experience in capacity building at all levels of society. These strengths can be used in regional projects as well as supporting services. Against this background, Dr. Saini presented a number of priority projects for ICIPE which included among others, the management of tsetse in riverine areas, socio-economics research, development of land-use planning models and capacity building for tsetse control. ICIPE is collaborating with CIRDES in West Africa, RTTCP in Southern Africa as well countries in East Africa. Currently, a wide ranging collaborative agreement is being negotiated with ASARECA.

FOCUSED GROUP DISCUSSIONS - CHAIRMAN: Dr. Lonzy Ojok assisted by Dr. G.N. Mwongela

The secretariat proposed the following groups for discussions and formulation of recommendations:

Group 1	Human Trypanosomiasis - Chairman: Dr. Ndung'u
Group 2	Animal Trypanosomiasis - Chairman: Dr. Kansiime
Group 3	Entomology and vector control - Chairman: Dr. Kangwagye
Group 4	Socio-economics - Chairman: Dr. Robin Reid

The discussions by the focused groups led to the following recommendations:

GROUP I: HUMAN TRYPOANOSOMOSIS

- Noting that CATT is only a screeining test it is recommended that HCT (not less than six capillaries) should be used for both CATT+ve and clinically suspected CATT-ve.

- To complement the existing screening test it is recommended that other screening tests (e.g. CIATT) should be validated for use as soon as possible

- Noting the high level of drug failure leading to relapses, it is recommended that the causes of this drug failure should be *URGENTLY* investigated

- Noting that Melarsoprol is not easily available from the manufacturers, it is recommended that the World Health Organization should facilitate its production and intensify the search for alternative drugs.

- Having observed an increase in the number of sleeping sickness cases in the region and complications arising therefrom, it is recommended that member Governments should increase funding for sleeping sickness control activities

- Noting the resurgence and high costs of suppressing sleeping sickness epidemics, it is recommended that an early warning system should be established for detecting potential sleeping sickness outbreaks.

GROUP II: ANIMAL TRYPANOSOMOSIS

- Scientific evidence that non-target organizations are developing tolerance to synthetic *pyrethroids* is needed urgently, and the Commissioner of Veterinary Services of Tanzania should ensure this is determined. The possibility that certain pour-ons (insecticides) could be selective on certain tsetse species also needs to be investigated

- On capacity and training on GIS, OAU/IBAR is requested to avail resources for training in institutions in the region (e.g. ILRI, ICIPE and KETRI) which are using GIS on a routine basis

- On validation of diagnostic techniques, research institutes in the region are doing so and are encouraged to continue

- On epidemiological studies and barrier systems being created in control areas, this is going on in project areas. However, when animals are moving out of such areas, livestock movement regulations governing prophylaxis and application of insecticides should be enforced

- On eradication of isolated populations of tsetse, activities are on-going on Buvuma island which will provide very useful experience to compare with Zanzibar

- On appropriate communication manuals, the efforts of KETRI and LIRI are recognized. There is however, need for such manuals to be exchanged and harmonized so that the same message is delivered

- Due to the current trend towards liberalization, the procurement and use of typanocides have disappeared, leading to their inappropriate use. The laws that govern and regulate the use of such veterinary drugs are in existence, it is recommended that they be enforced

GROUP III: ENTOMOLOGY AND VECTOR CONTROL

- Recognizing that each country in the focal area has different tsetse species involved in transmission of disease, the action plans should take into consideration the need for emergency action and sustainable control measures in liaison with the Regional Coordination Office

- Noting with concern the lapse of time since the FITCA project was initiated, re-examination and evaluation of control strategies should be undertaken following the regional and national priorities in view of continuous innovations

- Taking into account the research undertakings on application of synthetic *pyrethroids*, baseline data is required on responses of tsetse and other biting flies as well as any spin-offs in other vectors of diseases of medical and veterinary importance

- Following the publicity of the grave trypoanosomosis situation in Southern Sudan and the low response to alleviate the situation, OAU/BAR should approach the donors and the NGOs who have contacts with Sudan to negotiate initiation of appropriate emergency control measures against the vectors of the disease.

GROUP IV: SOCIO-ECONOMICS, LAND-USE AND ENVIRONMENT

- The economic costs of trypanosomosis and its control should be assessed so that the investment in control can be justified

- At the beginning of the FITCA project, different options for land use after tsetse contol need to be identified and their costs and benefits should be measured in economic, social and environmental terms. This will form the baseline for measuring the impacts of the control programme

- Its is recognized that the security of land tenure is crucial to the sustainability of land use after tsetse control. It is therefore recommended that the FITCA project liaise with relevant authorities and communities to improve access and use of land and other natural resources

- Zanzibar is a current case study of tsetse eradicated land. If additional funds become available, the FITCA project should assist Zanzibar authorities to develop plans for sustainable rural development and to study the impacts of their control programme

- In order for FITCA to realize its full potential, relevant infrastructure and marketing facilities should be given priority by the concerned authorities

- The FITCA project should assess the impacts of tsetse control on land use and natural resources. In turn, the project should assess the impacts of changes in land use and natural resources on household economies and human welfare

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13TH EAST AFRICAN COORDINATION MEETING ON FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA
7-8 MAY, 1997, KAMPALA, UGANDA

OPENING CEREMONY

- Introductory remarks by Master of Ceremony
- Speech by the EU Representative
- Statement by the Head of Kenya Delegation
- Statement by the Head of Tanzania Delegation
- Speech by the Director of OAU/IBAR
- Opening Address by the Guest of Honour
- C o f f e e

ORGANIZATION OF AFRICAN UNITY
Interafrican Bureau for
Animal Resources

OAU/IBAR

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PROVISIONAL AGENDA

13TH EAST AFRICAN COORDINATION MEETING ON FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA
7-8 May, 1997

Thursday

8.30 - 9.30	Registration
9.30 - 10.00	Opening Ceremony
	- Speech by EU Delegate
	- Speech by Director of IBAR
	- Opening address by the Guest of Honour
10.00 - 10.30	Coffee Break
10.30 - 11.30	- Election of Bureau
	- Adoption of Agenda
	- Confirmation of Minutes of the 12th Meeting
	- Matters Arising from Previous Meeting
	- Report by Secretariat
	- Discussions
11.30 - 12.30	Country Reports
	- Uganda
	- Kenya
	- Tanzania
12.30 - 13.00	Discussions

14.30 - 15.00	Human Sleeping Sickness
15.00 - 15.30	Recommendations of the 24th ISCTRC Conference, Maputo
15.30 - 16.00	Report from FAO
16.00 - 16.30	Coffee Break
16.30 - 17.00	Report by KETRI
17.00 - 17.30	Report by ILRI
17.30 - 18.00	Report by ICIPE
18.00 - 18.30	Discussions
19.00 - 21.00	Reception

Friday

8.30 - 10.00	Group Discussions
	Group I: Human Trypanosomiasis
	Group II: Animal Trypanosomiasis
	Group III: Entomology & Vector Control
	Group IV: Socio-economics & Land Use
10.00 - 10.30	Coffee Break
10.30 - 11.30	Presentation of Group Discussions
11.30 - 13.00	General Discussions
13.00 - 14.00	Lunch Break
14.00 - 17.00	Field Trip
17.00 - 18.30	Adoption of Recommendations

SPEECH BY THE HEAD OF DELEGATION OF THE EUROPEAN COMMISSION IN UGANDA TO THE 13TH COORDINATION MEETING ON "FARMING IN TSETSE CONTROL AREAS OF EASTERN AFRICA" AT GRAND IMPERIAL HOTEL, KAMPALA, UGANDA, 7-8TH MAY 1998.

Your excellency the Vice President and Minister of Agriculture, Animal Industry and Fisheries of the Republic of Uganda,
Honourable Assistant Minister of Agriculture, Livestock Development and Marketing of the Republic of Kenya,
Honourable Ministers from Uganda,
Head of Tanzania Delegation,
Director OAU/IBAR,
Resident District Commissioner, Kampala,
Delegates,
Invited Guests,
Ladies and Gentlemen.

It gives me much pleasure to be with you this morning at the opening ceremony of the 13th Coordination Meeting on "**Farming in Tsetse Control Areas of Eastern Africa**" programme.

Tsetse and trypanosomiasis in Africa in general and the Eastern Africa region in particular have continued to hinder the full utilization of the agricultural potential in areas affected by this problem. This has contributed to the aggravation of the poverty situation among the rural communities where the problem is most prominently manifested.

The governments in the region, with assistance from donors, have for a long time been trying to bring this menace under control but these efforts have not been very successful. For instance, in Uganda, the government with the assistance from the European Union has been fighting this problem in South Eastern Uganda and North and North Western Uganda since 1987. The sleeping sickness situation in South Eastern Uganda has almost been brought under control but that in North and North Western Uganda is still far from being solved.

On the other hand, the tsetse fly and animal trypanosomiasis problems have not shown corresponding reductions despite the implementation of intensive control activities in the affected areas.

To achieve an effective and sustainable tsetse and trypanosomiasis control programme, national governments in the region and the donor communities realised that a regional approach and better still a continental approach was necessary and inevitable. It was in light of the above that the countries in the region formulated project proposals to be implemented in eight Eastern Africa countries namely: Kenya, Ethiopia, Tanzania, Uganda, Rwanda, Burundi, Somalia and Sudan with OAU/IBAR as the Regional Coordinating Unit.

The project proposals were received by Brussels some time back and I am happy to inform you that the proposals for Kenya, Ethiopia, Uganda and the Coordinating Unit were accepted and funding agreements signed in March 1997. The European Commission has initially approved 20 million ECU as a grant to fund the project. The funds are broken up as follows: Kenya project 4.6 million ECU, Ethiopia 5.6 million ECU, Uganda 4.8 million ECU and the Regional Coordinating Unit 5 million ECU. Tender dossiers for the provision of Technical Assistance to the various country projects have been written and submitted to the European Commission headquarters in Brussels where they are being processed.

Sustainability of control activities has been one of the major problems faced by tsetse and trypanosomiasis control programmes. I am happy to note that this issue has been ably addressed by the countries which are emphasizing community involvement and participation in the tsetse and trypanosomiasis control activities, the proper utilization of the land reclaimed from tsetse infestation, and the greater involvement of women who form a big percentage of the agricultural workforce in the region.

I am aware that all of you are eagerly waiting to hear when the actual project implementation will start. To this I say that the process from the initial project document submission to when funds are released takes quite some time but all efforts are being made to expeditiously speed up the process. In the meantime, Uganda has received from the European Union delegation in Kampala three advances from the Structural Adjustment Support Programme

funds to support tsetse and trypanosomiasis control in South Eastern Uganda. The Sleeping Sickness Control Programme in North and North Western Uganda is currently receiving funding from the European Commission. The documents for funding the tsetse fly control in North and North Western Uganda are currently being processed for funding.

Your Excellency, Honourable Ministers, ladies and gentlemen, the commitment of the European Union towards supporting rural development in the rural community is undisputable and will continue.

Thank you for your indulgence.

2ADDRESS BY DR. W.N. MASIGA, DIRECTOR, OAU/IBAR DURING THE 13TH MEETING OF THE PROJECT FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA

Kampala, Uganda, 7 - 8 May, 1998

Hon. Minister for Agriculture, Animal Industry and Fisheries of the Republic of Uganda

Hon. Assistant Minister for Agriculture of the Government of Kenya

The Head of the Tanzania Delegation

The Head of the Delegation of the European Communities in Uganda

My Colleagues, Ladies and Gentlemen

It is with great honour that on behalf of the Secretary General of the Organization of African Unity (OAU) His Excellency, Dr. Salim Ahmed Salim, I welcome you all to this 13th Meeting of Farming in Tsetse Control Areas Project for Eastern Africa, being held here in the beautiful city of Kampala. Dr. Salim has requested me to convey his greetings and best wishes to His Excellency, President Yoweri Kaguta Museveni, the Government and the people of Uganda, and to you Honourable Ministers and your delegations attending this meeting.

Mr. Minister, Africa continues to be plagued with food shortages; which are partly attributed, by some, to lack of adequate attention to agriculture and, by others, to the devastating drought or to natural calamities and disasters. On the other hand, the human population of the continent is growing at an alarming rate of 3% per year, while food production remains at 2%. It has been projected that human population of sub-saharan Africa will be more than 1 billion by the year 2025. To feed these people an estimated 19 million tons of meat and 43 million tons of milk will be needed per year. In order to achieve food self-sufficiency and food security at household level in the continent, we should endeavour to achieve an annual agricultural growth rate of 4%. It is therefore important that the priorities of the continent must be determined now and not tomorrow. As agriculture is the main stay of the economies of most of OAU member states it should surely be accorded the highest priority in our national development plans.

In this regard, the use of the available land must be carefully planned, and where possible the eco-systems and soils determined for appropriate agricultural activities.

Mr. Minister, ladies and gentlemen, trypanosomiasis constitutes a serious constraint to livestock development in Africa, slowing down the socio-economic development of our continent. The human disease sleeping sickness is spreading at an alarming rate in Africa and especially in 'Central Africa'. To overcome the disease we need to re-reflect over the management of the

Mr. Minister, ladies and gentlemen, the Organization of African Unity pays much attention to the question of inter-regional co-ordination of the control of diseases of trans-boundary nature. It should however, be emphasized that we in the OAU promote national implementation of such programmes and the building of national capacities. We discourage competition and rivalry, rather, we promote harmony and smooth implementation of the programmes for the benefit of our people. In this regard, may we take this opportunity to thank our collaborators, the FAO, WHO, ILRI, ICIPE and others for their support and for being able to attend this meeting.

Mr. Minister, at the recent meeting of Ministers Responsible for Animal Resources in Africa held in Mbabane, Swaziland in August last year, the question of tsetse and trypanosomiasis control was extensively discussed. May I at this juncture, express on behalf of the Secretary General of the OAU, our gratitude to the European Commission for supporting livestock development in Africa and in particular for the project "Farming in Tsetse Control Areas of Africa".

As you are aware Honourable Ministers, my colleagues, ladies and gentlemen the Financing Agreement for the project was signed between the OAU and the European Commission in January, 1997.

The launching of the East African programme has unfortunately been delayed for reasons beyond our control. I am pleased however, to inform this meeting that Tender Documents for Kenyan and Ugandan Projects and for the Coordination Unit in Nairobi are ready and Tenders will be floated before the end of May, 1998.

In conclusion Honourable Ministers, my colleagues, ladies and gentlemen, my message to this meeting will be incomplete if I fail to express on behalf of the OAU and the delegates gathered here our sincere gratitude to you Mr. Minister for being present with us here, this morning, and for officially opening our meeting.

Finally, Mheshimiwa, may I once again thank your Government for accepting to host this meeting, for the excelent facilties placed at our disposal and the Local Organizing Committee for a job well done. I believe that this large attendance is a true manifestation of our confidence in Uganda, the pearl of Africa and our commitment to approach the problem of trypanosomiasis control on regional basis.

I wish you successful deliberations.

SPEECH BY H.E. VICE PRESIDENT AND MINISTER OF AGRICULTURE, ANIMAL INDUSTRY & FISHERIES AT THE OPENING CEREMONY OF THE 13TH COORDINATION MEETING ON "FARMING IN TSETSE CONTROL AREAS OF EASTERN AFRICA" AT GRAND IMPERIAL HOTEL, KAMPALA, UGANDA, 7-8TH MAY,1998.

The Honourable Assistant Minister for Agriculture, Livestock Development and Marketing of the Republic of Kenya,
Your Excellency, the Head of the delegation of the European Commission in Uganda.
Director OAU/IBAR,
Leader of Tanzania delegation,
Distinguished delegates,
Invited Guests,
Ladies and Gentlemen.

It is with great pleasure and honour, on behalf of the Government of the Republic of Uganda, the Ugandan people and on my own behalf, that I welcome you to this 13th Coordinating meeting on "**Farming in Tsetse Control Areas of Eastern Africa**".

Tsetse and trypanosomiasis have had a negative impact on food production in Uganda and the African Continent as a whole. As of now, tsetse and trypanosomiasis remain one of the most serious constraints to livestock development not only in Uganda but in the whole of the Eastern Africa region hampering the socio-economic development of our region. Sleeping sickness has had devastating effects on the populations causing high morbidity and mortality with consequent loss of manpower which would otherwise be involved in productive economic activities. The human population is growing but there is no corresponding growth in food production for self sufficiency and excess for sale.

Tsetse and trypanosomiasis among others have been identified as a major constraint to the full realization of the agricultural potential and as a result the current agricultural output in Uganda is only US $ 390 per rural household and government has targeted to raise this to at least US $ 1000 by the year 2001. To achieve the above objective, the government of Uganda has put in place a strategy/mechanism for modernising agriculture as an option to

eradicate poverty among the rural population. It is in respect of the above that government has accorded the agricultural sector the priority it deserves and tsetse and trypanosomiasis is given high priority in the public expenditure rationalization programme.

I am aware that the first coordination meeting was held in Tororo, Uganda and Busia, Kenya on the same day in November 1990 between Kenya and Uganda. The emphasis then and in the subsequent meetings was geared towards the control of the sleeping sickness epidemic along the common border. I have further been reliably informed that the field operatives working in the border districts have harmonized their work plans and activities through regular meetings and exchange of information. This has led to effective and efficient implementation of control activities. The field technocrats are effecting control activities with the help of community participation. This is essential for the sustainability of the programme. These efforts are highly commendable and they should be intensified to obtain even better results.

In Uganda, the main thrust in tsetse and trypanosomiasis control has largely been directed towards controlling epidemics of sleeping sickness. In North and North Western Uganda, the sleeping sickness epidemic is being tackled through the Non-Governmental Organization sector in collaboration with the National Sleeping Sickness Control Programme of the Ministry of Health. Although outbreaks of the disease have been identified in a few areas in South Eastern Uganda, generally the disease situation has become endemic. It is therefore timely that the much awaited "Farming in Tsetse Control Areas of Eastern Africa" programme, should address and emphasize animal trypanosomiasis control for improved and increased livestock production and productivity for the provision of the badly needed animal protein for the human population, provision of draught power with the attendant increased animal and crop production as well as incomes accruing from the sales of animal and animal by-products thereby leading to increased incomes of the farmers in the rural community.

This meeting will be receiving and discussing in due course reports emanating from the recommendations of the 12th meeting held in Eldoret, Kenya, March 1997. It is my sincere hope that the reports will highlight the achievements made by each member state in implementing those recommendations. I have been informed that Uganda has gone a long way in implementing most of the recommendations.

The "Farming in Tsetse Control Areas of Eastern Africa" programme has been on paper for a long time. This is the time that implementation of the project activities should get underway and in this meeting we shall be appraised of the progress so far made towards achieving this noble goal.

In this regard, let me register my Country's appreciation for the tireless efforts put in by the OAU/IBAR Secretariat in the preparation and the follow up of the project document to where it is now. Let me take this opportunity to thank Kenya, Ethiopia and Uganda whose documents have been approved and funds committed by the European Union in taking a lead in the realization of this regional programme. I call upon Tanzania, whose documents are still being fine-tuned to speed up the pace so that implementation of the activities does not lag too far behind.

At this juncture I wish to convey the gratitude and appreciation of the government of Uganda in particular and the Eastern Africa region in general to the European Union for approving an initial 20 million ECU as a grant to fund the "Farming in Tsetse Control Areas of Eastern Africa" in Kenya, Ethiopia and Uganda. The European Union has been associated with many projects aimed at improving the socio-economic welfare of the rural community by addressing rural development and therefore has been a partner in the concerted fight to eradicate poverty among our rural population. The implementation of the "Farming in tsetse control areas of Eastern Africa" programme will go a long way in contributing towards the eradication of poverty in Uganda.

I would like to extend my sincere thanks to the governments and institutions that have enabled the delegates to come and attend this meeting. Let me wish you fruitful deliberations and a nice and comfortable stay in Uganda. Please take time off after the meeting to tour the countryside and witness the beauty and development that has been ushered in by the movement government.

Ladies and gentlemen,

I now have the pleasure and honour to declare the 13th Coordination meeting on "Farming in Tsetse Control Areas of Eastern Africa" Open.

SPEECH BY

DR. SOLOMON HAILE MARIAM, CHIEF LIVESTOCK PROJECTS OFFICER

DURING THE 13TH EAST AFRICAN COORDINATION MEETING ON FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA : 7-8 MAY, 1997
KAMPALA, UGANDA

Honourable Ministers
Distinguished Delegates
Ladies and Gentlemen

It is indeed a great pleasure for me today to present to you distinguished guests the activity report of the Secretariat during the last 12 months.

At the outset, I am very happy to note that the previous 12 meetings of the FITCA Ministerial Steering Committee have been very much instrumental for consolidating the much needed cooperation among the East African countries in the area of tsetse and trypanosomiasis control.

Today, we are honoured to welcome once again the high level dignitaries from Uganda, Kenya and Tanzania leading a sizable number of participants from their respective countries.

I also wish to extend a warm welcome to all our partners from the International and Regional Organizations, namely: - EC, FAO, WHO, ILRI, ICIPE and others who are not represented here today. Let me also welcome the various pharmaceutical companies and NGO's who continue to play an important role in the control of human and animal trypanosomiasis in our region.

Ladies and gentlemen

The presence of tsetse flies in large parts of Africa remains a major impediment to the realization of improved food security in the context of sustainable rural development.

In spite of so much resource and inputs invested on the problem, trypanosomiasis remains endemic in 37 African countries and covers a third of Africa's most arable land.

During the last 12 months years some parts of Africa sustained satisfactorily in terms of tsetse control while the majority indicated set backs. It is especially alarming to note that recently a resurgence of sleeping sickness has been observed in our region.

The main objective of the 13th East African tsetse and trypanosomiasis Coordination Meeting is to learn from the past, review the present, and jointly plan regional strategies for the future, looking for sustainable, appropriate and lasting solutions.

The recent 5th OAU Conference on Livestock Development held in Mbabane, Swaziland from 4 - 8 August, 1997 was attended by Ministers and Directors from 44 OAU member states. The conference recognized the need to mount a continental approach to control trypanosomiasis in order to increase animal productivity and

In this regard, the Ministers noted that many previous control operations have failed because of poor coordination and once again, called upon the OAU to undertake the leading role in alleviating the problem of African Trypanosomiasis on a Pan-african level.

At this juncture may I kindly inform you that RITCP and FITCA project will address the East and Southern African region while the project for 13 West and Central African countries is almost finalized and financial commitments are under consideration. We believe that the 3 regional projects must be harmonized.

The Progress on FITCA Project Implementation is reported in my Director's opening speech. It is noted that a project of this magnitude will have to pass some 20 steps before implementation.

During the last 12 months tremendous efforts have been made to go through these bureaucratic steps. However, we are almost at the end of the tunnel. We hope that the project will be administratively established before the end of the year.

I wish to report that the Tanzanian project has been prepared by consultants in close cooperation with the Tanzanian Government and the OAU/IBAR office. The official request to finance the project has been submitted by the Government of Tanzania to EU and decisions are awaited.

The Ethiopian FITCA project had to be revised 3 times during the last 12 months and this exercise has delayed the preparation of the Tender Document for Ethiopia.

The Ethiopian Government in Cooperation with IAEA is on the process of implementing a tsetse eradication project on a 20,000 km2 land in the Southern Rift Valley. The project is intending to suppress the fly population by up-to 95% using community participation and conventional methods and for mopping up the Government has decided to use the SIT Technology. However, the next 2 years will be for feasibility study to assess the viability and financial implication of the programme.

Honourable Ministers
Distinguished Delegates
Ladies and Gentlemen

Most of your recommendations from the 12th Steering Committee Meeting of FITCA held in March, 1997 were not implemented as expected because the majority of these recommendations had financial implications tied up to the FITCA project. However, efforts will be made to implement them as soon as project finance is made available.

May I now focus your attention to the most important achievement during the last 12 months. The 24th ISCTRC conference which was held from 29 September - 3 October, 1997 in Maputo was very successful. This conference was attended by about 284 scientists working on human and animal trypanosomiasis on a global level. Some 120 research papers were discussed based on oral and posters presentations.

I am proud to report that more than 40% of the research papers were presented from the East African region mostly by KETRI, NARO, ILRI, ICIPE, and TTRI of the Tanzania Research Institution.

A Training Workshop was organized for about 20 participants from 22-28 September, 1997 in Maputo, Mozambique. 12 East and Southern African countries sent senior Project Managers to attend a Project Management, Monitoring and Evaluation Course. Participants from Kenya, Ethiopia, Sudan, Tanzania and Uganda benefitted from this programme. It is anticipated that the participants of this course will be involved in the management of the FITCA project in their countries.

The 24th ISCTRC Conference also commended OAU/IBAR for the good job done and called upon the OAU/IBAR Secretariat to celebrate the 50th Anniversary of the establishment of ISCTRC with a special ceremony. Kenya and Ethiopia have been chosen as possible venues for the 25th ISCTRC Conference. I wish to call upon all neighbouring countries and international organizations in East Africa to contribute towards the success of The Golden Anniversary of ISCTRC.

The recommendations of the 24th ISCTRC conference will be presented very briefly during this meeting for your kind information and follow-up.

Another historical event in our region was the eradication of tsetse fly from the Island of Zanzibar. An international expertise group in which I was involved was sent to Zanzibar to verify the results. A report will be presented under the Tanzania Country Report.

Honourble Ministers
Distinguished Guests
Ladies and Gentlemen

The cooperation of the OAU/IBAR Secretariat with National and International Organizations during the past year has been satisfactory. During the year we have been liaising very closely with PAAT, ILRI, ICIPE, FAO, WHO, IAEA and others.

A new development in our region which is going to be a focal point of discussion this year is the outbreak of sleeping sickness in Southern Sudan.

We have invited a representative of the International Medical Corps, an NGO working in this area to give us an up-date of the situation. I believe that the international community and especially the neighbouring countries, will join hands to stop the spread of this disease from the endemic foci in Southern Sudan.

Finally, on behalf of the OAU Secretariat I wish to thank the Ugandan Government for hosting this important meeting which we all believe that the recommendations coming out of it will have great significance in strengthening the national and international commitment among all the stake holders.

May I also thank the Uganda Department of Animal Resources, the Director and staff of COCTU for being very supportive and cooperative. Special thanks to the EU for committing financial support to materialize our regional programmes

I also wish to thank the Veterinary Departments of the governments of Ethiopia, Kenya, Tanzania, and Uganda for the good working relationship which they have jointly established. Many thanks also to all the international organizations including FAO, WHO, IAEA, ICIPE, ILRI and the others, for their continued support to OAU/IBAR.

I believe that the outcome of the 13th FTTCA meeting will be an additional milestone in our complex journey to challenge the trait of tsetse and trypanosomiasis in our region.

Thank you.

SECRETARIAT'S REPORT FOR THE 12TH MINISTERIAL MEETING ON FARMING IN TSETSE CONTROL AREAS OF EASTERN AFRICA

Eldoret, Kenya 11-13 March, 1997

Your Excellencies
Distinguished Delegates
Ladies and Gentlemen

It is my pleasure to report to this important meeting the activities of the Secretariat during the last 6 months.

It is important to note that since the early 1940's the OAU/IBAR has been instrumental for organizing various types of conferences, workshops, seminars for scientists and technicians, politicians, the International Organizations and the Donor Community to discuss the problem of tsetse and trypanosomiasis, both in man and animals. In the broader context of Food Security, Health Rural Development and Sustainable Agriculture.

For the last century large areas of fertile land remained infested with the tsetse flies and man and animal has continued to suffer. In spite of so many scientific and research work done in this field, very little has been achieved in solving the problem.

As you are aware OAU/IBAR as the headquarters for the Secretariat of ISCTRC has played a key role in the past 50 years particularly in facilitating contacts with African Governments in an advisory capacity and in dissemination of information. However, it was only during the last few years that IBAR was actively involved in implementing regional projects in the area of tsetse and trypanosomiasis control.

In this regard, I am happy to report that the Financing Agreement for the Farming in Tsetse Control Areas of Eastern Africa Project covering the 4 East African countries has been signed and the administrative establishment of the project will materialize in the next few months.

This important Regional Project is also involving ICIPE and ILRI in the area of research, socio-economic, land use and environmental issues thus consolidating the cooperation among International Organizations, the four benefitting countries and the OAU/IBAR. May I take this opportunity to thank the EU Delegation for availing 25 million ECU for this programme.

Your Excellencies,
Distinguished Delegates
Ladies and Gentlemen

The task of controlling/eradicating tsetse and trypanosomiasis from our region is very complex and needs a large amount of financial inputs, commitments from Governments, additional research, capacity building, technology transfer etc. All these components need long term planning for implementation.

I believe that so far we have gone together a long way in the right direction.

One of the testimony is this biannual regional meeting among the four sister countries of Kenya, Uganda, Tanzania and Ethiopia. It is very encouraging for our secretariat to get so much cooperation and support from your countries to enhance operation oriented activities which will benefit the farmers directly.

May I now report to you the follow-up we have made from the recommendations of the last meeting:

Recommendation No 1 - was appealing to the 4 member states to continue giving their support including the participation of Ministers in future meetings. May I thank the Government of Kenya and Uganda for sending their Ministers and Permanent Secretaries. We hope that the Ministers from Ethiopia and Tanzania will attend our future meetings.

Recommendations No.2 - Interministerial Committees have been in place in Uganda for a long time. In Kenya a National Steering Committee involving various Ministries and concerned International Organizations has been established in January/February, 1997. The report will be presented by the Kenya Delegation.

In Ethiopia we discussed in November, 1996 with the Vice Minister of Agriculture, Ethiopia the need of establishing such an Interministerial Committee and they are considering the proposal.

Since the project has not yet been formulated in Tanzania this will be considered in the near future.

With regard to Recommendation 3 - concerning registration, management and use of synthetic pyrethroids and trypanocides in the region we shall be expecting a report from individual countries.

With regard to Recommendation No.4 - which requested IBAR to solicit funding for the 4 remaining countries in the region preliminary discussions have been made with EU on future funding and there are ample opportunities if the security situation permits implementation of such a project in these countries.

With regard to Recommendation No.5 - on the need to hold consultative meetings of Directors of Research for purposes of harmonizing research programme it was indicated that this will be carried out as soon as the project on Farming in Tsetse Control Areas is administratively established.

With regard to Recommendation No.6 - OAU/IBAR communicated with the medical group working in Southern Sudan/Zaire through UNICEF and some other NGO's. The report compiled by these organizations is very alarming. The statistics indicate that some 30,000 people are affected and individual treatments cost up to 600 US Dollars and because of high costs of treatment they have stopped treating patients against Human trypanosomiasis. In due course the OAU/IBAR will continue to raise the awareness in neighbouring countries. However, we invited M/s Micky Ritcher of UNICEF as a guest speaker this morning to give us a talk on the situation of human trypanosomiasis in Southern Sudan and Zaire.

As regards to the last Recommendation No.6 - One member state, Ethiopia will be launching a new project on by using SIT 20,000 hectares of land in Southern Ethiopia in cooperation with IAEA. It is expected that this project will be synchronized at the latter stage with the Farming in Tsetse Control Areas of Eastern Africa Project in Ethiopia to secure final eradication of the fly.

I am also happy to report to you that OAU/IBAR as the Secretariat of the ISCTRC is preparing the next prestigious 24th Conference of the Council in Maputo, between 29 September - 3rd October, 1997. More than 300 scientists will be invited to present papers on global activities of tsetse and trypanosomiasis control.

I hope that some of you have received our invitation for this meeting. One week before the Conference a Management training for young and senior tsetse and trypanosomiasis officers will be organized. This year because of lack of funding we have extended invitation only to East/Southern African countries and Kenya, Tanzania, Uganda and Ethiopia are included.

We hope that nominations for this training will come to our office in due course.

One other important news which should be mentioned in my report is the establishment of an International setup known as "The Programme Against African Trypanosomiasis (PAAT). OAU/IBAR in cooperation with FAO, WHO and IAEA have established the PAAT in order to "act together". The brochure on PAAT is enclosed in your folders. Please go through this phamphlet during the following 3 days and if you need additional information we shall be available to provide you.

Finally I wish to call upon all the participants of this meeting to more forward and enhance operational activities in our region.

I wish to thank the Government of Kenya and in particular H.E. the Minister, The Permanent Secretary and Director of Veterinary Services and all the staff of the Veterinary Services Department for their all sided support to make this meeting successful.

UGANDA COUNTRY REPORT

1.0 NATIONAL OVERVIEW.

Tsetse flies infest all the districts of Uganda in varying degrees ranging from high challenge areas to low challenge areas (Map.1). Several species of tsetse infest different areas of the country. The most wide spread species which is of great economic importance is the riverine *Glossina fuscipes fuscipes* (Map 2). This is the main vector responsible for the transmission of sleeping sickness and nagana in Uganda.

Sleeping sickness occurs in two major foci in Uganda (Map 3). In North and North Western Uganda, in the districts of Arua, Moyo, Adjumani and Gulu, the chronic form of the disease caused by *Trypanosoma brucei gambiense* occurs. In this region, an estimated 1,700,000 people are at risk of contracting the disease.

In South Eastern Uganda, the acute form of the disease caused by *Trypanosoma brucei rhodesiense* occurs. The estimated human population at risk is 2.4 million.

During this reporting period, a total of 1475 new cases of sleeping sickness were diagnosed and treated from the two foci of sleeping sickness in Uganda. One thousand one hundred and eighty eight (1,188) or 80.5% of the patients came from the North and North Western Uganda.

Animal trypanosomiasis has been reported from all the districts of Uganda. The distribution pattern of animal trypanosomiasis closely follows that of the tsetse fly infestation (Map 4). The predominant trypanosome species is *Trypanosoma vivax* followed by *Trypanosoma congolense* and lastly *Trypanosoma brucei*. However, *Trypanosoma brucei* is of great public health importance because it is potentially infective to man as well especially in South Eastern Uganda.

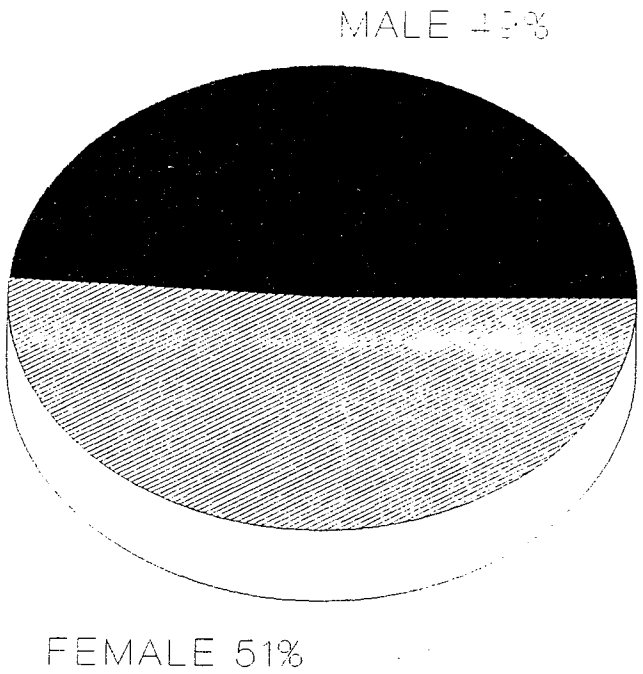
Tsetse control operations are based on the deployment of insecticide impregnated traps in North and North Western Uganda and South Eastern Uganda where over 9000 traps are deployed in the field. In Western and South Western Uganda tsetse control operations are based on the live bait technology. In Mid Central Uganda, tsetse control is mainly by deployment of traps and targets.

Comprehensive work in tsetse and trypanosomiasis control has mainly been geared at controlling the outbreak of sleeping sickness epidemics of *T.b.gambiense* in North and North Western Uganda and the *T.b.rhodesiense* in South Eastern Uganda.

This reporting period covers the period from March 1997 to March 1998.

The sleeping sickness situation in Uganda from March 1997 to March 1998 is shown in figures I and II.

FIGI. STRATIFICATION OF SLEEPING SICKNESS PATIENTS' IN UGANDA BY SEX, MARCH 1997- MARCH 1998.



FIGII. STRATIFICATION OF SLEEPING SICKNESS PATIENTS' IN UGANDA, BY STAGE OF THE DISEASE, MARCH 1997-MARCH 1998.

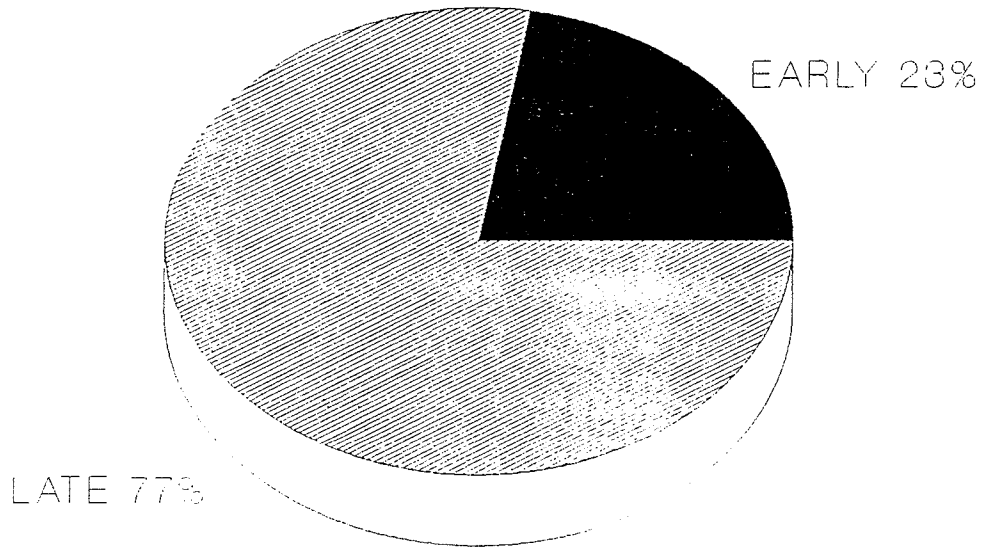


Figure I shows that 48% of the patients were males while 52% were females suggesting that males and females engage in similar activities that predispose them equally to contract the sleeping sickness disease.
Figure II shows that only 23% of the patients were diagnosed in the early stage of the disease. The reasons for detecting more late cases are:

i) Lack or inadequate community awareness about the signs and symptoms of sleeping sickness.
ii) The onset of *T.b.gambiense* is insidious and when this is coupled with inadequate or lack of awareness, the community's early recognition of the disease becomes even more difficult.
In *T.b.rhodesiense*, the pathogenesis of the disease progresses rapidly to involve the central nervous system.
iii) The health facilities which are specialized in the diagnosis and treatment of sleeping sickness are not easily accessible to the community.
iv) Many people still believe in witchcraft and therefore spend a lot of time before reporting to health units for diagnosis.

Of all the patients admitted during the period, 18.9% were re-admitted as relapses. This was experienced only in the *T.b.gambiense* foci in North and North Western Uganda. Two possible explanations have been advanced to explain the high relapse rate after treatment with melarsoprol. Firstly, that the parasites appear to be resistant to melarsoprol. Secondly the drug concentration in the cerebro-spinal fluid could be low and so does not reach the maximum inhibitory concentration to kill all the parasites circulating in the central nervous system.

The case fatality rate was 2.5%

ANIMAL TRYPANOSOMOSIS.

Most districts carried out animal trypanosomosis control by treating the livestock clinically suspected to have nagana with trypanocides.

During this reporting period, a total of 139,519 doses of Isometamedium chloride, 2146 doses of Homidium bromide and 53,841 doses of Diminazene aceturate were used.

Active and passive surveillance in South Eastern Uganda found an animal trypanosomiasis prevalence of 14%.

TSETSE CONTROL.

In South Eastern Uganda, tsetse control was achieved by deploying insecticide impregnated traps in the field. By the end of March 1998, there were 8783 traps in the field. The mean tsetse fly density was 0.07 equivalent to 95% reduction of the initial tsetse fly population.

In Mid-Central Uganda, has over 3000 traps and targets deployed in the field.

In North and North Western Uganda, 372 traps are deployed in the field which gave a mean tsetse fly density of 0.24.

2.0 PROJECT AREA.

The original cross border project area included only the sub-counties of Sigulu Island, Lumino, Buhehe, Masafu, Dabani, Busitema, Buteba, Osukuru, Kwapa, Butiru and Bugobero along the border districts of Bugiri, Busia, Tororo and Mbale in Uganda.(Map 5)

This report will however include the tsetse and trypanosomiasis control activities in the whole of South Eastern Uganda, the new area to be covered by Farming in Tsetse Control Areas of Eastern Africa programme. It is the considered opinion of Uganda that this will give a global picture of the actual tsetse and trypanosomiasis situation in the region rather than the confined.

The National Sleeping Sickness Control Programme (NSSCP) maintained both passive and active surveillance for sleeping sickness by using the Sleeping Sickness Assistants' (SSAs). The component also intensified the community meetings during which the population was educated and sensitized about tsetse and trypanosomiasis problem, the recognition of the signs and symptoms of the disease and the available facilities to diagnose and treat the sleeping sickness patients.

The Veterinary Department carried out active and passive surveillance as well as treating livestock for animal trypanosomiasis based on clinical suspicion.

The Entomology Department implemented tsetse control activities by deploying insecticide impregnated pyramidal traps in the field with limited application of the live bait technology.

The research team monitored the efficacy of the control activities as well as carrying out demand oriented research.

CONTROL ACTIVITIES:

Medical: The National Sleeping Sickness Control Programme carried out active and passive surveillance. This was achieved by equipping the sleeping sickness Assistants and the Sleeping Sickness Treatment Centres with the required supplies, equipment and drugs. It also conducted health education seminars/talks where community meetings were held. The Sleeping Sickness Assistants (SSAs') took blood smears from sleeping sickness suspects in the field for examination in the laboratories.

TARGET. To reduce the annual incidence rate of sleeping sickness to 3/100,000 in the population.

Veterinary: Animal trypanosomosis control was based on active and passive surveillance as well as treating livestock suspected to be suffering from nagana with trypanocides. The Haematocrit Centrifugation Technique was used in active surveillance while thick/thin blood smears was the method employed during passive surveillance. All the identified positive animals were treated using Diminazene aceturate at a dose of 7mg/kg body weight(bwt). However, if treatment was carried out for routine prophylaxis, Diminazene aceturate at a dose of 3.5mg/kg bwt or Isometamedium chloride at a dose of 1mg/kg bwt was used. Where the project provided the drug, treatment was free of charge otherwise treatment was on a cost recovery basis.

TARGET. To reduce the animal trypanosomosis prevalence to 5% or less.

Tsetse: Vector control was achieved by deploying deltamethrin impregnated pyramidal traps in the field. Implementation of the control strategy was with the help of community participation. A total of 294 people at the local community level were involved in tsetse control activities in the following areas: trap manufacture, trap impregnation, trap deployment and milking and maintenance. Some of the people above are members of the county and sub-county tsetse and trypanosomiasis control committees.

Target. To reduce the tsetse fly density by 95% of the initial population density and maintain it there.

RESULTS:

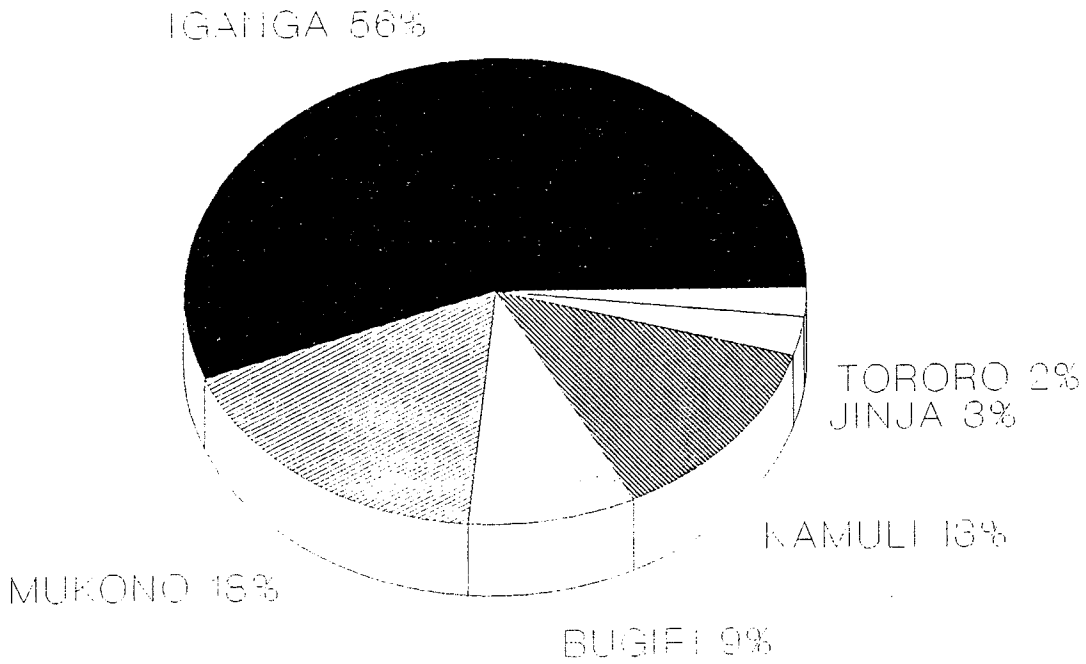
Sleeping sickness. During this reporting period, 299 new cases of sleeping sickness were diagnosed and treated from the project area. None came from the sub-counties along the Kenya - Uganda border.

The distribution of sleeping sickness patients by percentage detection from the districts in South Eastern Uganda is shown in figure III .

As can be seen from figure III, the highest percentage of patients came from Iganga district followed in a descending order by Mukono 18%, Kamuli 13%, Bugiri 9%, Jinja 3% and lastly Tororo 2%. However in terms of the gravity of the sleeping sickness,Iganga districts was the most affected district with an incidence rate of 30 per 100,000 population per year followed by Mukono 11/100,000, Bugiri 10/100,000, Kamuli 7/100,000, Jinja 3/100,000 and Tororo 2/100,000.

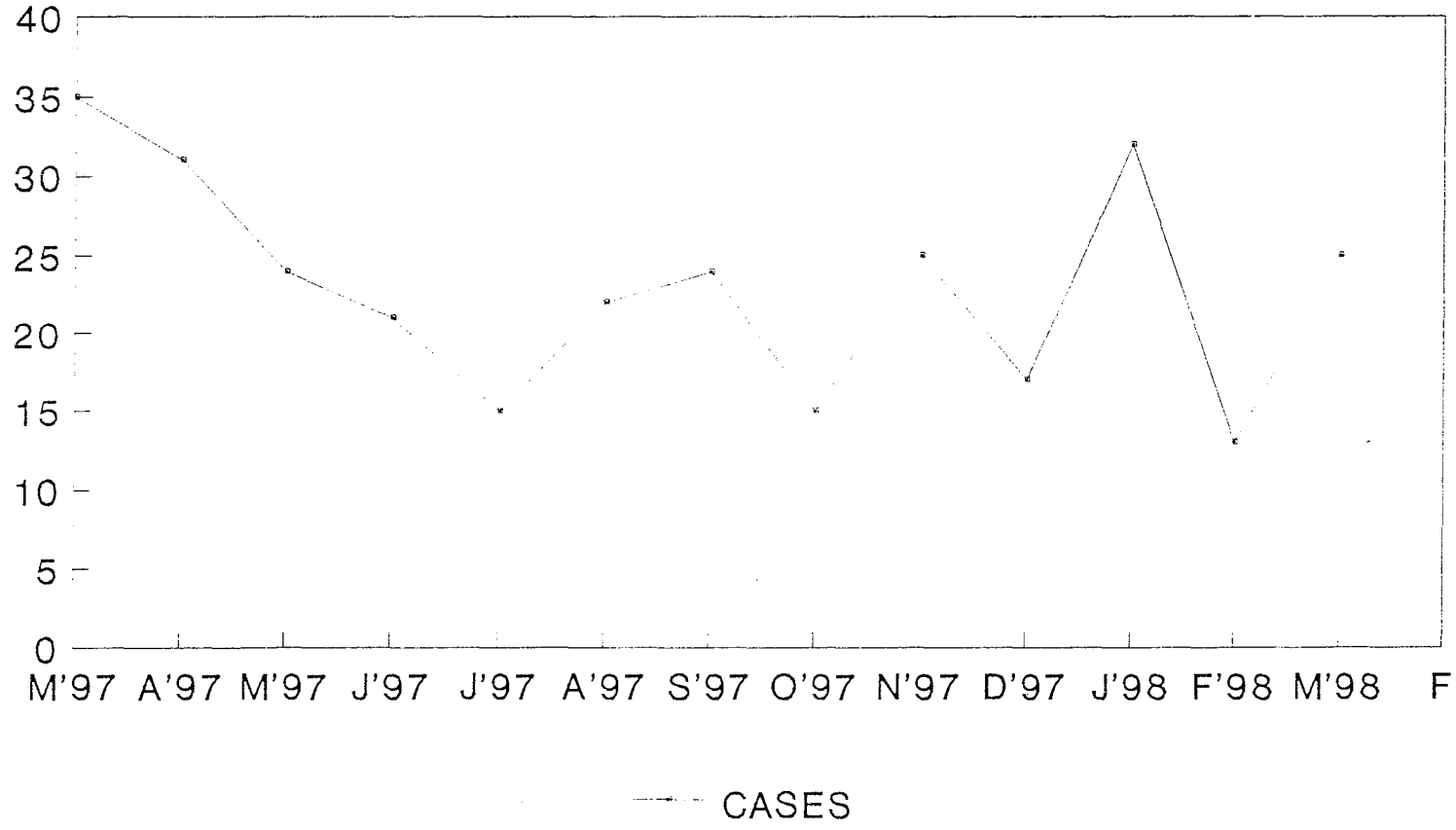
The project target of reducing the annual incidence of sleeping sickness to 3/100,000 was therefore achieved in Tororo, Jinja and Busia districts only.

FIG III. GEOGRAPHICAL DISTRIBUTION OF SS PATIENTS' FROM THE DISTRICTS IN THE S.E. UGANDA, MARCH 1997- MARCH 1998.

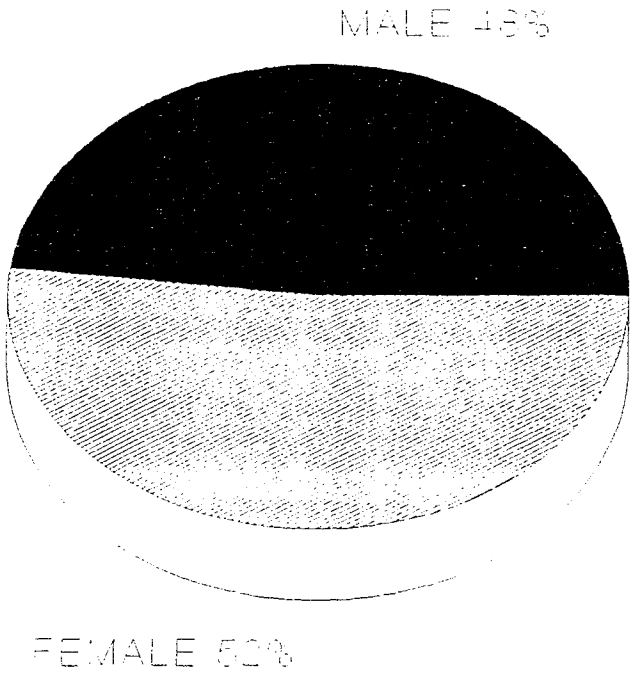


SS=SLEEPING SICKNESS
S.E.= SOUTH EASTERN

FIGIV. MONTHLY INCIDENCE OF SLEEPING SICKNESS FROM THE DISTRICTS IN SOUTH EASTERN UGANDA, MAR 1997-MAR 1998.



FIGV. STRATIFICATION OF SS PATIENTS' FROM S.E UGANDA BY SEX, MARCH 1997-MARCH 1998.



SS= SLEEPING SICKNESS
S.E= SOUTH EASTERN

Figure IV gives the monthly sleeping sickness incidence from South Eastern Uganda from March 1997 to March 1998 while figures V and VI give the sex and stage of the disease stratifications respectively.
Figure IV shows monthly patient detection variations and the could be attributed to:-
Level of activities carried during the month and localised outbreaks of the disease
Figure V shows that 48% of all the patients were male while 52% were female. This indicates that both sexes were equally exposed to the same predisposing factors to contract the disease.

Figure VI shows that 30% of the patients were detected in the early stage of the disease while 52% were in the late stage. The reasons advanced to explain this are:

i) *T.b.rhodesiense* advances rapidly to involve the central nervous system.
ii) Community awareness in areas of new disease outbreaks is either completely lacking or very inadequate.
iii) People still believe in witchcraft and therefore take long to report to health facilities.
iv) Some treatment centres are not within easy access to the affected people because they are very far.

The case fatality rate was 2.8% which fell within the expected range for *T.b.rhodesiense*.

SLEEPING SICKNESS ASSISTANTS' (SSAs') PERFORMANCE.

Home visits.

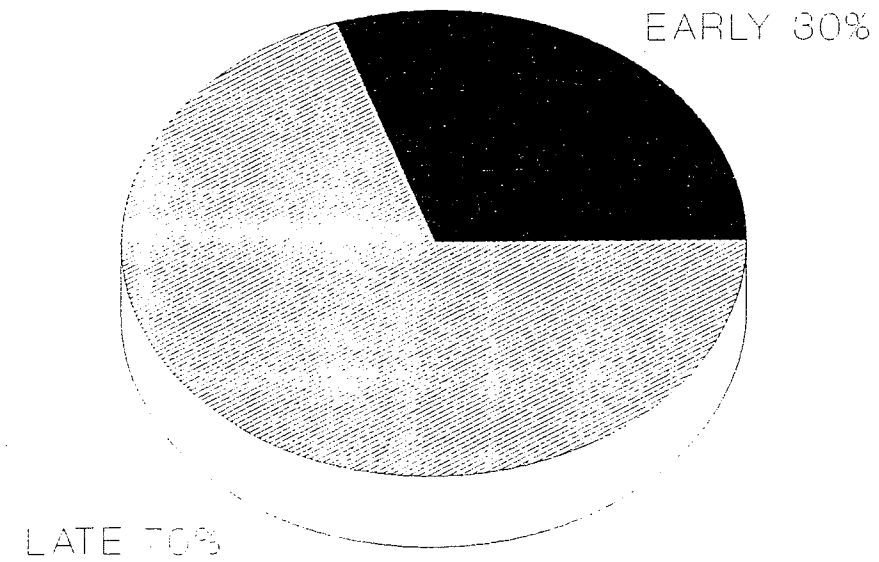
Ninety eight (98) Sleeping Sickness Assistants visited 46,789 homes and took 20,317 blood smears from people suspected to be suffering from sleeping sickness. Microscopic examination revealed 34 cases of trypanosomiasis while 11078 were positive for malaria parasites.

Community meetings.

The main objective of holding community meeting is to create community awareness on tsetse and trypanosomiasis, the recognition of the signs and symptoms of the disease, the available health facilities and methods to control both the fly and the disease. The avenue is also used to promote and encourage community involvement and participation in tsetse and trypanosomiasis control operations.

The Sleeping Sickness Assistants held ninety two community meetings during this period. The total attendance was 114,216 people. The medical personnel took 52,027 blood smears from people suspected to be suffering from sleeping sickness. Eleven cases of trypanosomiasis were detected while 21,787 smears were positive for malaria parasites.

FIGVI. STRATIFICATION OF SS PATIENTS' FROM S.E UGANDA BY STAGE OF THE DISEASE, MARCH 1997- MARCH 1998.



SS=SLEEPING SICKNESS, S.E=SOUTH EASTERN

ANIMAL TRYPANOSOMOSIS.

Routine Treatment: During the period under review, a total of 10,116 head of cattle, 298 goats, 15 sheep, 276 pigs and 160 dogs were treated with Diminazene aceturate while 11,807 head of cattle, 105 goats, 19 sheep were treated with Isometamedium chloride.

Active and passive surveillance: A total of 7124 livestock were presented during active and passive surveillance activities. Figure VII gives the prevalence of the trypanosome species detected from Marc 1997 to March 1998.

The overall animal trypanosomiasis prevalence was 14.2%. Figure VII shows that *T.vivax* was the dominant species detected accounting for 77% of all the positive livestock, followed by *T.congolense* and *T.brucei* at 10.%,each while mixed infection of *T.brucei* and *T.vivax* accounted for 2%.

The animal trypanosomiasis prevalence obtained was far beyond the target for the project area which is 5% or less.

Tsetse Control: By the end of March 1998, there were 8783 traps deployed in the field. The mean tsetse apparent density was 0.07. The details are shown in table I.

Table I. MEAN TRAP DEPLOYMENT AND MEAN TSETSE FLY APPARENT DENSITIES OBTAINED FROM DISTRICTS IN SOUTH EASTERN UGANDA MARCH,1997 - MARCH 1998.

DISTRICT	MEAN TRAP DEPLOYMENT	MEAN AD
Iganga	3700	0.02
Bugiri	650	0.02
Pallisa	100	0.21
Busia	280	0.05
Jinja	60	0.04
Mukono	620	0.1
Tororo	480	0.03
TOTAL	5870	0.467
MEAN FOR AREA	839	0.07

There was a wide variation in the trap distribution in the districts. The reason for this is that the trapping density has been closely linked with the magnitude of the disease.

3.0 MONITORING BY THE LIVESTOCK HEALTH RESEARCH INSTITUTE(LIRI).

LIRI research team composed of medical, veterinary and entomology section carried out monthly monitoring activities to ascertain the efficacy of control activities being implemented in their respective disciplines. In addition the Biochemistry/Protozoology section carried out work in North and North Western Uganda where a high refractory rate to melarsoprol was observed.

3.1 MEDICAL:

The section carried out mass surveys in the following counties in the project area:- Bugweri, Kigulu in Iganga district, Kibuku, Pallisa district, Samia-Bugwe, in Busia district, Tororo and Kisoko in Tororo district and Buvuma Island in Mukono district.

A total of 2429 people suspected to be suffering from sleeping sickness underwent physical and laboratory examination. Blood was examined by the haematocrit centrifugation test and the TACT test. Two cases of sleeping sickness were diagnosed in Bugweri county in the sub-counties of Ibulanku and Buyanga. Summary is given by table II.

Table II. RESULTS OF MONITORING SLEEPING SICKNESS CONTROL ACTIVITIES BY LIRI MEDICAL TEAM, MARCH 1997 - MARCH 1998.

Total number screened	Male	Female	+ve tryps
2429	1460	969	2

The total turn up of patients was poor especially in Tororo and Busia districts where the disease situation is under control. In the other districts that are experiencing a high incidence of the disease, the turn up was high and the sex ratio was almost the same. It has been observed for a long time that when the disease situation is brought under control, the enthusiasm by the community to get involved and participate in tsetse and trypanosomiasis control activities falls.

3.2 VETERINARY.

The veterinary section carried out animal trypanosomiasis surveillance in the above areas as the medical section in addition to carry out work in Bubulo and Muyembe counties of Mbale district. The details of the activities are given in table III.

Table III RESULTS OF ACTIVE SURVEILLANCE DURING MONITORING OF VETERINARY CONTROL ACTIVITIES MARCH 1997 - MARCH 1998.

LIVESTOCK SPECIES	NO.SCREENED	POSITIVE TRYPS				% PREVALENCE
		T.b	T.c	T.v	Mixed	
Cattle	3201	19	44	458	14	16.7
Goats	233	0	2	3	2	3.0
Dogs	63	1	1	1	0	4.8
Pigs	60	8	0	0		13.8
Total livestock	3557	28	47	462	16	15.5%

The overall animal trypanosomiasis prevalence obtained during monitoring activities was 15.5%. This was higher than the target. During this period, the team identified the haemorrhagic *T. vivax* as the cause of livestock deaths along the Kenya/Uganda border which had caused a lot of concern to both farmers and the veterinarians.

3.3 TSETSE

Tsetse control activities were monitored using biconical traps set in the field for 48 hours and checked daily. This time round, the group managed to trap a few *Glossina pallidipes* flies along the Kenya Uganda border. The results of monitoring indicated a higher tsetse fly density of around 0.2 compared to 0.07 obtained by the control group. The group further observed that the number of traps deployed in the field were old and few.

3.4: BIOCHEMISTRY/PROTOZOOLOGY.

The Biochemistry team found that the Card Agglutination Test for Trypanosomiasis (CATT) was unable to detect some parasitologically positive patients. The parasites were found to have the Litat 1.3 antigen used in CATT but the positive cases not detected could be attributed to non-expression of the litat 1.3 antigen.

From Iso-enzymes electrophoretic studies, it was found that trypanosomiasis control had effectively reduced the levels of trypanosomiasis and eliminated certain zymodemes, which are now confined to Buvuma Islands.

Drug sensitivity studies indicated that stocks *T.b.rhodesiense* and *T.b.brucei* were sensitive to Berenil, Trypamidium, and melarsoprol. Therefore the use of veterinary trypanocides to control the animal reservoir of *T.b.rhodesiense* was an effective strategy.

Studies on the causes of the high relapses are on-going. The section has collected *T.b.gambiense* stocks which are being propagated in *Mastomys natalensis* rats.

4.0 CONSTRAINTS

Currently trap manufacturing materials have run out. Efforts are being made to obtain some so that at least where commendable achievements have been registered, tsetse control activities should be consolidated.

The replenishment of laboratory reagents and equipment have been erratic leading to stalling of some field activities.

- All Project vehicles are old leading to high the maintenance costs.
- Trypanocides have been in short supply especially melarsoprol and the diminazene aceturate used to treat the laboratory confirmed trypanosomiasis cases.

5.0 DISCUSSION.

The Sleeping Sickness Control Programme did not achieve its objective of reducing the sleeping sickness annual incidence to 3/100,000 in 4 out of the 6 districts which reported the cases. The main reason for this was that the outbreaks of the disease were in localised foci within the four districts. This created a situation that had previously not been anticipated to occur. Secondly, logistics to carry out activities as planned were erratic in reaching the field thereby leading to the breakdown in the continuous surveillance system. Although the programme has managed to prevent the occurrence of another big epidemic in South Eastern Uganda, it is now our challenge to ensure that even these localised outbreaks are stopped so that the disease is brought to acceptable levels in all the districts in the project area. The project should therefore concentrate control efforts in a few selected areas recording the highest incidence of sleeping sickness. The monthly peak incidences were associated with the localised outbreaks of the disease.

The male:female sex ratio was approximately the same. This has been attributed to rice cultivation as the major occupation of the population in which both sexes participate almost on equal basis thus exposing them to the same risk of tsetse bites.

The high proportion of late cases is attributed to the rapid progression of *T.b.rhodesiense* which invades the central nervous system. Secondly it is attributed the lack or inadequate awareness about sleeping sickness, its signs and symptoms and even facilities to manage the disease. Thirdly the public still believes in witchcraft which leads to delay in reporting to the health facilities while the disease progresses to the late stage. Lastly some Sleeping Sickness Treatment Centres are not easily accessible to the patients because of distance.

The animal trypanosomiasis prevalence of 14.2% obtained was far beyond the target set for the area. The reasons that have been advanced to explain this were during this time, a lot of infected animals were introduced into the project area. Secondly, there was increased disease transmission despite the reduction in the tsetse fly population as a result of livestock grazing in surrounding areas with no tsetse control activities. It is well documented that the tsetse flies have become peri-domestic and the livestock system used by the farmers is by tethering livestock near homesteads. There even the few tsetse flies which have not been removed by the traps will continue acting as effective transmitters. Thirdly the component was not adequately facilitated with, the required logistics to effectively implement the planned control activities.

Tsetse control operations registered a decrease in the tsetse fly population. This fell within the target of reducing the population by 95% of the initial tsetse fly population. The project covered 54 sub-counties in 9 districts covering a land surface area equivalent to 8100 km^2. Despite this achievement, animal trypanosomiasis prevalence increased. This would mean that there were pockets of tsetse flies which were not caught and destroyed by the deployed traps. There was also high re-invasion pressure from areas where no tsetse control activities have reached. This therefore calls for an integrated tsetse control approach by incorporating other tsetse control techniques such as live bait technology, selective bush and ground spraying where possible.

Despite the setting of the acceptable sleeping sickness annual incidence at 3 or less per 100,000 people, this target is yet to be achieved. This calls for concentrating control efforts in the districts where the incidence rate is highest. Even in these districts, the incidence rate has been found to be localised. This means that the control programme will have to target the activities in those areas. On the other hand, the control activities have been following disease out breaks and this is no longer acceptable for the programme to follow the disease outbreaks as has been the case but should put in place an early warning system.

CONCLUSIONS & RECOMMENDATIONS.

The Sleeping Sickness Control Programme has achieved its target in only 2 out of 6 districts from where sleeping sickness was reported.

It is recommended that the programme should intensify and concentrate the control activities in areas where a high annual incidence rate of sleeping sickness was recorded especially in Iganga, Mukono and Bugiri districts.

The programme should increase and intensify the holding of community meetings. This will create awareness in new areas or awaken it in areas showing slackness. This avenue will also create the conducive atmosphere for community involvement and participation in control activities.

The programme should open more treatment centres or re-locate those that are not active so that suspects from areas recording high incidence rates do not have to travel long distances in search of sleeping sickness diagnostic facilities.

The target for the veterinary department was not achieved in any district.

It is recommended therefore that the department should increase and intensify animal trypanosomiasis control activities by covering a higher percentage of the livestock population. Secondly intensify active surveillance. Thirdly equip the district laboratories and the extension staff with all the necessary logistics to enable them carry out their work more professionally and effectively.

The Entomology department achieved its set objective of reducing the tsetse fly density by 95% of the initial population. Despite the project recorded an increase in the prevalence of animal trypanosomiasis.

It is therefore recommended that an integrated tsetse control approach should be adopted by incorporating other control techniques such as live bait technology, selective bush clearing and ground spraying where possible.

Systematic tsetse control activities should be implemented.

The area covered by the control activities should be increased.

Trap deployment in the field should be increased, staff in the project area should start collecting baseline data on such perimeters of land use as area under cultivation, animal production indicators such as number of garde animals introduced, milk production etc..

The project should available all the necessary logistics to enable the field staff to perform their duties as planned.

Therefore, the flare up of sleeping sickness in the region and the increasing prevalence of nagana should be halted by re-enforcing the control programme with the required logistics in form of funds, equipment and supplies as well as providing reliable transport. This will be achieved by continued government support and the implementation of the long awaited Farming in Tsetse Control Areas of Eastern Africa project.

6.0 WORK PLAN FOR THE NEXT 6 MONTHS

The National Sleeping Sickness Control Programme will strengthen active and passive surveillance by providing the necessary equipment, reagents and transport to ensure that more patients are diagnosed and treated.

The community meetings will be intensified in order to increase or create awareness about tsetse and trypanosomiasis.

The Department of Veterinary Services will increase the provision of diagnostic services for animal trypanosomiasis. Farmer sensitization on the benefits accruing from controlling animal trypanosomiasis will be intensified.

The tsetse control component will continue to encourage and involve the community in tsetse control operations. Trapping materials will be obtained and more traps made.

New areas will be brought under the trapping programme.

The department will increase the number of livestock covered by animal trypanosomiasis control activities.

An integrated tsetse control approach involving other tsetse control techniques such as live bait technology, selective bush clearing and ground spraying will be carried out where applicable.

The component will target to increase the areas covered by tsetse control activities.

The research component will continue to carry out demand oriented research activities to enhance the performance of the control programme.

13th BORDER HARMONISATION MEETING OF FARMING IN TSETSE CONTROLLED AREAS OF EASTERN AFRICA AT KAMPALA - UGANDA 5TH - 8TH MAY 1998

KENYA COUNTRY REPORT

1. INTRODUCTION

Kenya has an area of approximately 575,000 sq. Kilometres. The economy relies heavily on agriculture with about 38% contributed by the livestock sector. . The cattle population is estimated to be about 13 million comprising of 10 million beef and 3 million dairy herd. The beef cattle are reared mainly in the range land but the dairy herd is concentrated in the high potential areas. In addition to cattle, there are approximately 8 million sheep, 10 million goats, 200,000 pigs, 570,000 camels, 563,000 donkeys and about 21 million poultry.

The improvement and expansion of livestock industry is greatly hindered by vector borne diseases. Tse tse and tick-borne diseases are the main constraints to livestock development. Tse tse flies are found from sea level to an altitude of nearly 2000m covering 25% of the country, including 60% of the range land where beef herd is concentrated (fig. 1). At least 40 districts in all the 7 provinces have tse tse flies. Although there are inland tse tse belts, the costal belt is the most extensive extending from Tanzania to Somalia common borders. Practically all the border districts have tse tse and trypanosomosis problem. The country has eight tsetse fly species transmitting pathogenic trypanosomes. The major species are *Trypsnosoma congolense, T. vivax, T.brucei, T. Congolense and T. Simiae*. Sleeping sickness caused by T. B. rhodesiense is endemic in the Lake Victoria basin, especially along Kenya-Uganda border. In the range land, camel trypanosomosis, mainly due to *T. evansi* which is mechanically transmitted. Among the tse tse species, *G. pallidipes* is the most widespread. Other savannah species are *G. swynnirton and G morsitans. G. brevipalpis and G. fuscipleuris* are forest species with *G. longipennis* extending into drier zones. *G. austeni* and *G. f. fuscipes* are water edge species restricted to the coastal and lake Victoria basin respectively.

II COUNTRY ACTIVITIES

Veterinary Department in the Ministry of Agriculture is responsible for tsetse control in the country. Kenya Trypanosomiasis Research Institute (KETRI) is the national research institute mandated to carry out research on tsetse and trypanosomosis. International Livestock Research Institute (ILRI) and International Centre for Insect Ecology and Physiology (ICIPE) are international research institutions and collaborate closely with national programmes.

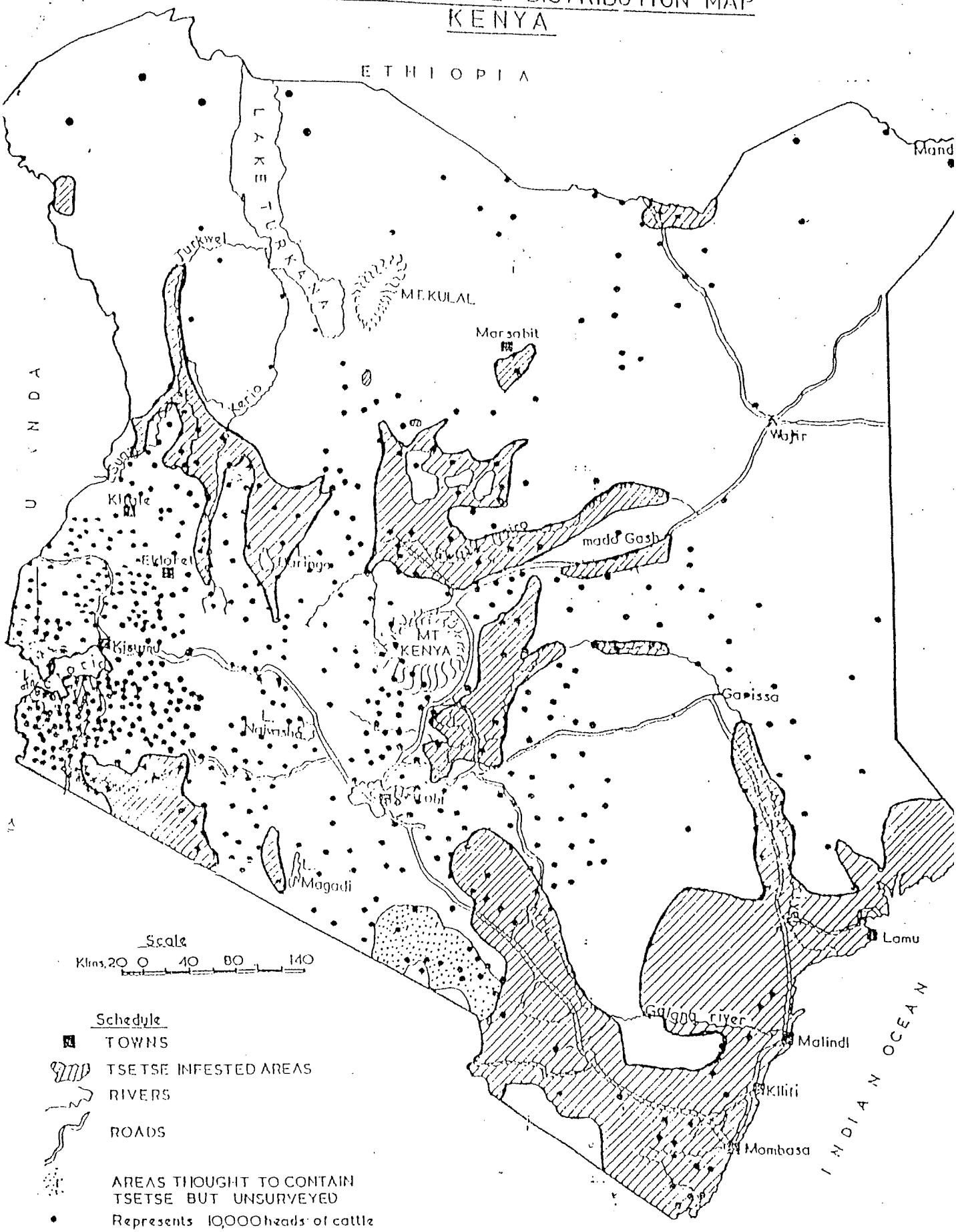
Veterinary Department in the Ministry of Agriculture is responsible for tsetse control and treatment of animal tryponomosis in the country. Kenya Trypanosomiasis Research Institute (KETRI) is the national research institute mandated to carry out research on tsetse and trypanosomosis. International Livestock Research Institute (ILRI) and International Centre for Insect Ecology and Physiology (ICIPE) are international research institutions and collaborate closely with national programmes. The Veterinary Department has field Zoologists in districts with high trypanosomosis challenge, with special attention being given to the Lake Victoria basin where human sleeping sickness is endemic. In addition to the national extension, the research institutions are involved in on-farm evaluation of tsetse control techniques. Traps, targets and pour-ons have been successfully evaluated and integrated into national control programmes. The farmers are advised on management of the diseases through chemotherapy and control of tsetse where trypanosomosis challenge is high and drug resistance is on the increase. Most farmers in the high rainfall areas rely on selective bush clearing and trapping to keep away tsetse and improving pasture. However, others have adopted current tsetse control methods.

Coast province has various vegetation types ranging from dry open grassland in the hinterland to dense forests along the fringes of the Indian Ocean. four species of tsetse viz. *G. longipennis, G. pallidipes, G. brevipalpis and G. austeni* infest the area. Some commercial ranches sustain tsetse control activities. For example, the 30,000 acres Ziwani Ranch in Taita Taveta District has relied on use of odour baited NGU traps to control *G. pallidipes* since 1992 when very high livestock losses were reported, despite four times a year prophylaxis cover with Samorin. From 1993 when 130 odour baited NGU traps were deployed in the main tsetse infested part of the ranch, original *G. pallidipes* density of 800 F. T. D. was reduced by over 95% within 4 months reaching 99.5% reduction a year later. The farmer currently keeps a healthy herd with occasional administration of curative case . A similar approach was adopted for Galana Ranch in Kilifi District earlier(from 1986) that relied on odour baited insecticide impregnated target with the same results.

In Rift Valley, Kajiado District, a pastoral community based tsetse control programme has been operating since 1985 when the NGU trap was first tested for control of *G. pallidipes*. Approximately 250 odour baited NGU traps are maintained to control the fly in a 150 Km dry season grazing land.

A rural development project is in progress in Transmara District in Rift valley Province where, pastoral community has identified tsetse and trypanosomosis as major constraint to livestock development. A total of 45 catalytic farmers have been trained on tsetse biology, control and land use and are currently mobilising their community in 10 villages covering 152 square kilometres in preparation for control of *G. fuscipleuris and G. swynnertoni*. The villages form a focal point from which the project will expand into a bigger area. A working group comprising Transmara Development Programme/GTZ funded Project, Ministry of Agriculture, Livestock Development and Marketing, K. E. T. R. L., Kenya Agricultural Research Institute and community leaders coordinates the activities of this programme. The main tsetse control activity is scheduled for April, 19978

CATTLE AND TSETSE DISTRIBUTION MAP
KENYA



Labwe Valley in Nyanza Province, Suba District, has another *G. pallidipes* control programme in which deltamethrin-impregnated odour baited targets are used in the 120 sq. km game park since 1986. This activity is now maintained by Kenya Wildlife Services. In the park periphery, a community base programme using odour baited NGU traps is in place sleeping sickness due to *T. rhodesisiense* which occurs in the area.

i) OVERVIEW

The period under review is from April 1997 to March 1998.
The control of tsetse and trypanosomosis in the project areas involves integrated use of environmentally acceptable methodologies and land use implemented by various departments namely:

(i)	Veterinary Officers (Veterinary Department)	-	involved in animal surveillance and treatment.
(ii)	Zoologist (Veterinary Department)	-	involved in tsetse monitoring and control of the vector.
(iii)	KETRI and DVBD	-	involved in medical surveillance treatment of human sleeping sick ness and research.
(iv)	Forest Department	-	involved in afforestation in tsetse controlled areas.
(v)	Agriculture Department	-	involved in the implementation of appropriate land uses in tsetse controlled areas
(vi)	Animal Production	-	involved in promotion of dairy industry in tsetse and trypanosomosis controlled areas.
(vii)	Public health and social services	-	involved in sensitizing the commu nity in all aspects of control opera tions and formation of control groups.

The activities are harmonised through district level coordination meetings chaired by District Veterinary Officers.

The above multisectorial approach had the following achievement

(a) Two Glossina species namely *Glossina fuscipes fuscipes* and *Glossina pallidipes* were found to have spread in the areas which were tsetse free in Busia, Teso, and Bungoma. Fly densities increased from FT.D. of o.16 to .072 for *Glossina Fuscipes fuscipes* due to increased in vegetation cover. *Glossina pallidipies* decreased to F.T.D. of 0.05 from 0.2 due to intensive control using pour-on and traps.

(b) Disease prevalence in animals was found to range from 1.5% to 8.2% in area of Bungoma and Teso infested by *Glossina pallidipes*. After intensive control campaign of tryponosomosis and 1%-5% in Busia District the dorminant *Tryponosomos were Tcongolense, T. vivar and T. brucei* . 360,000 cattle and 1.2 million people are at risk of being infected with trypanosomosis.

(c) Six cases of human sleeping sickness were diagnosed in Amagaro location (Teso dis triet) and prevalence of malaria parasite was high in whole project area (51%.

The community in the project area participated in development of traps, tsetse habitat manipulation, treatment of trypanosomosis (cost of treatment) and application of o\pour-on on livestock.

ACTIVITIES IN THE PROJECT AREA IN THE PAST ONE YEAR APRIL 1997 - MARCH 1998

2. Introduction

There was a slight decrease in animal trypanosomosis in the region due to control of Glossina pallidipes by use of pour-on and treatment. *Glossina fuscipes fuscipes* increased slightly due to increase in vegetation cover. Animal screening was done and infected animals were treated with Diminazene aceturate at 7.0 mg/kg body weight.

Vector control was initiated using environmentally acceptable and cost effective methodologies \namely;- trapping, mobile target (pour-on) selective ground spraying and habitat manipulation.

Deployment of insecticide impregnated traps along the riverline and lacustrine vegetation was done at 100m interval in dense vegetation Traps were impregnated with deltamethrine 20% S. C dilluted to 0.1% in total 3350 taps were deployed to control *Glossina fuscipes fuscipes*.

670 traps were deployed by local community (women group) around zero and semi zero grazing units to reduce fly/animal contact : 4200 worn outs traps were removed from field and replaced.

Livestock were treated with flumethrin 1% at 1mg/10kg body weight to control *Glossina pallidipes* and other biting flies, cattle goats, sheep, pigs, dog and donkeys were treated every two weeks : Feb-May 1997 - 111,840 animals were treated 2nd phase Oct - March 1998 -370,709 were treated. Selective ground spraying was done in areas with residual fly population along the riverline and lacustrine vegetation. Vector monitoring was done monthly, the fly density were o.49 F.T.D and 0.056 for *Glossina fuscipes fuscipes and Glossina pallidipes* respectively.

A total of 6045 animals were screened, animal tryponosomosis prevalence was found to range to 1.5% - 8.2%

The dairy industry increased from 6150 to 6514 through importation and offspring from local bull scheme. Milk production increased from 135,000 litres per month to 148,197 litres per month, Areas under fodder pasture also increased in the whole project area by 9.5%. Areas under crop also increased from 85,710 Ha, to 90,641 ha. an increase by 10.2%

Community education continued in all working blocks through the field days, onfarm training, tours and barazas.

3. Objectives

(i) To organise community involvement to control tsetse, human sleepng sickness and Nagana by training people on use and sustainability of control measures.

(ii) To monitor and control tsetse / biting flies in project area. Screen man and animals and treat the positive cases thereby reducing the infection rates.

(iii) To encourage opening of more arable land and keeping more susceptible grade animals in tsetse challage areas.

III PROJECT AREA

The present project area covers tsetse infested parts of Busia, Teso and Bungoma Diistricts which border Uganda. Apart from the presence of *G. pallidipes* which is extending southwards to Busia District where they were eliminated in 1991, *G f. fuscipes* is widespread. The expansion is associated with increased animal trypanosomosis in these areas leading to on going control programmes using pour-on, among other methods.

The project area is subdivided into smaller blocks as follows:

BLOCK A

Area North of Malaba-Bungoma tarmac road including a part of the common border and the tsetse foci in Sirisia and Bumula divisions in Bungoma District.

BLOCK B

Area between Malaba - Bungoma and Busia-Kisumu tarmac roads including the common border (Busia - Malaba) Nambale (Busia District), Amukura and Chakol(Teso District) and Mumias(Kakamega District).

BLOCK C

Area south of Busia-Kisumu tarmac road and north of Bunyala Swamps and a part of the common border (Busia-Sio Port.)

BLOCK D

Includes Bunyala Swamps, Lake victoria shore and offshore Kenyan islands.

4. METHODOLOGIES

4.1 VECTOR

Tsetse monitoring was done using biconical traps set at 100m interval along the established transacts. Fermented cow urine, acetone and Octenol were used as attractants. The trapped flies were categorised into species, age and sex. Dissecting of flies was done and the parasite checked in the mid gut, salivary glands and proboscis to determine the infection rate. Control measures were instituted using insecticide impregnated pyramidal traps in *G. f. fuscipes* area. Impregnation was done using deltamethrin 20% s.c. diluted to 0.1% selective ground spraying was done using cypermethrin at 0.3 %. Cattle, goat, sheep, pigs and dogs treated with flumethrin (Baythal) at 1ml/10kg body weight, were used to control *G. pallidepes*. The animal were treated every two weeks.

4.2 TRYPANOSOMOSIS SURVEY

(a) Passive surveillance

All animals reported sick in clinical centres were screened for trypanosomosis and other parasites using thick and thin blood smears. Infected animals were treated with Diaminazene aceturate at 7.0 mg. per Kg. body weight.

(b) Active screening

Mass animal screening was done using haematocrit centrifugation technique (HCT). Infected animals were treated with Diminazene aceturate at 7.0 mg/kg body weight.

(c) Human screening

Both passive and active screening was done using buffy coat technique. On passive screening patients reporting with fever to health centres were tested for trypanosome infection and other blood parasites.

Active screening

Mass screening was done in areas where patients were found during passive screening, and areas where *T. brucei* were found in animals.

Patients were treated using suramin & melB.

4.3 LIVESTOCK PRODUCTION

Use of zero, or semi zero grazing farming system which reduces fly/animal contact was encouraged. Introduction of more susceptible grade animals in tsetse control areas led to further clearing of tsetse bush for fodder and pasture development.

4.4 COMMUNITY EDUCATION

This was done collectively by all the departments in form of barazas, field days, on -farm training, seminars and demonstrations.

5. RESULTS

5.1 Tsetse Control

A total of 4020 traps are in the field to control *G. f fuscipes*. Up to 4200 old pyramidal traps were replaced. In block A, B, C and D, 482,149 animals were treated with flumethrin at 1ml/10kg body wt every fourteen days. Use of pour-on the end started in mid December 1996 and the execuse continued up to May 1997. 2nd phase of pour - onstarted in November upto March 1998 to control widespread *Glossina Pallidipes* in whole project area.

Tsetse monitoring revealed apparent densities as shown in tables 5.1

5.1.2 Apparent density *Glossina pallidipes* density in F. T. D.

BLOCK A	JUNE 1996	NOV 1996	FEB 1997	JULY 1997	OCT 1997	JUNE 1998	MARCH 1998
Malaba/Kakalet	0.01	0.15	0.01	0.15	0.2	0.15	0.01
Mlakisi/Kochola	0.01	0.15	0.01	0.2	0.15	0.05	0.01
Myanga/Lunao	0	0.10	0	0.1	-	-	-
Sirisia	-	0.15	0.10	0.15	-	-	-
Bumulka	-	0.10	0	0.1	-	-	-
Kaduyi	-	0	0	0.0	-	-	-
Mlakisi/Kakalet	-	0	0	0.2	0.1	0.05	0.02
BLOCK B							
Obuchun/Malaba	0	0	0	0.0	0.0	0.0	0.0
Apatit & Environs	0	0.20	0.15	1.8	2.0	1.5	0.15
Walabi & C. Nambalc	0	0	0	0	0	0	0
Eskikoma/Butula	0	0	0	0	0	0	0
Mimias division	0	0	0	0	0	0	0
BLOCK C							
Sio Port/Mundika	0	0	0	0.0	0.0	0.0	0.0
Nangina/Nambuku	0	0.10	0.01	0.1	1.0	0.1	0.1
Nzoia Estuary	0	0	0	0	0	0	0
Southern Hunterland	0	0.15	0.10	0.5	1.5	0.2	0.18
BLOCK D.							
Lake shore	0	0	0	0	0	0	0
Islands	0	0	0	0	0	0	0
Bunyala	0	0	0	0	1.0	0.8	0.15

Observation

There is a marked increase in F.T.D'S of the two Glossivia species, by the end of October, *Glossivia Pallidipe* was controlled by 98% in areas pour-on was used. Increase of *Glossivia Fuscipies Fuscipeis* in Block D and B. These are flooded areas in Bunyala Swamp and along Malaba river , During El-nino rains F.T.D. rose to 14.2 in Bunyala Swamp.

5.1.3 AVERAGE APPARENT DENSITY OF G. f. fuscipes 1990 - 1997

	1990	1991	1992	1993	1994	1995	1996	FEB 1997	DEC 1997	MARCH 1998
BLOCK A	1.89	1.28	1.57	0.03	0.02	0.02	0.015	0.01	0.146	0.14
BLOCK B	13.32	0.72	0.27	0.11	0.14	0.50	0.15	0	2.17	0.63
BLOCK C	6.0	0.04	0.74	0.33	0.21	0.20	0.20	0.20	1.5	0.30
BLOCK D	10.50	0.74	3.20	0.91	0.10	0.01	1.50	0.60	1.86	1.61

5.1.4 AVERAGE APPARENT DENSITY OF *G. pallidipes* 190-1997

	1990	1991	1992	1993	1994	1995	1996	FEB 1997	DEC 1997	MARCH 1998
BLOCK A	0	0	0	0	0	0	0.15	0.01	0.1	0.01
BLOCK B	0	0	0	0	0	0	0.10	0.10	0.5	0.05
BLOCK C	4.25	0	0	0	0	0.01	0.01	0	0.075	0.07
BLOCK D	0	0	0	0	0	0	0	0	0.26	0.05

5.2 ANIMAL TRYPONOS0MOS
5.2 VETERINARY RESULTS

A total of 6045 animals animals were screened passively in the clinical centres (division) and 1390 were screened actively. After pour-on application Human sleeping sickness focia (amagoro) and areas where animals death were reported.

Passive screening

5.2.1

AREA	NO. Screened	Tb	Tc	Tv	Total	all round prevalence	previous all round prevalence
BLOCK A							
Amagaro	1195	3	26	39	68	5.6	5.52
BLOCK B							
(Chakol)	264	1	5	11	17	6.4	4.62
(Amukura)	1014	7	26	34	67	6.6	5.05
Busia clinics	304	0	58	18	76	25.0	3.8
BLOCK C							
(Funyula)	1270	7	100	40	147	111.5	3.9
BLOCK D							
Bundalangi	608	2	44	38	84	13.8	4.29
Totals	47653	20	259	180	459		
Percentage		0.4	5.5	3.8	9.86		

ACTIVE SURVEILLANCE

(2) **Amagaro location (Human sleeping foci)**

Centre	No. Screened	Tb	Tv	Tc	Mix infection	Total	all round prev.
Kokare	137	0	5	0	1	6	43
Kamiria	109	2	3	2	2	9	8.2
Korisia	139	0	3	1	0	4	2.8
Ikapolok (Shoot)	133	0	0	0	0	2	1.5
Kimasat	106	0	3	0	1	4	3.7
Kodedema	58	1	1	2	0	4	4.7
Korurumo	47	0	1	2	0	3	5.1
Amoni	54	0	3	0	0	3	5.5
Total	**783**	**3**	**18**	**7**	**4**	**32**	**4.0**

Observation

There is a marked increse in tryponosomosis prevalence especially in Block B,C, and D, which also correspond with high fly density. In block A prevalence was low due to intensive campaign in the control of tryponosomosis after last break out of human sleeping sickness in Amagoro and pour-

5.2.3 SUMMARY OF THE YEARS (NAGANA PREVALENCE)

BLOCK	1990	1991	1992	1993	1994	1995	1996	1997
A	11.4	10.5	9.3	6.6	3.6	5.4	4.12	5.3
B	15.2	11.8	10.2	6.8	6.7	5.1	4.46	12.4
C	14.0	9.6	7.4	6.0	4.1	3.8	3.9	14.25
D	-	-	-	-	4.6	4.0	4.2	12.1

5.3 Human trypanosomosis results

A total of 9250 people were actively screened for sleeping sickness in Amagoro location. And a total of 5351 were screened passively in the 13 health centres. Six (6) cases were diagnosed in Amagaro location.

Active Surveillance

No. of Human screened	Typs cases	MPS	MF	Other
9256	4	2975	2	0

Passive surveillance

	No. of Human screened	Typs cases	MPS	MF	Other
	5351	2	2812	0	0
Total	15,607	2	5787	2	0

Malaria parasites were evidence in the area comprising 51% of cases screened passively in the health centres. The six positive cases were treated using suramin and melB. The patient comes from three adjacent villages along river Malakisii

Amon	-	1
Kapolok	-	2
Kimasat	-	3
		6

5.4 Livestock Production Results

*G. **Pallidipes*** invasion did not affect the dairy industry as the number grade animals and milk produced increased.

Parameter	July 1996	January 1997	March 1998	%increse
Zero grazing	210	240	330	27.2%
Grade animals	5,500	6,150	65.14	5.6%
Forage storage				
Fodder	400Ha	440 Ha	476	7.8%
Pasture	162 Ha	170 Ha	176.5	3.7%
	lts / month	lts / month		
Milk Production	124,900	135,000	148,97 lts/month	9.5%

5.5 Agriculture department

More arable land was opened in tsetse controlled areas.

Area (Ha) Tilled By Oxen And Tractors In The Project Area.

AREA	TARGET	ACHIEVED	BY OXEN	%
Block A	3900	3655	914	24
Block B	41100	10674	4222	10.2%
Block C	9000	270	6519	24
Block D	8200	332	2	0.3
TOTALS	**50,800**	**24,807**	**4949**	

Oxen tillage is prefered and low acreage opened specially in Block A and B were due to loss of oxen.

Hectare under crop

Year

1991	1992	1993	1994	1995	1996	1997
56,500	54,200	52,200	65,800	71.993	75,662	88710

5.6 COMMUNITY EDUCATION (INVOLVEMENT)

Community education/involvement was carried out by all departments in the project area on the control of tsetse and trypanosomosis. Proper Land utilization in the tsetse controlled areas was encouraged in form of introduction of susceptible grade animals, promotion of Oxen tillage, planting high canopy multipurpose trees. Community involvement on the control of tsetse infested areas, around zero or semi zero grazing units. Women groups were trained on development of traps in the project area.

Education programmes were carried in form of barazas, onfarm training, field days, health talks and posters. Formal training on technical staff and organised women groups was carried out.

Area	Field days	On farm training	Barazas
Block A	12(760)	230	8(220)
Block B	15(920)	320	12(320)
Block C	8(560)	180	9(240)
Block D	2(120)	78	4(80)

One oxen ploughing competition in Nasira (B lock B) was attended by farmers in the project area.

WORK PLAN:-

(I) TSETSE CONTROL.

(i) Continue monitoring to establish the exact tsetse population, distribution species and other biting flies.

(ii) Continue controlling Glossina pallidipes and Glossina fuscipes fuscipes.

(iii) Continue with formal and informal training and involvement of the community on tsetse and trypanosomosis control operations aimed at sustainability.

(iv) Establish community centres for tsetse and trypanosomosis control operations at village level.

(II) ANIMAL TRYPANOSOMOSIS CONTROL:-

(i) Intensify passive and active surveillance of animal trypanosomosis in the project area.

(ii) Involvement of the community in the control of trypanosomosis (treatment)

(III) LIVESTOCK PRODUCTION/AGRICULTURE:-

(i) Promote beef and dairy industry through importation of grade animals in the tsetse and trypanosomosis controlled areas.

(ii) Encourage zero/semi zero grazing units to reduce fly/animal contact.

(iii) Cultivation of fodder and pasture in the tsetse infested area.

(iv) Proper Land utilization in the project area through promotion of:-
- (i) Cash crops
- (ii) Subsistence farming (food production)

(v) Promotion of Oxen tillage.

(IV) FOREST DEPARTMENT:-

(i) Promotion of high canopy multipurpose trees.

(ii) Clearing of undergrowth (tsetse habitat in Government forest).

(V) HUMAN TRYPANOSOMIOSIS CONTROL:-

(i) Continue with passive and active surveillance in the project area.

(ii) Involvement of Community in control of human sleepng sickness.

13TH CO-ORDINATION MEETING ON FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA KAMPALA, UGANDA 7 – 8 MAY, 1998

COUNTRY REPORT

TANZANIA

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13TH CO-ORDINATION MEETING ON FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA

KAMPALA, UGANDA 7 - 8 MAY, 1998

1. INTRODUCTION

National overview

Tanzania Mainland has a land surface area of about 883,398 sq. km. lying between 1 and 12 degrees South and from 29 to 40 degrees East. The country is bordered by the Great Lakes (Victoria, Tanganyika and Nyasa) and the Indian Ocean.

Topography of the country consists of a narrow coastal low land strip of 800m along the Indian Ocean. The rest of the country consists of the Central African Plateau, with an altitude of 1000 to 1500 meters above sea level. The plateau is broken by the Great Rift Valley running North - South and the Mountain ranges across the country.

Tanzania experiences marked tropical temperature variations depending on the season and altitude. Rainfall is either monomodal or bimodal; main rain season extending from March to May/June. Generally high rainfall (over 1,000 mm per year) is experienced in about one-third of the country which consists of areas closer to the equator, around water masses and at high altitudes.

Vegetation is diverse consisting of Savannah woodland, bushland and thickets, wooded grassland and forests of all types.

The economy of Tanzania is dominated by agriculture which contributes 60% of the GNP. Within the agricultural sector, livestock production is of considerable importance. It accounts for an estimated 30% of the AGNP or 18% of the GNP.

Due to climatic and geographical factors, large areas of Tanzania are agriculturally more suited to livestock production than for growing food and cash crops.

The current ruminant livestock populations are estimated at 15.6 million heads of cattle, 10.6 million goats and 3.4 million heads of sheep. However, despite the large size of livestock populations, the country is not self-sufficient in animal products mainly due to prevalence of animal diseases including trypanosomosis.

Trypanosomosis is a major disease in Tanzania affecting both man and livestock. Animal trypanosomosis is found in all tsetse-infested areas and it is estimated that 4.5 million cattle are kept under trypanosomosis challenge. There are three main trypanosomes found in livestock, namely, Trypanosoma congolense, T. vivax and T. brucei

Human trypanosomosis (sleeping sickness) of Rhodesian type has focal distribution and about 400 new cases of sleeping sickness are known to occur yearly. Resurgence of the disease in several foci do occur. Some foci are persistently active in Kigoma, Arusha, and Rukwa and account for more than 89% of all reported cases.

Tsetse flies are widely distributed in the country. Most of the woody vegetation, particularly Savannah and Bushland is infested with tsetse flies. Tsetse species found in Tanzania are seven and these in the order of importance are Glossina morsitans, G. pallidipes, G. swynnertoni, G. austeni, G. brevipalpis, G. fuscipes and G. longipennis

Control measures of trypanosomosis are being undertaken in the country involving livestock owners using trypanocides, traps/targets/screens, synthetic pyrethroids and medical surveillance of sleeping sickness.

2. OBJECTIVES

2.1 To control tsetse and trypanosomosis in tsetse infested areas.

2.2 To promote awareness and involvement of owners of dairy units and indigenous cattle in controlling tsetse and trypanosomosis.

3. TARGETS FOR THE REPORTING PERIOD (APRIL 1997 - MARCH 1998)

3.1 Monitoring of tsetse and trypanosomosis on Unguja Island following the release of sterile male G. austeni

3.2 Surveillance of trypanosomosis in cattle in Kagera and Tanga

3.3 Monitoring of incidences of animal and human trypanosomosis in the country.

4. TSETSE AND TRYPANOSOMOSIS CONTROL

4.1 Tsetse Control

(a) Unguja Island

Unguja Island in the Indian Ocean was infested with a single tsetse species of G. austeni.

Sterile males of G. austeni were released on area covering about 600 sq. km of the southern part of Unguja Island from 1995 up to 1997. Releases were stopped in 1997 and since then monitoring of tsetse continued throughout.

Results:

From September 1996 (when the last wild fly was caught) up to March 1998 no single wild fly has been caught. Trypanosomosis cases have decreased to a level of less than 0.1 per cent.

Conclusion

The successful outcome of tsetse control operation on Unguja Island has been a result of three key factors:

(i) Achievement of mass rearing of up to 1,000,000 female colony of G. austeni which provided 60,000 sterile males per week for releases.

(ii) Aerial releases which provided optimal dispersal of sterile insects including unpenetratable remote areas.

(iii) Entomological and veterinary surveillance and monitoring activities

Recommendation

With the successful result of Ungula Island, SIT should be considered as a potential tool in integrated tsetse eradication campaigns.

(b) Kagera Region

The ranches of Kikulula and Kitengule in Karagwe district and Missenyi ranch in Bukoba district situated within the tsetse fly belt along Tanzania Uganda boarder used deltamethrin 10% (Decatix) as a dipwash and 1% as pour-on to control tsetse. During the period of March 1997 to March 1998 a total number of 312 lts. of decatix and 100 lts. of spot-on were used for cattle treatment.

Results

Continued application of pyrethroids has significantly reduced tsetse in the grazing areas. Apparently no tsetse have been caught in the operational areas.

Conclusion and recommendation

Pyrethroids application was introduced in Kagera 8 years ago and it has been effective to reduce tsetse population.

There is a need to conduct a tsetse survey in order to determine the recession of the fly belt in Bukoba and Karagwe districts.

However, a risk lies in the side effects of increasing application of synthetic pyrethroids that over-use might lead to ticks developing resistance .

4.2 Animal trypanosomosis

Animal trypanosomosis incidences are reported from tsetse infested areas all over the country.

(a) Trypanosomosis incidences in the country

Cases of animal trypanosomosis reported from tsetse infested areas in the country from 1995 to 1997 are shown in table 1 below:

Table 1: Trypanosomosis incidences in cattle reported in the country during 1995 - 1997

YEAR	1995	1996	1997
No. of cases	54,363	74,830	27,624
No. of deaths	1904	1,722	1,215
No. of animals treated/protected	52,814	72,072	31,025

(b) Tanga Region

Pongwe area in Tanga district has been planned for settlement of medium scale dairy farmers.

In May 1997, more than 1,000 head of cattle were sampled to obtain baseline data on prevalence of trypanosomosis for the preparation of a strategy for an integrated tsetse and trypanosomosis control. The common tsetse species found in the area are G. morsitans and G. pallidipes.

Results

(i) Prevalence rate of trypanosomosis

11% of the animals sampled showed a trypanosomose parasitaemia whereas this rate increased to 28% in September 1997.

(ii) **Management and breed influence**

8% zero-grazed dairy cattle were found to be infected with trypanosomes compared with 14% in free ranging dairy cattle.

(c) Kagera Region

During the reporting period, surveillance of animal trypanosomosis continued in Kagera. Positive cases were treated with diminazine aceturate at a dose rate of 7.0 mg/kg/ bwt. or isometamidium chloride at 1.0 mg/kg bwt. Parasitological diagnosis of trypanosomosis in 96 cattle from Karagwe and Bukoba districts was conducted by using thin and thick blood smears together with trypatex test.

Results

The results of trypanosomosis diagnosis in Karagwe and Bukoba districts revealed two positive cases as shown in table 2 and overall trypanosomosis incidences in Kagera region is indicated in table 3.

Table 2. Diagnosis of trypanosomosis in cattle in Karagwe and Bukoba districts during April 1997 –March 1998

District	No. of Cattle	Positive cases
Bukoba	10	0
Karagwe	86	2
Total	**96**	**2**

Table 3: Animal trypanosomosis incidences reported in Kagera region for the period March 1997 - February 1998

District	No. of Cases	No. of Deaths
Bukoba	131	1
Karagwe	458	20
Muleba	266	4
Biharamulo	338	1
Ngara	164	0
Total	1,357	26

Conclusion

Inspection of cattle herds in Kagera has shown that the incidences of animal trypanosomosis have been reduced markedly following regular treatment of cattle with deltamethrin based acaricide dipwash and pour-on which have a long residual effect against Tsetse fly.

4.3 Human trypanosomosis (Rhodesian type)

There are eight (8) endemic foci of sleeping sickness in the country and most of them are ancient and have remained stable for many years. Persistently active foci are found in Kigoma, Arusha and Rukwa regions which account for more than 80% of the reported cases.

Medical surveillance is indispensable for early and effective treatment. Passive surveillance continued in sleeping sickness endemic areas and cases were reported from hospitals and heath centres. The standard treatment for the disease has been suramin for early stage cases and melarsoprol for late stage cases.

Results

A total number of 505 sleeping sickness cases were reported from Kigoma, Arusha and Rukwa during 1997. These are about 100 cases more than in the previous two years as shown below in table 4.

Table 4. Number of sleeping sickness cases reported in Tanzania from 1995 to 1997.

Focus name (District)		1995	1996	1997
Kigoma	Kasulu	165	155	198
	Kibondo	208	212	286
Arusha	Babati	16	12	19
	Hanang	4	-	-
Rukwa	Nkasi	7	7	1
	Mpanda	4	8	1
Mbeya	Chunya	5	6	-
Total		**409**	**400**	**505**

Conclusion and recommendation

Sleeping sickness is one of the major public health concerns as it remains one of the serious threats to human life in the country. Distribution of rural populations in areas where climatic and geographic conditions hamper systematic surveillance causes underestimates of the magnitude of the disease. Vector control is also important for the reduction of human trypanosomosis transmission.

5 CONSTRAINTS

The following main constraints were faced during implementation of tsetse and trypanosomosis control activities.

- ✓ Lack of transport, equipment and funds for field operations
- ✓ Lack of facilities at medical centers (hospitals and health centres) and unavailability of drugs for treatment of sleeping sickness patients.

6 FUTURE WORK PLAN

1. To continue surveillance and monitoring of tsetse and trypanosomosis infections in livestock in Kagera and Tanga.

2. To carry out different tsetse control trials in dairy farming with screened or netted kraals, traps, targets and insecticide treated of cattle in Tanga region.
3. To start rearing G. brevipalpisspecies at TTRI for its eradication on Mafia Island in the Indian Ocean.

4. To continue with sleeping sickness surveillance.

5. Sensitization and involvement of stakeholders to enable them to play greater role in the control of tsetse and trypanosomosis for increased output of livestock.

13TH MINISTERIAL MEETING FOR FARMING IN TSETSE CONTROL AREAS OF EASTERN AFRICA

KAMPALA, UGANDA, 7TH – 8TH MAY 1998

KETRI REPORT OF ACTIVITIES IN SUPPORT OF THE PROJECT OBJECTIVES

Introduction

Although the research component of the project is clearly stated in the project document, KETRI had reported in the previous two such meetings some areas that would require immediate answers before the implementation of the project. In the last meeting in March 1997 at Eldoret, KETRI presented a work plan of activities to be undertaken in the proposed regional project 'Farming in tsetse control areas of Eastern Africa'. The objective of this work plan was to lay foundation for the collection of base line data of tsetse and trypanosomosis situation in the areas proposed to be covered by the project for the effective implementation of the project.

In the first half year, these were listed as

- to determine precise tsetse species and distribution
- determine prevalence levels of trypanosomosis
- initiate research to determine the role of livestock as hosts of *Glossina fuscipes*
- collect socio-economic base line data

Several activities have so far been initiated with good progress:

1. To facilitate the mapping of tsetse species and distribution, an **entomology unit has been established** at the Alupe Referral Hospital. This unit is charged with the following responsibilities:

    - ♦ carry out comprehensive tsetse surveys in **ALL locations** in each of the divisions in the five districts covered by the project
    - ♦ initiate **research work** related to the objectives of the project to fill in gaps identified to be important for the effective implementation of the project
    - ♦ **sensitise communities** in their working areas on tsetse and trypanosomosis
    - ♦ **liase** with the tsetse control department of the Ministry of Agriculture Livestock Development & Marketing in the project area.

So far, the unit has accomplished the following

- surveyed all river valleys, hills and villages in five divisions viz.
    - ◊ Teso District: Amagoro, Ang'urai, Chakol & Amukura
    - ◊ Busia District: Butula, Nambale, Matayos, Bundalang'i, & Funyula
    - ◊ Bungoma District: Bumula & Sirisia divisions.

The full report of the tsetse catches and trypanosomosis incidence in each of the areas surveyed is given in the report.

- initiated research supported by the DFID to determine the vectorial role of both *G. fuscipes* and *G. pallidipes* in disease transmission
- by working with local administration, sensitised local communities on tsetse and trypanosomosis problem in the surveyed areas

Usage:

- data collected to be used to compile tsetse distribution maps for project implementation
- determine effectiveness of proposed usage of pour-on technology for tsetse control

- increase awareness

2. As a result of the recent outbreak of nagana in Bungoma, KETRI through the financial assistance of the DFID and in collaboration with Coopers K. (Ltd.) and the MALD&M, initiated a project to manage tsetse and trypanosomosis by **dipping livestock in deltamethrin**.

The objective of the project is to evaluate dipping of cattle in deltamethrin as a community based tsetse and trypanosomosis control method, the **ability** and **willingness** of the farmers to contribute to tsetse control with particular reference to dipping in deltamethrin.
In the project the role of the collaborators are defined:

KETRI/MALD&M

- to educate farmers on tsetse and trypanosomosis control through
  - ⇒ seminars for selected and dip committee members
  - ⇒ public barazas
- provide Decatix (initial fill free but farmers to pay dip committees as they dip)

Study area
Sirisia division which is infested by *G. pallidipes* and *G. fuscipes*
Dips: Four dips have been identified Viz. Nanyikobe, Sirisia, Bukokholo and Kabumet.

Role of farmers

* rehabilitate dips
* manage dip operations through dip management committees

Dipping:

⇒ every fortnight using Decatix (Coopers K. Ltd)
⇒ initial charging at 1:13333
⇒ replenishment using head count method (1 lt. for every 440 animals dipped)

Progress

⇒ four dips selected based on state of repair, already filled , two more to be filled by end of April.
⇒ seminars and barazas to discuss matters arising and motivate farmers who may lag behind to be held in May.

Usage:

- determine effectiveness of community dipping approach for tsetse control
- increase awareness

3. An important issue in the epidemiology of the disease in the project area is the question of disease transmission and spread from the traditionally known foci to relatively newer areas (e.g. outbreak in Bungoma). This would be important in determining the effectiveness of the control project. KETRI has been interested to determine the **role of social factors and practices** associated with the movement of livestock in the spread of the disease. A research project was initiated with DFID assistance to evaluate the factors involved in the spread of the disease. The

results suggest that livestock trade play a very important role in the spread of the disease and quarantine measures need to be tightened if the project aims to meet the intended objectives.

4. Transmara community tsetse control project

A project to manage tsetse and trypanosomosis in Olokipindong'oe cluster area of Transmara district has been going on since 1996 as a joint collaboration between KETRI, Transmara Development Programme, GTZ and MALD&M. The tsetse belt targeted in this project is part of the continuous one with Tanzania and is mainly infested by *G. fuscipleuris, G. swynnertoni* and to some extent *G. pallidipes*. This is a community based project who have been involved all the way in the development, planning, design and implementation of the project. So far, a core group of farmers has been selected and trained through workshops, seminars and a visit to similar community based projects at Nguruman on all aspects of tsetse and trypanosomosis and are expanding the project by recruiting more members in to the project. This is going to be a model community based tsetse control project that if successful could be used in other pastoral areas where tsetse and trypanosomosis is a problem.

5. Tsetse control in Lambwe valley

During the last meeting in Eldoret, it was reported that the tsetse control project in the Ruma National Park that has been going on since 1988 by KETRI and MALD&M was handed over to the Kenya Wildlife Service in 1996. KETRI continues to carry out monitoring surveys every 6 months to determine the effectiveness of the technology transfer to the beneficiary. So far, despite occasional financial problems the residual tsetse population is still below 0.1 f/t/d. No tsetse flies have been reported in the settled areas outside the Ruma National Park for the last two years, suggesting that the project is still effective in suppressing the tsetse numbers.

6. Epidemiology of drug resistance project

A project to document the extent of drug resistance in Kenya has been going on in collaboration between KETRI, ILRI, University of Glasgow and funded by the EU as part of a regional project. The areas selected for the study include Kwale and Kilifi (high drug usage), Busia, Bungoma and Teso (low drug usage). The study will be extended to Siaya and Narok later in the year. Tsetse and trypanosomosis data is also collected to assess the disease situation in the study areas. One important feature in the project is the element of training where KETRI has played an important role in training of research counterparts from the region. Two scientists from Zambia are in KETRI to learn methodologies of drug testing while a KETRI scientist spent two weeks in Tanzania in December to train the project scientists. In addition, a Ugandan tsetse control officer is in KETRI to familiarize with the on going control projects in the country.

TSETSE SPECIES DISTRIBUTION IN THE PROJECT AREA "FARMING IN TSETSE CONTROL AREAS OF EAST AFRICA" (FITCA).

Introduction

The report covers surveys carried out in the period between April 1997 and March 1998. Tsetse and trypanosomosis still remain one of the major constraints on animal and human health in the project area and the neighboring districts. The dominant *Glossina* species still remains *Glossina pallidipes* and *Glossina fuscipes fuscipes*. *Glossina pallidipes* is reported to have spread in new foci of block A and B. The surveys were carried out using the standard biconical traps (Challier & Laveissierre, 1977) baited with acetone and phenols to enhance the catch and deployed in the field for 48 hours. The trap sites were selected based on the vegetation cover in the area being surveyed, but were mainly in dense thickets, at approximately 200m intervals and 2km apart in open areas.

1.0 AMAGORO/AMUKURA AND PARTS OF ANG'URAI DIVISIONS OF TESO DISTRICT.

This area falls within block B of the project area with a few parts of Ang'urai in Block A. The following are apparent fly densities in the villages surveyed.

Village	Trap no	G.ff no	G.ff ftd	G. pd no	G.pd ftd
Amoni/Kiriamasi	21	129	3.07	0	0.0
Kamolo	10	39	1.95	1	0.05
Okook	8	84	5.25	0	0.0
Kabosokipi	12	14	0.58	111	4.6
Kakapel	9	0	0	1	0.05
Aboloi/ Kakoli	12	17	0.7	3	0.12
Ng'elechom	10	41	4.1	0	0.0
Machakha	2	-	-	-	-
Kibindayi	2	-	-	-	-
R. Sasur	2	-	-	-	-
Chemasiri	4	1	0.125	1	0.125
Malakisi	4	-	-	14	1.75
Moding	2	8	-	-	-
Kekalet	4	20	2.5	-	0
Akichelesit	6	7	0.58	20	1.6
Katurumeni	2	-	-	-	-

Apparent fly density ftd ranged from 0-5.25 for *G fuscipes*, and 0-4.6 for *G.pallidipes*

1.1 Infection rates

Village	No.diss.	G.ff	G.pd	Tv.	Tb.	Tc
Kabosokipi	71	1	70	6	2	1
Ng'elechom	28	28	0	0	0	0

2.0 CHAKOL DIVISION:

Chakol division is one of the four divisions that form Teso District. The western part is River Malaba which forms the international common border between Kenya and Uganda. Other physical features include the Apatit hills on the East, Akites hills and Karisa hills on the north and various rivers and streams. The division is infested predominantly with *Glossina fuscipes fuscipes* and *Glossina pallidipes*. The division is found in block B of the project area.

2.1 Results

Fresh non-teneral flies were dissected to determine the infection rates. A total of 338 flies were caught with males accounting for 46.2 % and 46.8% females with a total of 22 tenerals. A total of 122 flies of both species were dissected to determine the infection rates, representing almost 40% of the total catch. No flies were found infected. The ftd range for the division was between 0-8.25 for *G. f. fuscipes* and 0-0.6 for *G. pallidipes*.

Following are ftd's recorded for the villages that were surveyed.

Village	Traps no	G.ff no	G.ff ftd	G.pd no	G.pd ftd
Akadai str.	6	99	8.25	0	0.0
Chakol str.	3	129	21.5	0	0.0
Akamosing str	2	6	1.5	1	0.25
Akamosing Hills	2	0	0.0	0	0.0
Aterait Hills	3	0	0.0	0	0.0
Apegei str.	4	5	0.6	0	0.0
Karisa Hills	6	0	0.0	0	0.0
Aludeka River	10	11	0.6	0	0.0
Akites Hills	10	53	2.7	12	0.6
Okiludu	6	0	0.0	0	0.0
Okame River	8	22	1.35	0	0.0

2.2 Infection Rates

Village	No.dissected	G.ff	G.pd	Tv	Tc	Tb
Akadai	30	30	-	-ve	-ve	-ve
Chakol str	36	16	-	-ve	-ve	-ve
Akamosing	2	2	-	-ve-	-ve	-ve
Apegei str	4	4	-	-ve	-ve	-ve
Aludeka	10	10	-	-ve	-ve	-ve
Akites	25	15	10	-ve	-ve	-ve

2.3 Discussion

Results indicate that *G.pallidipes* is confined on the Eastern part of the division along the hill ranges that form the boundary with the neighboring Amukura division, whereas *G.f.fuscipes* is found along most of the streams and rivers that cross the region and along Malaba river on the west

3.0 BUTULA DIVISION

Butula Division is found in Busia District and forms its border with the new Mumias/Butere District on the East and Siaya on the Southeast. Part of it is under sugarcane plantations. The division also borders Nambale, Funyula and Matayos divisions of Busia. The incidence of trypanosomosis is not as high as in the other neighbouring divisions. It has a large network of streams which drain either into Sio or Nzoia Rivers. It is also found in Block B of the project area.

3.1 Results

A total of 68 flies were caught in eight days trapping with 32 (47%) being males and 52.9%. The following ftd's for villages surveyed were recorded with a range of 0 to 1.75 as the highest along Lelekwe stream. Most flies were non-tenerals with only 2.9% being tenerals. 28 flies (41.2%) of the non-tenerals caught were dissected to determine the infection rates. None of the flies was found to be infected.

The tsetse species found infesting the area is *Glossina fuscipes*, which was found mostly along rivers and streams.

Village	Traps no.	G.ff no	G.ff ftd	G.pd no	G.pd ftd
Esikoma/Muyala str.	5	6	0.6	-	-
Imanga/Lelekwe/Bulwani	3	5	0.83-	-	
Bukuyudi	2	0	0.0	-	-
Bwaliro/Namaderema str.	4	12	1.5-	-	
Siamakondi/Lelekwe	2	7	1.75	-	-
Tingolo/Lunabo str.	3	3	0.5	-	-
Bumala'B'/Akanya	4	0	0.0	-	-
Busiada swamp	5	0	0	-	-
Muumba swamp	9	0	0	-	-
Igula swamp	4	0	0	-	-
Burinda	2	1	0.25	-	-
Lugulu	8	24	1.5	-	-
Benga	5	0	0.0	-	-
Mawolo/Nangeni	10	10	0.5	-	-

3.2 Infection rates

Village		no.dis s.	%	G.ff	G.pd	Tv.	Tb.	Tc.
Bwaliro	6	21.4	6	0	-	-	-	-
Siamokondi	9	32.1	9	0	-	-	-	-
Lugulu	10	35.7	10	0	-	-	-	-
Nangeni	3	10.7	3	0	-	-	-	-

Findings indicate that only one species, *G.fuscipes fuscipes*, infests the division. The absence of trypanosomosis could be attributed to the fact that most of the land is put under cane farming and livestock in the area are mostly tethered or zero grazed, thus reducing the chances of tsetse bites

and therefore infection. The infestation in the division occurs along the lakeshore, rivers and streams.

An isolated mainland population of *G. f fuscipes* was found next to an exotic dairy herd in Burinda village. There were also a number of biting flies caught in the area. Some streams were however, inaccessible due to flooding from the unusually short heavy rains at the time of the survey.

4.0 NAMBALE DIVISION, BUSIA DISTRICT

Nambale forms one of the four divisions that make up Busia district, it borders Matayos, and Butula divisions to the south, Amukura of Teso, and Bumula of Bungoma to the north, and Matungu of the new Mumias/Butere District. It is within block B of the project area.

There are notable rivers among them Sio/Walatsi, Namolwe and Lelekwe with many streams, which offer conducive habitation for infestation with *Glossina fuscipes fuscipes*. Only *G. f fuscipes* was caught. A total of 334 flies from two days trapping with 40 traps were caught, out of which 96 or 28.7% were males and 238 or 71.25% females, 13 or 3.9% were tenerals while the rest were non-tenerals. In one area around Nambale town, along the road to Butula at Sio bridge, two traps caught a record 133 flies accounting for 39% of the total catch. A total of 146 (43.7%) flies were dissected to determine the infection rates, but none was found infected with trypanosomes. The tsetse species found infesting the area was *Glossina fuscipes fuscipes*, which was found mostly along rivers and streams.

Given below are apparent fly densities registered in the surveyed villages.

Village	No Traps	G.ff total	% catch	G. ff ftd	Gpd total	Gpd ftd
Malanga	6	37	110	3.08	-	-
Sidende	6	99	29.6	8.25	-	-
Ekisumo	6	10	29.0	0.8	-	-
Mungatsi	6	12	3.59	1.0	-	-
Nambale bridge	2	133	39.8	33.0	-	-
Walatsi River	8	40	11.9	2.5	-	-
Lelekwe str.	2	8	2.3	2.0	-	-
Alungoli/Sio	4	25	1.5	3.125	-	-

4.1 Infection Rates

Village	No. Dissected	%	G ff.	G. pd.	Tv	Tb	Tc
							-
Sidende	45	30.8	45	-	-	-	-
Mungatsi	5	3.42	5	-	-	-	-
Ekisumo	5	3.42	5	-	-	-	-
Walatsi	29	19.8	29	-	-	-	-
Nambale bridge	60	41.0	60	-	-	-	-
Alung'oli	2	1.4	2	-	-	-	-

5.0 MATAYOS DIVISION BUSIA DISTRICT

Matayos division is one of the divisions that make Busia District. It is the smallest and most recent in the District, having been curved out of Nambale. It is mostly a flat Savanna area with only a few hills that form its Western Boundary with Funyula. River Sio crosses through from Nambale Division and on to Funyula from where it drains into Lake Victoria. Part of it is in Block B and the other part in Block C of the project area.

Main rivers are Nasira, Namwitaula Nakhomake etc. All these drain into River Sio. The following ftd's were recorded.

Village	No. Traps	G.ff Total	G.ff ftd	G. Pd Total	G. pd ftd
Sio River Banks	9	14	0.77	-	-
Nasira	9	2	0.11	-	-
Namwitsula	4	5	0.6	-	-
Sigwata	2	32	8.0	-	-
Igero	2	0	0	-	-
Nakhomake	5	0	0	-	-
Busibwabo	4	11	1.37	0	0
Munongo	8	38	2.3	0	0
Budokomi	10	10	0.5	0	0
Murende	6	8	0.66	0	0
Khunyala	6	7	0.58	0	0

5.1 Infection rates

Village	No. Dis.	G. ff	G. pd	T.	Tb	Tc
R/Sio/Nasira	19	19	0	0	0	0
Murende/Muya.	10	10	0	0	0	0
Munongo	25	25	0	(0.04%)	0	0
Namwitsla	22	22	0	0	0	0

A total of 261 flies were caught and infection rates determined from 127 (48.6%) flies out of which 1 was found with *T. vivax* at Munongo. This is a village next to the Kenya/Uganda border and next to River Sio. Most of the *G. f. fuscipes* flies dissected were not infected and it is also worthy to note that the low numbers caught was as a result of the dry weather prevailing at the time. Only *G.f. fuscipes* was caught in the area.

6.0 TSETSE AND TRYPANOSOMIASIS SURVEY OF SELECTED VILLAGES OF AMAGORO, ANGURAI AND AMUKURO DIVISIONS DURING THE SLEEPING SICKNESS OUTBREAK AT IKAPOLOK

The objectives of the survey were:-
(a) To survey the areas where active surveillance screening of humans and animals was taking place.
(b) To identify the tsetse species present.
(c) To determine the infection rates in flies.

This was a follow up of a similar survey around Amagoro township including Ikapolok village, where there had been an outbreak of HAT (SS). The objective was to expand on the catchment area of the survey in order to increase the chances of picking HAT victims and ascertain whether the disease had been contained.

6.1 Results

Following is a summary of trap catches and their respective ftds for villages surveyed

Village	Traps no	Gff total	Gff ftd	Gpd total	G pd ftd
Amoni/Kiriamasi	21	129	3.07	0	0.0
Kamolo	10	39	1.95	1	0.05
Okook	8	84	5.25	0	0.0
Kabosopiki	12	14	0.58	111	4.6
Kakapel	9	0	0	1	0.056
Aboloi/Kakoli	12	17	0.7	3	0.125
Ng'elechom	10	41	4.1	0	0.0

2 Infection rates

Village	no. diss.	Gff	G pd	Tv	Tb	Tc
Kabosopiki	71	1	70	6	2	1
%				8.57	2.85	1.42
Ng'elecho m	28	28	0	0	0	0
%				0	0	0

T. brucei infection in *G. pallidipes* was identified in Kodedema where another salivary gland infection (3.2%) was found. Suffice to note that the *T. vivax* infection in *G. pallidipes* was also quite high. It was evident that *G .pallidipes*, which is an efficient vector of animal trypanosomosis and HAT is widespread in these villages, especially Kabosikipi and it is advisable for tsetse survey

and control Department of MOALD & M to deploy control measures using stationery targets, for hilly ground and mobile targets for the lower ground.

7.0 BUDALANGI DIVISION, BUSIA DISTRICT

Budalangi forms part of Busia, and is the southernmost Division bordering Siaya to the South and the entire lake shore region. It is found in block D of the project area, dominated by either hills, swamps or the lakeshore. The dominant Spp. is *G. f. fuscipes* on the lakeshore with *G. pallidipes* on the eastern mainland bordering Funyula Division. Eleven villages scattered through the Division were surveyed. A total of 426 flies were caught in four days with 421 being *G. f. fuscipes* and 5 *G. pallidipes* which were caught in Budumbusi area, an old focus of *G. pallidipes*.
In general the widely distributed species is *G. f. fuscipes* that was found to infest the lakeshore and the rivers Nzoia and Yala systems all the way from Musoma where it drains into lake Victoria up to Rwambwa in the East. Most of River Nzoia is heavily infested with *G. f. fuscipes*.

Ftd ranges for respective villages given below:

Village: Magoye beach, Bundubusi/P. Victoria forest

Traps No.	spp	Ntm	Ntf	Tm	Tf	Total
20	Gff	19	36	4	18	77
	G.pd	1	1	2	1	5

A total of 82 flies were caught in these areas with 31.7% being non-teneral males while 68.5% were non-teneral females. Total tenerals accounted for 30.4% and the average Ftd recorded was 2.05% in the following order.

Area	G.pd	G.ff
Magoye beach	0.3	7.3
Bundubusi	o.125	0.25
P.Victoria forest	0	0

Village: Mau Mau/Musoma/Sigiri/Makunda/Magombe/Rwambwa

Trap sites	Spp.	Ntm	Ntf	Tm	Tf	Total
17	G.ff	107	201	21	15	344

All flies caught in the Southern part of the division were *G.fuscipes*. A total of 344 flies were caught. Biting flies, mostly tabanids, stomoxys and haematopota were also caught in large numbers. The average F.T.D. of the areas was 10.5 and individual village f.t.d. are as follows:-

Area;	G.ff FTD	G.pd FTD
Musoma	3.8	-
Mau Mau	0	-
Sigiri	8.8	-
Makunda	19.8	-
Magombe	14.3	-
Rwambwa	16.75	-
Rwambwa II	7.75	-
Namalo	0	0.4

Bundalangi is predominantly infested with *G. f. fuscipes* especially along the lake-shore and the Island of Osieko. To a lesser extent *G. pallidipes* is found to the North of the division around Budumbusi which is close to port Victoria forest and bordering Busia Hills. *G.f. fuscipes* also inhabits the river systems of Nzoia and Yala which run through the division draining into Lake Victoria.

8.0 FUNYULA DIVISION - BUSIA DISTRICT

Funyula division falls within block`C` and D of the project area. It is bordered by Ukwala of Siaya to the South and to a smaller extent L. Victoria on the West. A large area of Funyula is either hilly or swampy for the area bordering Uganda along River Sio and the lake shore forms the international boundary.

Trap catches

Sisenye/Busemba/Mumbaka/Bumalere/Hakati/Sigalame/Nabuganda/Lugala

village	**spp.**	**Ntm**	**Ntf**	**Tm**	**Tf**	**Total**
Sisenye	G.ff	1	2	-	-	3
Anjalagobe	G.ff	1	-	-	-	1
Kinyagosi	Nil	-	-	-	-	-
Busembe	G.ff	-	2	-	-	2
Namunyweda	Nil	-	-	-	-	-
Mumbaka	*Gff*	13	7	7	-	20
	Gpd	-	2	-	-	2
Nanguba	*Gff*	4	1	-	1	6
Bumarere	*Gff*	4	1	2	-	7
Bwiri	*Gpd*	2	-	-	-	2
	Gff	-	3	-	-	3
Hakati	Nil					
Sigalame	Nil					
Bukhulungu	G.ff	2	1	-	1	4
Munana River	G.ff	1	6	-	-	7
Nangina	Nil					

Nangosia	Nil					
Gulamwayo	Nil					
Funyula	Nil					
Nabuganda	G.pd	-	2	-	-	2
Nambengele	Nil					
Lugala village	G.ff	-	1	0	0	1
Total		**28**	**28**	**2**	**2**	**60**

Mean Ftd = 1.5 Ftd G.pd =0.15 Ftd G.ff 1.35

Butabona	Nil	-	-	-	-	0
Hakati Dip	Nil	-	-	-	-	0
Hakati Barracks	Nil	-	-	-	-	0
Mande Hills	*Gpd*	2	-	-	-	2
Nanyungu	*Gpd*	1	-	-	-	1
Namalo	*Gff*	1	-	-	-	2
Namalo Hill	nil	-	-	-	-	0
Khumera	*Gff*	1	-	-	-	1
Nyamila	Nil	-	-	-	-	0
Nanderema	*Gpd*	1	-	-	-	1
Lwanda	*Gff*	2	3	-	-	5
Lwanda	*Gff*	1	6	-	-	7
Total		**9**	**10**	**-**	**-**	**19**

Apparent average fly densities =0.59
Ftd G.pd = 0.18
Ftd G.ff =0.46

8.2 Area: Dahiro/Nyahobi/Nambuku/Lwanda/Bukangala

Village	**Spp.**	**NTm**	**NTf**	**Tm**	**Tf**	**Total**
Dahiro	G.pd	-	2	-	-	2
Repeator St.	Nil	-	-	-	-	-
Nyakhobi	Nil	-	-	-	-	-
Nambukuhills	G.ff	1	-	2	-	3
Rukada	G.ff	9	13	2	2	26
Buradi	G.ff	2	-	-	-	2
Bukhuamba	Nil	-	-	-	-	-
Luchululo	Nil	-	-	-	-	-
Khayinga	G.ff	-	1	-	-	1
Bukangala	Nil	-	-	-	-	-
Busibi	Nil	-	-	-	-	-
Ganjala	Nil	-	-	-	-	-

Odiado hills	Nil	-	-	-	-	-

Mean average Ftd = 1.3
G.pd Ftd = 0.07
G.ff Ftd = 1.2

The distribution of *G.pallidipes* is concentrated in the hinterland of Samia hills range, Nanderema and Hakati.
The infestation of *G.f fuscipes* is however, widespread to almost all rivers and streams.

9.0. BUMULA DIVISION - BUNGOMA DISTRICT

Bumula forms the Western Boundary of Bungoma and its neighbouring districts of Teso and Busia. River Sio which has proved to be a suitable continuos focus of *G.f fuscipes* runs through from its source in Kanduyi Division. Most of the land is under cane plantations, as it falls within Mumias outgrowers sugar belt zone.

Results
A total of 240 flies were caught in the villages surveyed 26.7% or 64 flies were males while 158 or 65.8% were females, 7.9% accounted for tenerals. Out of all this flies 4.2% of the total catch were *G.pallidipes* which found in the northern parts of the Division.
Flies per trap per day (FTD) were calculated for respective villages. The Ftd ranged between 0 and 9.4 as the highest mean.

Village	Traps	*Gff* No.	*Gff* (f.t.d.)	*Gpd* No.	*Gpd* (f.t.d.)
Nakhwana str	1	0	0	0	0
Kimwanga	2	17	4.25	0	0
Machunde	2	8	2.0	0	0
Nambasipo	2	7	1.75	0	0
Munyali(Sio)	2	6	1.5	1	0.25
Khalaba	2	0	0	0	0
Mayanja River	6	16	1.33	0	0
Mabusi Str.	6	39	3.25	0	0
Nasianda	6	18	1.5	0	0
Lumboka (Sio)	4	75	9.4	0	0
Kitabisi	3	22	3.66	0	0
Bitobo	4	0	0	0	0

Average FTD for *Gff*= 2.38 and *Gpd* = 0.14

Eighty three (83) flies were dissected to determine the infection rates but they were all not infected. The dispersal of *G.pallidipes* northwards is evident as at least *G. pallidipes* was caught at Munyali which is very close to Bungoma town near the Sio river.

VOTE OF THANKS

Mr. Chairman,

Distinguished Delegates,

Invited Guests,

Ladies and Gentlemen.

It is a pleasure for me to have been availed of this opportunity on behalf of the Government of Tanzania to give a vote of thanks at this closing ceremony of the 13th Coordination meeting on Farming in Tsetse Control Areas of Eastern Africa.

Pertinent issues have been raised and discussed in the course of our two day's stay here as a result of which the recommendations have been based. Delays in the Project Management Cycle was one of the grey areas which needs to be followed up especially with the principal donor, the EU whose commitment for funding FITCA is highly appreciated.

Other issues discussed varied from the successful story of Tsetse eradication from Zanzibar to the sad and horrifying situation of sleeping sickness in Southern Sudan. In between we heard the provoking challenge as to why we did abandon ground and aerial spraying in favour of newer vector control technologies which so far don't seem to be very effective.

All this is an indication that we still have a long way to go in the fight against tsetse and trypanosomosis in Africa and even more so in this region.

These Coordination meetings have been held regularly and this is obviously one of the strengths and a credit to the organizers, the OAU/IBAR Secretariat. This particular meeting has been very successful because of the efforts put in by the hosts, the people and the Government of Uganda. We have enjoyed Uganda's hospitality which has graciously been exercised throughout our stay. You have been our home away from home and for that we can only say THANK YOU.

It would take me a long time to thank each and everyone who has contributed to the success of this meeting starting from the organizers down to the Grand Imperial Hotel Management for their excellent services. To everyone associated with this success I say thank you and this includes the participating countries and those who have sponsored our participation.

With these few remarks may I conclude by wishing you BON VOYAGE back home hoping we shall meet again in the next meeting (Ishaallah) if God wishes.

MANAGEMENT OF TRYPANOSOMOSIS THROUGH COMMUNITY BASED APPROACHES - THE WAY FORWARD

Proceedings of a Nairobi Cluster workshop held at KETRI on 28th November, 1997



ORGANISED BY THE TRYPANOSOMOSIS SCIENTIFIC GROUP OF THE NAIROBI CLUSTER AND SPONSORED BY KETRI AND THE KETRI/DFID ANIMAL TRYPANOSOMIASIS PROJECT

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This workshop received financial assistance from KETRI and the KETRI/DFID Animal Trypanosomiasis Project. The efforts of the organising team, the presenters and other workshop participants who made the event a success is highly acknowledged.

3. PROGRAMME

9.00am	Opening remarks	**J. M. Ndung'u – KETRI**
9.10am	Community participation in Research and Technology Management: Prospects and problems	**F. Kiros – ICIPE**
9.30am	Status of community based tsetse control in Nguruman, Kajiado District	**G.T. Lako – ICIPE**
9.50am	An evaluation of community-managed tsetse and trypanosomosis control using traps baited with natural attractants in Lambwe Valley, Western Kenya	**J. Ssennyonga – ICIPE**
10.10am	**Tea/Coffee Break**	
10.30am	Transfer of tsetse control in Ruma National Park to Kenya Wildlife Service	**F.N. Wamwiri (KETRI) and T.O. Obari (KWS)**
10.50am	Community based tsetse control in Transmara District: community training and start of programme implementation	**R. Kuloba (KETRI), A.K. Njoroge (TDP) and J.M. Mwatika MALDM)**
11.10pm	Level of community participation in the proposed regional project "Farming in Tsetse Control Areas of Eastern Africa"	**R. Dolan – StockWatch**
11.30pm	Status of community based tsetse control in Ghibe Valley, Ethiopia	**B. Swallow – ILRI**
11.50pm	The use of pour-ons in the control of tsetse and trypanosomosis by the Maasai community in Nguruman, Kajiado District	**K.S. Sones – StockWatch**
12.10pm	Can human population growth and land use alone control tsetse flies in the foreseeable future	**R. Reid – ILRI**
12.30pm	General discussion and formation of groups	
1.00pm	**Lunch**	
2.00pm	Group Discussions	
3.00pm	Presentations by groups and recommendations	
4.00pm	General Discussion, Closing remarks and Vote of Thanks	

Moderators: **J.M. Ndung'u and F. P. Oloo**
Rapporteur: **E.K. Mwangi**
Organisers: **J. M. Ndung'u, F.P.Oloo, R. Eley and C. M. Mwendia**

4. OPENING REMARKS

Dr. Mathu Ndung'u, Acting Director KETRI

The Cordinator of the Trypanosomosis Group of the Nairobi Cluster,
Mr. F.P. Oloo, Fellow Directors, Donor Representatives,
Ladies and Gentlemen.

I would like to take this opportunity on behalf of my staff, to welcome you to KETRI, and on beha of the Nairobi Cluster Directors, to welcome you to this meeting. For those of you who are here for tl first time, KETRI is one of the National Research Institutes established under the Science ar Technology Act of 1979. Before 1977, tsetse and trypanosomosis research was being undertaken b the East African Trypanosomiasis Research Organisation (EATRO) with its headquarters in Toror Uganda.

KETRIs mandate is to undertake research on all aspects of tsetse and trypanosomosis that will lea to their management and control, and to proper utilisation of reclaimed lands. The mandate addressed through eight research programmes, by more than 40 research officers, most of whom a trained to Masters and PhD levels. Our Environment and Socioeconomics programme is relative young but one that is growing very rapidly, with the recruitment of 5 more scientists having been dor only a few days ago.

The Nairobi Cluster has been in existence and active for 17 years. Some of its main activiti include: facilitating collaboration among Cluster organisations, sharing of facilities, joint projects ar seminars, bringing together scientists with common interests through the various scientific groups, ar also organises field days each year. The next field day is being hosted by KETRI and ICIPE at the Nguruman field stations on 11th, December 1997. Anyone interested in attending the field day can g in touch with Dr. Robert Eley's secretary at ILRI or Dr. Mwendia of KETRI.

I have been the Chairman of The Cluster for the last 2 years, and Dr. Robert Eley the Secretary. Or of the activities we are involved in now is the production of a Bulletin that reviews the last 17 years The Cluster. The present workshop on "Management of Trypanosomosis through community base approaches - The Way forward", is one of the activities of the Trypanosomosis Scientific Group of Tl Nairobi Cluster. The coordinator of that group is Mr. Francis Oloo, the Chief Zoologist in the Minist of Agriculture, Livestock Development and Marketing.

The choice of the topic for today's discussion was not by accident. For more than 15 years, applie research has been carried out by scientific organisations, involving many scientists, not to mention tl amount of money spent, all attempting to determine *at what level* in tsetse and trypanosomosis contr and *to what extent*, communities in tsetse infested areas, can be used in sustaining tsetse ar trypanosomosis control. Most such activities have gone on for short periods, usually not exceeding years, with the scientists involved recording encouraging outcomes, which is not unexpected when or considers that scientists do not like "throwing in the towel" and admitting failure, otherwise furth funding may not be justified.

At the end of the project period, an evaluation is carried out, and usually it agrees with what the project scientists have reported, mainly because the evaluation is not done long enough after the end project funding, to properly assess sustainability. The signal that has hence reached donors' ears has ended up giving the impression that there are no short-comings in community based approaches to tsetse and trypanosomosis control. Time is an important factor in determining the success of community based approaches, and we all know that when scientists leave a project area, they either leave with the infrastructure that enabled such an approach to succeed, or they leave too early for the infrastructure to have been fully developed to assure sustainability.

Many questions have been asked about community approaches to tsetse and trypanosomos control, and few answers have been given, *in a manner that allows for their adoption or use by donc and disease control workers*, in charting out future approaches to sustainable tsetse a

in one way or the other, in this young and interesting field of research. They therefore are the olicy makers.

Today, we shall listen to presentations on the successes and failures of tsetse and trypanosomosis control programmes that have involved communities and other beneficiaries, and we shall participate in *open and positive discussions* to determine where and why we have succeeded, where and why we have failed, and make achievable recommendations. At the end of the day, we should agree on what to do with the recommendations that we come up with. In my view, we should ensure that all stake-holders, including the donor community, researchers and governments, should be made aware of the experts' opinion, especially at this crucial time when the terms *Cummunity Participation, Sustainability* and *Environmental Awareness* have become so important. I would therefore like to encourage you to be as open and as honest as possible in your discussions to allow us to come up with something that we can be proud of in future.

Let me once more welcome you all to KETRI and to this Workshop, and because I might not have another opportunity to say this, I wish you a Merry Christmas and Prosperous 1998. It is now my greatest pleasure and privilege to declare this workshop officially open.

Thank you.

5. PRESENTATIONS

5.1. Community participation in Research and Technology Management: Prospects and problems- F. Kiros - ICIPE

The presentation gave a general overview of research involving community participation. The objectives of research in this area are to provide a background and framework for dialogue in community participation. The key points were;

- Identification of tools for participation is necessary.
- The question "why participation communication?" needs to be addressed.
- There is no clear definition of participation so far.
- Farmer participatory research needs to be defined. Can we narrow this for our case in trypanosomosis?
- What is the rationale of participation?
  reaction to failures in past development activities due to a modernisation Policy, new technologies have to be introduced and,
  technologies that fit into the socio-economic milieu of the users must be developed.
- The relationship between researchers, the extension and the farmer should adopt an interactive approach rather than the commonly used linear approach.
- When developing a technology, indigenous knowledge should be considered and where necessary built upon.
- There is a need to empower the Research and Development clientele (technology user) e.g. in case of mosquito control using nets, the availability to the poor and rich should be considered.
- The disadvantaged members of the community should be involved in decision making.
- The objectives of community participation should be to promote users and to enhance adoption and sustainability
- Issues and challenges of community participation research should be addressed.

Conclusions

- There is need to reallocate resources to strengthen research in community participation.
- We should learn from past experiences i.e., study components of successful events and failures.
- We should also aim at developing technologies that are appropriate for the community in question.

5.2. Status of community based tsetse control in Nguruman, Kajiado District - *G.T. Lako* - ICIPE

Summary of Results

- The community in Nguruman has been organised and sensitised and has shown an initial response to contribute to tsetse control through cash or material donations.
- Farmers have responded positively to trap maintenance since they took them over from ICIPE. However, at times it appears that the percentage of traps in good working condition and those not in working condition or needing replacement are highly variable. The source of this variation needs investigation.
- Adequate livestock productivity data has been collected on, livestock population, livestock breeds, herd composition in cattle, distribution of mortalities and milk productivity in collaboration with KETRI.
- On community's impact assessment of tsetse control after pre- and post-periods, the fear of grazing cattle in the forests because of tsetse flies has been greatly reduced although their opinion regarding the tsetse density and disease incidence was still the same.
- There is a general impression that tsetse control has improved farming. The community also perceives that there has been improved access to forest resources, use of land for cultivation and for grazing, and use of land for human settlement.
- It would appear that tsetse control has improved livestock production in terms of reduced livestock mortality and increased livestock numbers. The community has observed some improvement in milk.
- Cattle treatments have decreased since tsetse control was implemented.
- Formal training has been done and has been extended to include pastoralists from Transmara and farmers from Lambwe Valley. The catalytic group (CG) is continuously involved in informal training of other members of the community.

Concluding Remarks

- Community organisation in Nguruman has improved greatly. Community resource mobilisation has taken off in three sub-locations.
- Community management of the traps that were handed over by ICIPE has so far been good despite the short period of the experiment and the problems associated with the environment.
- The community regards the tsetse problem as having generally declined due to trapping.

The way forward

- The seasonality and climatic factors of the semi-pastoralist system need to be better understood.
- The adoption process of tsetse control programmes in semi-pastoralist settings requires further investigation and comparison with other farming systems.
- Environmental impact assessment needs to be performed.
- National extension services should be involved in the adoption process to ensure sustainability.
- There is need for financial support for further research in the above areas.

5.3. An evaluation of community-managed tsetse and trypanosomosis using baited with natural attractants in Lambwe Valley, Western Kenya - *J.W.Ssennyonga* – ICIPE

The presentation outlined origins, objectives, achievements, constraints and factors contributing to community participation and its success. Following the success of an earlier tsetse trapping control program in Lambwe Valley, the community was impressed with the drastic reduction of tsetse density and therefore requested ICIPE for training in tsetse trapping. In response, a community-based project to benefit a community of 12,000 persons in 100 km^2 was implemented (1992-97) by ICIPE and the community in collaboration with Natural Resources Institute (NRI) and Kenya government ministries

management resources to control trypanosomosis. ICIPE was to provide the initial training and technical support. The main strategies were;

(i) empowerment of the community through science-based training in tsetse biology and control, organisation and management,
(ii) farmer-to-farmer extension, whereby a catalytic group of farmers (CGF) would be trained and would, in turn, train and disseminate the technology to other members of the community,
(iii) formation of a strong organisation and,
(iv) self reliance.

A 42-strong CGF was trained, which in turn, organised 30 meetings to train and disseminate the technology, following which a strong decentralised organisation was formed by the community in 1993. The organisation mobilised funds and started trap construction and deployment in mid-1994. Since then, the community has deployed 216 traps; among these 21% and 17% were replacements for worn-out and vandalised traps, respectively. Monetary costs raised by farmers themselves amounted to Kshs. 149,302. In addition, 2380 man-days (30% contributed by women) have been expended. Tsetse catch/trap/day has declined from 127 in 1993 to nil in 1997. In the same period, trypanosomosis challenge has also fallen from 200 to nil. The main constraints include a free-rider problem, weak organisation and fund-raising skills, and apathy by trained extension staff.

Methods for determining the factors influencing individual and group participation have been developed. For example, Pearson correlation coefficients show that the relationship between training and labour expended on trap work is significant for women (0.45743) but not for men (0.12459). Other factors include proximity to tsetse reservoirs ownership of livestock and realisation of benefits. Factors determining the success of community participation include empowerment, regular monitoring and evaluation of results, strong and decentralised organisation, and the creation of incentives to sustain motivation. This model is under validation in nomadic pastoralist societies.

5.4. Transfer of tsetse control in Ruma national park to Kenya Wildlife Service - *F.N. Wamwiri* (KETRI) and T.O. *Obari* (KWS)

Background

The Lambwe Valley has been a major focus of human and animal trypanosomosis, and various tsetse control methods have been practised since 1959. KETRI has been involved in a number of tsetse/trypanosomosis control studies in the area for the last 10 years. The last of these studies was the KETRI/WHO/TDR project on "development of sustainable tsetse control using deltamethrin impregnated targets in areas around a national park". The aims of the projects were to;

- determine the tsetse and trypanosomosis problem outside the Ruma national park,
- assess ability of the KWS to carry out tsetse control in the Park and
- assess willingness of the community to participate in the control.

As a result of the control operation on the project, the fly density (FTD's) decreased from 1600 to about 1 by 1993 and was maintained at that level up to 1995.

Transfer to the KWS

The process began in 1995. Following discussions with the management of KWS, an action plan was formulated on the transfer process, which included training of personnel (3 months) on; tsetse identification, sampling and monitoring, target making, impregnation and maintenance of targets. The transition period (2 months) was supervised, after which KETRI withdrew in July 1996.

Problems encountered

- Financial - the tsetse control budget was incorporated in the overall budget for Ruma National Park.
- Perception - KWS workers were finding it difficult to incorporate tsetse control as part of their normal duties

Progress

After two years;

- tsetse population suppression was still effective (< 0.5 FTD),
- targets were still serviced routinely, the disease incidence remains low (<3%) and,
- tourism had improved; up to 75 tourists were visiting the park each month as per recent reports.

Conclusion

It is possible to successfully involve a beneficiary to adopt or participate in tsetse control.

5.5. Community based tsetse control in Transmara district: community training and start of programme implementation - *R. Kuloba* (KETRI), *A.K. Njoroge* (TDP) and *J.M. Mwatika* (MALDM)

Objectives

The objective of the presentation was to give a progress report on the status of the Olopikidongo' community based tsetse and trypanosomosis control project in Transmara district. The project, whic is co-financed by The Transmara Development Programme (TDP) and KETRI aims to actively involv communities in adopting effective, low cost and simple technologies.

Background

Community participation, which is a grassroots oriented and poverty-focussed strategy, has been catch-word for the 90's where communities are expected to actively participate in making decisions a all stages of the project development i.e., problem identification, planning, implementation, monitorin and evaluation. This is a demand (need) driven project where end-user participation is considered vit in order to ensure sustainable development. Controlling tsetse and trypanosomosis through communit participation remains a priority within the overall government policy on environment, especially whe natural resource management in involved. Since as a public good, a tsetse fly free environment is utility where access cannot be denied, the call for an end-user-driven tsetse control approach remair paramount and is set to continue.

Introduction

The project is a product of round table discussions by a number of partners under TDP. These includ GTZ, KETRI, Veterinary Department, KARI and Transmara County Council. The role of KETRI is t monitor the adoption profile of the technologies being tested and to conduct training.

Approach/Methodology

The Project profile involves/involved;

- Selection of pilot area mapping and determination of indicators.
- A participatory Rural Appraisal was conducted in June 1995 to identify the communitie constraints and opportunities as a result of which; trypanosomosis was prioritised in 3 out of *Elatias*, formulation of community action plans was carried out and technical advice on tset control was sought by the community.
- Tsetse and trypanosomosis baseline survey was to carried out to determine; incidence trypanosomosis in cattle, extent of fly infection in the cluster area and infection rates, loc

- Community mobilisation and selection of community groups; objectives of the project were outlined, *Elatia* based educational seminars organised, and catalytic group of farmers selected for training on CBTC.
- Training of catalytic farmers; the community, through a catalytic group (carefully selected by elders) were trained on sustainable tsetse and trypanosomosis control. This was an empowerment approach through local capacity building and strengthening methods established through community organisational structures at *Elatia* level (informal linkages) in order to achieve self-management.
- Follow-up and resource mobilisation; a technical assistant and a Community Mobiliser were recruited to help the communities in forming viable management committees in readiness for resource mobilisation.

Observations

- Farmers showed a high level of awareness about the problems of tsetse and trypanosomosis.
- Farmers could differentiate the various species of tsetse.
- There is a high trypanocidal drug use in livestock.
- Cattle treatment is conducted by individual farmers.
- The community is socio-economically empowered as they have high livestock holdings and have committed to contribute 1000 Kenya shillings per able person to go towards buying traps.
- There has been a high grasp of trap making skills.
- There is a unique organisational structure.
- There is a high enthusiasm to take up the technology immediately after the training, which seems to wane with time.
- The community was more inclined to set traps through paid labourers.
- Women are busy for up to 17 hours a day although they are better placed to learn trap making skills, as they can be more efficient and committed than men.

Future

The growing scepticism about the plausibility of community based tsetse control need not be sustained as community based approaches in tsetse control are basically at an infantry (take off) stage and are bound to have revocable shortcomings. This when observed in a wider context of the late entry of social science input in technology development gives room for phasing out of the assumed gaps in knowledge.

Given the experiences in Transmara, although community based tsetse and trypanosomosis control is feasible in a wider context of natural resource management (public good concept), there appears to be a commitment of interest which is more fanatical. The overriding question then is "How can this commitment of interest exhibited by the recipient communities be sustained, especially in the performance of technical and management functions of tsetse control?"

5.6. Level of community participation in the proposed regional project "Farming in Tsetse Control Areas of Eastern Africa" - *R.B. Dolan* - StockWatch Ltd

The presentation highlighted the level of community participation in the EU project that was submitted in 1994. From predictions, human trypanosomosis will still be there by the year 2040. Although the project is mainly based on human trypanosomosis in south eastern Uganda, the Kenyan aspect of the project focuses on three border districts based on the history of human trypanosomosis.

- The border region has a high potential for agriculture and livestock production.
- Sustainability will depend on the community taking responsibility for rural development, disease control being one of the aspects.

- In the project, incentives will be provided through inclusion/introduction of rural development projects, AI services, a bull scheme for gradual livestock improvement, zero grazing and agroforestry demonstration units.
- Multidisciplinary approach in the project will include other diseases and animal traction.
- The project has therefore adopted a holistic approach.
- The logistics of funding are still being sorted out.

5.7. Status of community based control of tsetse and trypanosomosis in Ghibe Valley, Ethiopia - *B. Swallow*- ILRI

Tsetse and trypanosomosis control has been going on in the Ghibe Valley since 1990 using various methods namely; targets (Ectopor®) and pour-on (Spot-on®) application. The farmers share costs or assist the control programmes at different levels. ILRI assists with the management, delivery, financial, technical consultation and monitoring aspects.

Some key issues arising from the study are:

- There is need to determine whether community participation should be ran privately, through a co-operative group or by the public.
- Advantages and disadvantages of co-management versus a community-based collective endeavour need to compared.
- Subsidiarity – devolution to the lowest possible level, is necessary.
- An efficient system for delivery, finance, management, education and monitoring needs to be developed.
- Definition of co-operatives – a clarification is still needed.

5.8. The use of pour-ons in the control of tsetse and trypanosomosis by the Maasai community in Ngurumun, Kajiado District - *K.S. Sones* –StockWatch Ltd

The Maasai farmers on Olkiramatian Group Ranch in south-western Kenya practise pastoralist production of livestock based largely on a transhumant life-style. Tsetse-transmitted trypanosomosis is the major disease problem in their cattle. Previous experience on the Ranch had demonstrated that community-based tsetse trapping was probably not a sustainable option for trypanosomosis control. An alternative approach has therefore been tried using a synthetic pyrethroid which can be applied directly to cattle as a pour-on. The objective of the present study was to determine if the use of a deltamethrin pour-on (Spot-on®, Mallinckrodt Veterinary) represented an appropriate and sustainable approach to tsetse and trypanosomosis control for pastoralist farmers.

Over the two years since its introduction, the farmers have shown that they are willing to buy the pour-on and there has been a steady increase in its usage. Approximately 15% of the cattle on the Group Ranch are now being regularly treated. There has been a lower than expected incidence of trypanosomosis in the treated cattle. No reduction in tsetse numbers has been recorded, however perhaps because too few treated cattle are coming into contact with tsetse flies to have an effect on the fly population. Despite this, it is considered that farmers will continue to use pour-ons in the future, if reliable supply can be assured, and a reduction in the incidence of trypanosomosis will be achieved.

5.9. Can human population growth and land use alone control tsetse flies in the foreseeable future? - *Dr. R. Reid* - ILRI

- The question raised in the presentation was – if growth in human population and land use changes will eventually control tsetse, why should we bother developing tsetse control technologies?
- There is evidence (based on prediction models) that fly species of the morsitans group may be affected by human population.

6. GROUP DISCUSSIONS

After the presentations, the participants went into the following three groups and discussed various topics under guiding sub-headings;

1. Group 1 - Leader -F. Kiros

(a) Role of the Community in tsetse control technology adoption process; obstacles and future.
(b) Socio-economic aspects of tsetse control: current status and future/priorities.

2. Group 2 - Leader - R. Reid

Environmental impacts of tsetse control; current status and future/priorities

3.Group 3 - Leader - B. Swallow

Approaches to effective methods of technology transfer and community participation in tsetse control; partnerships and future

7. RECOMMENDATIONS

7.1. Role of the community in tsetse and trypanosomosis adoption studies

An assumption was made that the community in question should be in a position to define the felt need and choice of the technology to be adopted given all the available options.

Obstacles

- Capacity building on technology option-Training.
- Dependency syndrome.
- Harmonisation of ideas and approaches on participation.
- Resource limitations.
- Appropriate strategies and concept.

Future

- Capacity building through training and harmonisation of approaches to community participation so that farmers do not get/conceive conflicting information are necessary.
- Existing control tools need to be justified and improved to enable farmers make informed decisions.
- Self-reliant approaches need to be promoted.
- Subsidies to the community need to be clear-cut in order to allow for a definite phasing-off period.

7.2. Socio-economic aspects of tsetse and trypanosomosis control

This was re-defined in the general context to mean;

- Role of socio-economics in tsetse and trypanosomosis research i.e., what have been their contributions?
- What important socio-economic studies have been accomplished?

Objective

- To lead to an enhanced understanding of the problems of tsetse and trypanosomosis in Kenya by considering the social and economic aspects of the society.

Various socio economic studies have been conducted in different parts of Kenya as documented in existing literature.

Obstacles

Obstacles

- Consideration of socio-economic aspects of technology development is done in the late stages of adoption.
- Lack of strong institutional collaboration.
- Inability to compare and extrapolate results from different studies.

Future

- Social scientists need to be incorporated in the process of technology development at the beginning and not at the end (interdisciplinary approach).
- Development and evaluation skills need to be harmonised and integrated to allow for comparability of impact and adoption studies.
- Institutional collaboration needs to be strengthened.

7.3. Approaches to effective methods of technology transfer and community participation in tsetse control

Under this theme, the following areas were recommended to form basis of future approaches to the topic;

Task

- To provide guidelines for effective partnership between public, private and farmer groups.

Purpose

- Alleviate constraints associated with livestock and human trypanosomosis without negative environmental impact.

Objectives

- decreased incidence of sleeping sickness and risk.
- reduced disease risk for increased livestock productivity
- increased contribution of livestock to rural development

Planning (i.e., what needs to be done)

- identify stakeholders taking into consideration whatever motivation and incentives required.
- identify beneficiaries taking into consideration whatever motivation and incentives required.
- characterise the production system, that is whether mobile, sedentary or involves animal traction.
- consider the available technologies: there should be a provision of appropriate technology choices.

Process of forging partnership:

- this is a planning phase and it is crucial that those closest to the problem should carry out the tasks they can do effectively and are interested in. This should include those who were not previously involved.
- the start up and implementation phases fall under this, and one should expect different motivations and incentives in the shift to farmers and the private sector.
- capacity building for farmer groups is also crucial under this item.

8. GENERAL DISCUSSION

Issues raised by participants on the various aspects of the workshop were;

3. While introducing tsetse/trypanosomosis control to the locals/farmers, they should be informed of the various options available together with their advantages and disadvantages, i.e., they should not be exposed to one option such as traps only.
4. It should be ensured that technologies exposed to farmers are available.
5. While the government has clear policies on community participation in disease control, the budget is limited for supporting this.
6. Within the government, there is a need for a link between policy makers and the treasury for adequate budgetary allocation.
7. Where complementary technologies are required for disease control, partnership of the involved innovators is necessary.
8. Most research institutional objectives are research and not technology transfer. There is however nobody or government unit responsible for testing or marketing technology.
9. The need for research collaboration was stressed.

9. CLOSING REMARKS

F.P. Oloo - Chief Zoologist, Ministry of Agriculture Livestock Developing and Marketing

Mr. F.P. Oloo thanked all the presenters and participants. He expressed the need for an updated tsetse control policy. In addition, he stressed that the recommendations from this workshop would be used to provide or prepare guidelines to the stakeholders, in this case the community.

10. VOTE OF THANKS

A.K.Njoroge - Transmara Development Program (TDP)

Dr. Njoroge expressed gratitude as this was his first Nairobi cluster meeting to attend. He stressed the need for more frequent meetings and if possible, continued invitation of participants form outside Nairobi. He thanked the organisers and the host (KETRI) for all the support services that made the workshop a success. Finally, he appealed to the Cluster group and the MALD&M to address the policy issues relating to tsetse and trypanosomosis research and control and if possible have them revised.

ICIPE TSETSE MEGA PROJECT

- Goal/Strategy
- Current Projects being undertaken
- Recent Major Accomplishments
- Future Outlook
    - ICIPE 's Strengths
    - Role in Regional Projects
    - Priority Projects
- Regional Collaboration

TSETSE MEGA PROJECT

GOAL

- Improve human and animal health in the tropics through the development, integration and promotion of appropriate technologies for the sustainable management of disease vectors in order to achieve food security and rural development within sustainable farming systems.

STRATEGY

- Meet objective through research and development of integrated vector control approaches based on sound understanding of the flies' behaviour and ecology and tsetse-trypanosome and tsetse host relationships.

- Take into consideration socio-economic, cultural as well as environmental considerations involved in the deployment of vector control technologies.

- In partnership with relevant institutes develop land use models and undertake environmental impact studies.

- Capacity building to ensure sustainaility of control.

CURRENT PROJECTS BEING UNDERTAKEN

1. Interactive Development and Application of Sustainable Tsetse Management Technologies for Agropastoral Communities in Africa **(EU funded till June 1998)**

2. Sustainable management of trypanosomosis and tsetse flies through a new concept: the Lethal Insect Technique (LIT)
(Funded by Austrian Development Cooperation)

3. Integrated Approach to the Assessment of Trypanosomosis Control Technologies and their Impacts on Agricultural Production, Human Welfare and Natural Resources in the Tsetse-affected areas of Africa (1998-2000)
ILRI & ICIPE Project funded by **IFAD**

   (Trypanosomosis control and its impact on Human Welfare and Natural Resources) - Phase 1

Projects in Pipe line

- Integrated Human and Animal Health Management in the Beles River Valley Ethiopia

- The Bio-village initiative 'Tukul' - The basis for sustainable rural Development in Ethiopia

MAJOR ACCOMPLISHMENTS OF THE EU FUNDED PROJECT

- Potent repellent (4 - substituted methoxyphenol derivative) identified and evaluated under field conditions - **patent application.**

- Demonstrated that water buck volatiles and sebum contain allomonal compounds. Volatile fraction substantially characterised.

- Major components of the odour bait for *Glossina fuscipes fuscipes* identified from monitor lizards.

- Larvae of tsetse flies attract gravid females. Larviposition pheromone of *Glossina m. morsitans* and *Glossina m. centralis* identified and characterised. *Glossina m. morsitans* pheromone (n-pentadecane) evaluated for its efficacy to attract gravid females.

  Field trials in Zimbabwe show encouraging results and need for further work.

- A technique for selective trapping of body volatiles which facilitates rapid screening of specific semiochemicals from preferred and un-preferred hosts developed.

- ELISA system to identify blood meal of tsetse established and validated internally. Serum bank expanded for future reference and validation.

- Basics of the development of a sustainable barrier system to prevent flies from immigrating from un-cleared areas into cleared areas understood. Experiments on barriers have opened up the possibility of development strategies using attractants or repellents or both in the control of tsetse and trypanosomosis.

- Major increases in trap catches have been affected by paying more attention to trap siting.

MAJOR ACCOMPLISHMENTS OF THE EU FUNDED PROJECT

- **New Insights into:-**

  - Efficiency of tsetse traps

  - Efficiency of Latin Square designs in tsetse field experiments

  - Models to quantify sampling bias of traps and its effects on population dynamics

    Important for guiding future tsetse sampling and suppression strategies

- An effective trap for biting flies, (the NZI trap) developed.

- Adoption of trapping technologies by pastoralists and agriculturists assessed in Nguruman, Kenya and Sodo-Bedessa and Gurage areas in Ethiopia.

- Impact assessed through comparison of pre and post-suppression livestock productivity parameters eg. milk yields, mortality rates, herd structural changes, drug use etc. (in collaboration with KETRI).

- Sustainability of control greatly improved through training across all levels of society.

LIT PROJECT

Sustainable Management of Trypanosomosis and Tsetse flies Through a new Concept: The Lethal Insect Technique

Funded by: The Austrian Development Cooperation

Objectives:

- Explore the possibility of controlling tsetse using entomopathogens and or insect growth regulators (IGR's)
- Develop an improved and cost-effective tsetse mass rearing system

Achievements

- A simplified mass rearing system has been installed and *Glossina austeni* successfully reared *in vitro* using fresh/defribinated blood from donor cattle. *Glossina fuscipes fuscipes* has also been successfully colonised
- Contamination systems developed so far indicate that under laboratory conditions tsetse contaminated with conidia can transmit infection to mates

Integrated Approach to the Assessment of Trypanosomosis Control Technologies and their Impacts on Agricultural Production, *Human Welfare* and *Natural Resources* in the Tsetse Affected Areas of Africa - Phase 2 (1998 - 2000)

'Dissemination of new prototypes developed for tsetse control' including socio-economic aspects.

- 'Push - Pull' prototype for tsetse control
- Socio-economic aspects of adoption of tsetse trapping technology in Lambwe Valley

Objectives:-

- Evaluate factors affecting the adoption, effectiveness, finance and management of disease management strategies
- Identify factors affecting the structure and performance of delivery systems for inputs for vector and disease management
- Extrapolation of site-specific results to the national, regional and continental levels
- Development of decision support tools

CAPACITY BUILDING

- 66 technicians have been trained in integrated tsetse management
- 4 Ph.D. Students
- 5 PDF's and Research Associates
- More than 500 farmers

At the request of ICRC trained 12 technicians from Somalia

TRAINING/CAPACITY BUILDING *ACTIVITIES*

PhD. (ARPPIS) Students

Four PhD. students sponsored by the EU Project have completed their studies One student (F. Masaninga) has been awarded his doctorate, two have submitted and one will submit end of April.

1. **J. B. Muhigwa**

   Visual and olfactory cues of *Glossina fuscipes fuscipes*
   (Thesis submitted) - (Supervisors : R. K. Saini and M. O. Bashir)

2. **Z. Njagu**

   Role of the monitor lizards (*Varanus niloticus*) in the epidemiology of trypanosomosis along the shores of Lake Victoria. (Thesis submitted)
   (Supervisors: Steve Mihok, E. D. Kokwaro)

3. **F. Masaninga**

   Adaptation of *Trypanosoma (Nannomonas) congolense* Broden 1904 types to different hosts and transmission by *Glossina* spp.
   (Supervisors: Steve Mihok & K. Mbata)

4. **S. Akinyi**

   Factors affecting the reproductive performance, and the effects of certain insect growth regulators on the reproduction of *Glossina fuscipes fuscipes*.
   (Supervisors: R. K. Saini & N. O. Oguge)

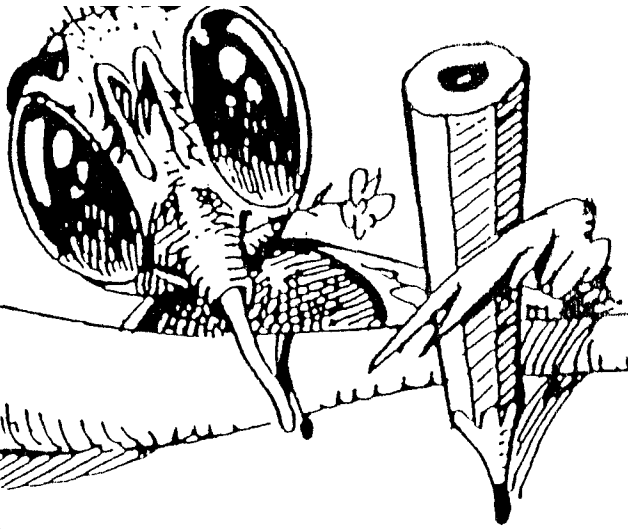
TRAINING/CAPACITY BUILDING ACTIVITIES

Workshop

Workshop on tsetse/trypanosomosis control strategies "The Way Forward" was held in Addis Ababa and Axum in early February. There were about 100 participants, with good local participation by Ethiopian researchers, policy makers and senior government officials.

Training Course

A formal group training course sponsored by the EU was held in Kenya between 5th November and 5th December 1997 for tsetse and trypanosomosis professionals nominated by their respective governments from FITCA project countries: 3 each from Kenya, Uganda, Tanzania and Ethiopia. The course was held in Nairobi (lectures/labs) and at the coast in Shimba Hills National Reserve (field exercises). Forty-one resource staff participated from eight organisations.



FUTURE OUTLOOK

- ICIPE's Strengths
- ICIPE's Role in Regional Projects
  &
  Supporting Services
- Priority Projects

ICIPE'S STRENGTHS

- Development of integrated vector control technologies.

  Expertise in quantitative fly ecology, behaviour and chemical ecology, biocontrol and ***integration*** *of this basic knowledge in developing technologies*

- Considerable experience in socio-economic research in different agroecosystems with differing community organisations and animal husbandry practices.

- Considerable experience in capacity building at all levels of society.

Role in Regional Projects

- Generation of basic information on vector biology and ecology

- The development of integrated vector control technologies and strategies

- Monitoring the adoption process of these technologies and assessing their economic viability and social compatibility

- Evaluating socio-economic and environmental impact of the control technologies

- Capacity building at all levels of society for sustainable control

  (Partners: International consortium members:
  NRI, GTZ, CIRDES, EMVT, ILRI)

ICIPE's Role in Supporting Services:

- Identification of preferred animal hosts by blood meal identification
- Mass rearing technologies
- Integration of knowledge to develop models of tsetse populations for control purposes
- Strategic planning of control operations (data management systems including GIS, remote sensing etc.)
- Supply of baits and appropriate dispensers
- Research planning and management

PRIORITY PROJECTS:

1) **Development of an integrated use of bait technology and repellents in 'push - pull' strategies for the management of tsetse at Village Level.**

At ICIPE we have :

a) the technology to suppress *Glossina pallidipes* population with corresponding decrease in cases of animal sleeping sickness.

b) we have identified a potent repellent and others are being identified from wild animals refractory to tsetse.

These repellents could be integrated with bait systems to prevent:

- reinvasion

- directly protect cattle (and humans) from tsetse in relatively low density areas and thus managing tsetse at village level for improved livestock production and for rural development.

- ***Commercial potential of the patent?***

PRIORITY PROJECTS:

3) Exploring the possibility of controlling tsetse using entomopathogens and or Insect Growth Regulators (IGR's).

4) Impacts on Agricultural Production, Human Welfare and Natural Resources in the Tsetse-affected areas of Africa (1998-2000) ICIPE & ILRI Project funded by IFAD.

5) Exploiting larviposition behaviour patterns to attract gravid females for augmenting existing trapping/control methodologies

6) Undertake tsetse migration studies to guide the development of tactics for strategic deployment of traps/targets that protect cleared areas in a sustainable manner.

7) To refine and adopt existing socio-economic models for the integration of tsetse control into extension packages that can be used by rural communities of different social structures and animal husbandry practices.

8) To develop land - use planning models for the implementation of integrated tsetse management packages that take into account the socio-economic and environmental impacts of increasing livestock populations.

9) To develop new attractive bait technologies for the management of biting flies (tabanids, stable flies) in areas where mechanical transmission of *Trypanosoma evansi* is significant, and in areas where flies of all kinds cause problems for human health.

10) To develop novel methods of disease control through strategic research in vector-parasite interactions and epidemiology.

11) Capacity Building for sustainable tsetse control.

REGIONAL COLLABORATION

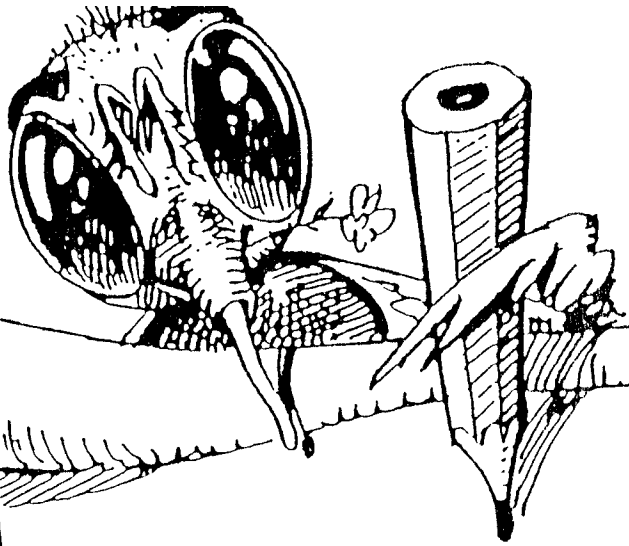
1) West Africa

With CIRDES (Centre International de Recherche- Developpment sur l'Elevage en Zone Sub-Humid), Bobo-Dioulasso, Burkina Faso and ITC (International Trypanotolerance Centre) Banjul, The Gambia

- Evaluation of baits for *Glossina fuscipes fuscipes*
- Development of baits for other riverine tsetse
- Development of control techniques using entomopathogens or IGR's
- Evaluation of ELISA system to identify blood meals of fed tsetse

2) Southern Africa (RTTCP)

- Testing of semiochemicals (pheromones, kairomones and allomones)
- Data system for Management Decisions and Ecological work
- MSc. Training - Review of curriculum and identification of Resource Persons
- Capacity Building



REGIONAL

COLLABORATION

REGIONAL COLLABORATION

3) Uganda

MOU with **Uganda govt.**, Office of the Commissioner of Entomology and **COCTU** (coordinating office for the Control of Trypanosomosis in Uganda) and **UTCC** (Uganda Trypanosomosis Control Council)

- Field testing of odours for *Glossina fuscipes fuscipes*
- Socio-economic aspects
- Capacity Building
- Enhancing farmers income through Apiculture and Sericulture

4) Ethiopia

- **Government of Ethiopia, ESTC, several regional governments.**
- Tsetse Control throughout Ethiopia using ICIPE's technologies
- Capacity Building

5) Rwanda

Government of Rwanda

- Development of a programme for managing tsetse in Kagera region
- Capacity Building

6) **South Africa**

- Development of baits for *Glossina austeni*
- Field evaluations of attractants and repellents

7) **Mozambique**

- Collaboration in eco-epidemiological mapping of trypanosomosis

8) **ASARECA**

- We are negotiating a wide ranging collaborative agreement

NATIONAL PARTNERS

- KETRI
- Department of Veterinary Services
- Kenya Wildlife Services

icipe *tropical insect science for development*

International Centre of Insect Physiology and Ecology

Nairobi, Kenya

Inter–governmental organisation
Global, pan–tropical mandate
360 Staff, 45 PhD–level scientists
Governing Council
Sponsoring Group for ICIPE (SGI)
Research, capacity building, development

- Agriculture
- Environment
- Health

Agriculture

- Animal Disease Vectors
- Food Crop Pests
- Insect Biodiversity
- Human Disease Vectors

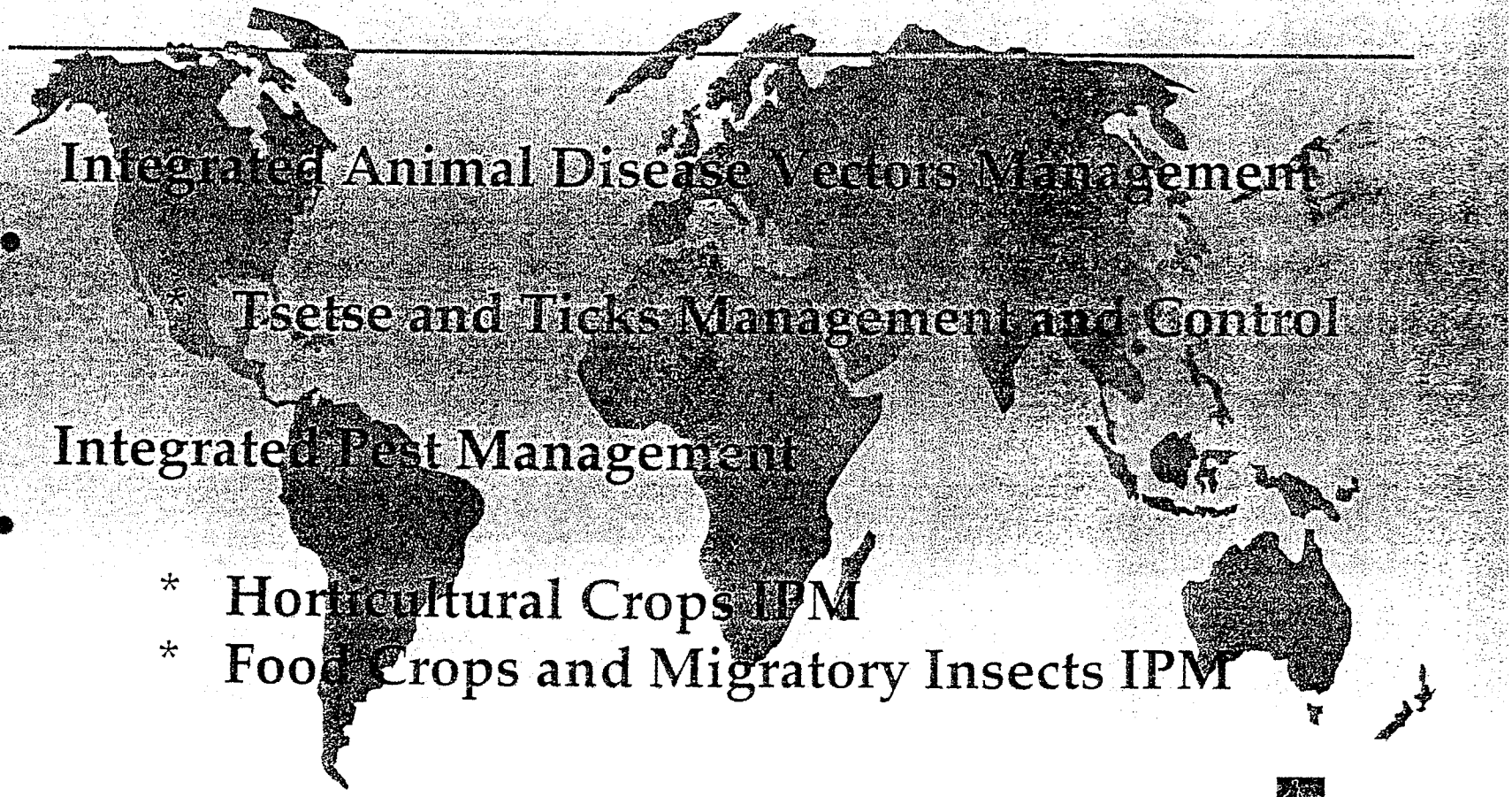
Health

- Population Ecology and Ecosystem Science
- Behavioural and Chemical Ecology
- Molecular Biology and Biotechnology
- Social Sciences



icipe *tropical insect science for development*

- Agriculture
- Health

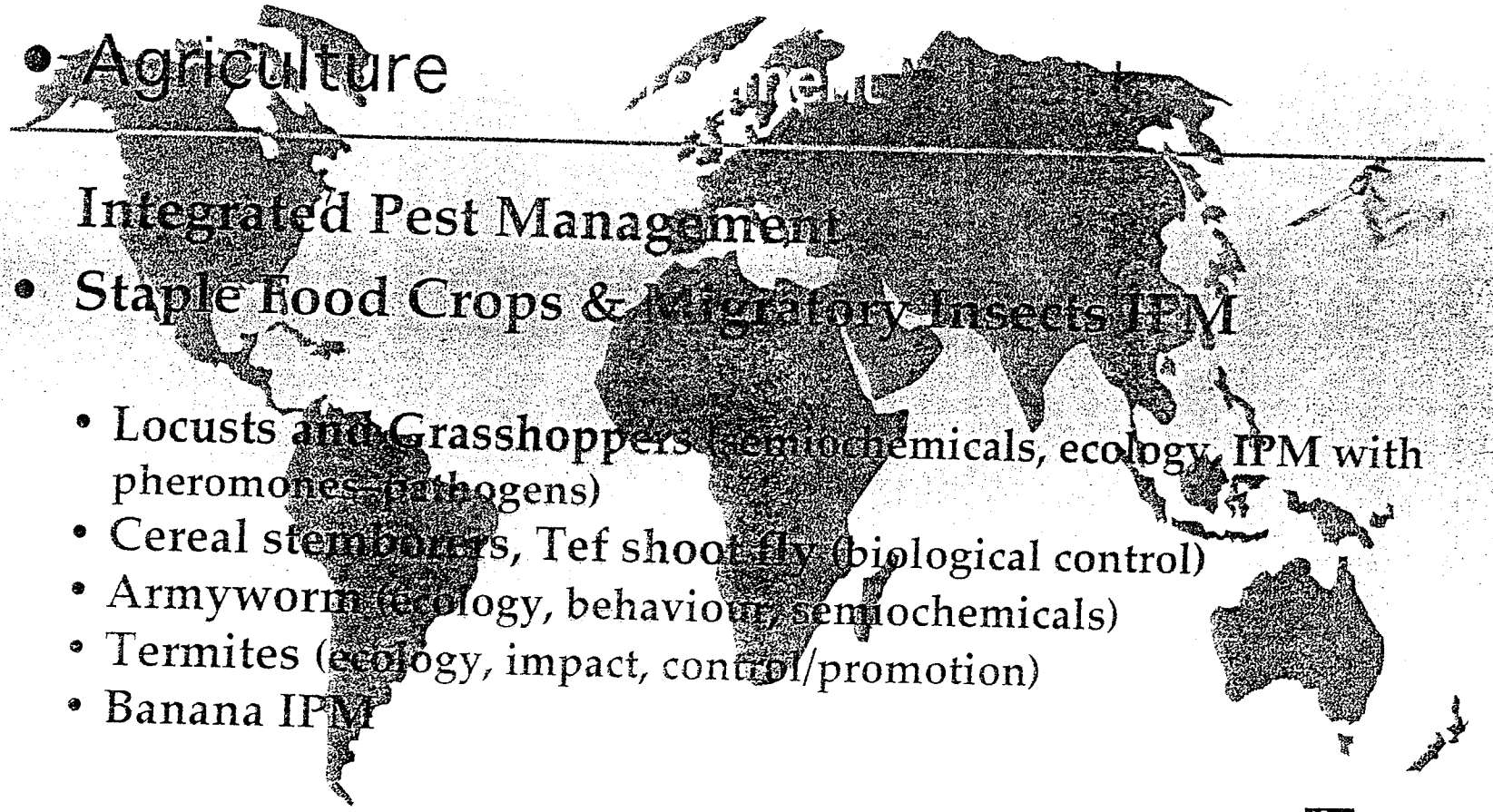


Integrated Animal Disease Vectors Management

- * Tsetse and Ticks Management and Control

Integrated Pest Management

- * Horticultural Crops IPM
- * Food Crops and Migratory Insects IPM



- Agriculture

  Integrated Pest Management

- Staple Food Crops & Migratory Insects IPM
  - Locusts and Grasshoppers (semiochemicals, ecology, IPM with pheromones, pathogens)
  - Cereal stemborers, Tef shoot fly (biological control)
  - Armyworm (ecology, behaviour, semiochemicals)
  - Termites (ecology, impact, control/promotion)
  - Banana IPM

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• Health

Human Health



- Integrated Mosquito and Malaria Control
  - * Epidemiology, Ecology and Behaviour (semio–chemicals)
  - * Community–Based Malaria Control (social science/ anthropology/entomology/epidemiology)
- Sandflies and Leishmaniasis Control
- Filth Flies (biological control with Bt–DuduStop)



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- Agriculture • Environment • Health

Arthropod Biodiversity Conservation and Utilisation

- African Insect Database (Information, training, user needs assessment, bio–systematics, biodiversity inventory)
- Conservation Biology (soil arthropods, habitat management, insects as indicators, conservation/promotion of insect–based ecosystem services)
- Commercial Insects (science–based and locally adapted beekeeping and sericulture)



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Agriculture • Health

Collaboration/Partnerships/Networks

CGIAR	• ILRI • ICRAF • IITA • ICRISAT • CIMMYT • IPGRI
SP-IPM	• Lead Centre for Functional Agrobiodiversity
Others	• OAU-IBAR • CIRDES • ITC • WHO • IAEA • STI • RRSMC • UNEP • CICP • IPM-NET • AVRDC • ARC/PPRI/OUI • TSBF • NMK • FAO • UNHCR • IRC • CDC
NARES	• Africa • Asia • Latin America
NGOs	• Relevant NGOs
ARPPIS	• African (others) Universities

- Agriculture
- Health

Goals of ICIPE's Research and Training Activities:

Contribute to integrated and sustainable development through:

- Increased food (plant & animal) production (IPVM)
- Increased health status of rural and urban populations (malaria)
- Increased sustainability of production base (biodiversity)
- Increased income from insect–based commercial activities

The extra income will contribute to poverty alleviation and:

- Better education, nutrition and ....family planning
- Better environment and a future for all

PAAT:

The Programme Against African Trypanosomiasis

PAAT: Objective

- To promote and facilitate integrated and effective control of trypanosomiasis
- To achieve a sustainable increase of income, food security and human welfare
- help to define priorities and co-ordinate and focus the investment of resources

PAAT: Structures

- Programme Committee - donors and advisors
- PAAT Secretariat: FAO; WHO; IBAR; IAEA
- Advisory Groups - Scientists; technicians, farmers, NARs, Countries, etc.

PAAT: Activities

- HAT and AAT Action Plans
- Research priorities
- Position papers
- Information Services

AAT Action Plan

- Criteria for Priority Areas
- Focus on areas identified
- Technology Packs
- Monitoring
- Evaluation

Research Priorities

- Focus on real needs
- Focus for funding
- Focus for limited resources
- Co-ordination and collaboration between workers

Position Papers

- Socio-economic impact
- Drug management
- Cultural impact (HAT)
- Integrated control
- Evaluation of Techniques
- Privatisation

PAAT - Information Services

- TTIQ
- ISCTRC
- Newsletter
- PAAT-Link
- PAAT Information system - WHO/FAO

PAAT-Link

- Interactive discussion
- Information dissemination
- Help-line
- Contact: mailserv@fao.org; leave subject blank; write "subscribe PAAT-L"

PAAT- Information Service

- Geographic analysis
- Resources inventory
- Knowledge base
- Customer outputs
- Customer inputs

SPEECH BY THE HONOURABLE MINISTER OF HEALTH AT THE CLOSING CEREMONY OF THE 13TH COORDINATION MEETING ON "FARMING IN TSETSE CONTROL AREAS OF EASTERN AFRICA" AT GRAND IMPERIAL HOTEL, KAMPALA, UGANDA, 7 - 8TH MAY 1998.

- The Assistant Minister, Ministry of Agriculture, Livestock Development and Marketing of the Republic of Kenya,
- Representative from the Delegation of the European Commission in Uganda,
- Leader of delegation from the United Republic of Tanzania,
- Delegates,
- Invited Guests,
- Ladies and Gentlemen.

It gives me much pleasure to officiate at the closing ceremony of the 13th Coordination meeting on "**Farming in Tsetse Control Areas of Eastern Africa**".

Tsetse and trypanosomiasis affect many sub-saharan countries. This has led to under-utilization of the full potential of the economic benefits that would accrue if tsetse and trypanosomiasis were controlled or preferably eradicated. Uganda is unique in that both forms of the human sleeping sickness disease occur in the country and epidemics have been raging in North and North Western Uganda where the disease is caused by *Trypanosoma brucei gambiense* and in South Eastern Uganda where the disease is due to *Trypanosoma brucei rhodesiense*. Animal trypanosomiasis occurs in the different districts in the country at varying degrees of prevalence. In order to control the scourge caused by the tsetse transmitted trypanosomiases, government adopted an integrated approach involving the Department of Entomology, Medical, Veterinary and Research teams working closely together with the help of community participation. This approach has yielded positive results. But as you were told by Her Excellency the Vice President of Uganda during the opening ceremony that tsetse flies need no passports to cross borders, effective and sustainable tsetse and trypanosomiasis control programmes have to be implemented at the regional then continental level. This is the very reason why you have been here deliberating the activities of this regional approach.

It has been reported that although great strides have been made towards achieving the set targets for the project, there has been a resurgency of the human disease in some localised foci. The meeting was further informed that the long awaited launching of the "Farming in Tsetse Control Areas of Eastern Africa" will be held in the course of this year.

Furthermore, recommendations were made to improve the delivery of services to the community by the project. It is my sincere hope that at the next meeting, the Country reports will re-affirm that all the recommendations were implemented.

Ladies and gentlemen, on behalf of our government, the people of Uganda, my ministry and myself, I would like to extend our sincere thanks, gratitude and appreciation to the European Community for approving funds totalling 20 million ECU to implement the regional project initially involving Kenya, Ethiopia and Uganda. I sincerely believe that when the other countries whose documents are at various stages in the process of obtaining funds from the European Union are ready, we should be able to put in place an effective and sustainable tsetse and trypanosomiasis control programme. This will contribute to the improvement of the socio-wellbeing of the rural community.

The OAU/IBAR Secretariat has played a leading role in the preparation and follow up of the project documents within the region and the European Commission headquarters in Brussels. To you ladies and gentlemen I extend my thanks and gratitude and request you to keep up the spirit of selfless service.

I would also like to recognize the contributions of the Governments and other agencies who have made it possible for you delegates to attend this meeting. This shows the commitment the various governments and agencies attach to the control of tsetse and trypanosomiasis in order to contribute to the improved socio-economic welfare of the community.

To you participants, I have no doubt that you have had fruitful deliberations during the last two days. I hope you go back home equipped with better policies for the proper implementation of field activities.

Lastly, I would like to thank the management of Grand Imperial Hotel for the excellent facilities that have made the meeting a success.

To our brothers and sisters from the neighbouring countries, please take off some time to tour and enjoy the beauty of the PEARL OF AFRICA.

I declare the 13th Coordination meeting on "Farming in Tsetse Control Areas of Eastern Africa" Closed.

VOTE OF THANKS

Mr. Chairman,

Distinguished Delegates,

Invited Guests,

Ladies and Gentlemen.

It is a pleasure for me to have been availed of this opportunity on behalf of the Government of Tanzania to give a vote of thanks at this closing ceremony of the 13th Coordination meeting on Farming in Tsetse Control Areas of Eastern Africa.

Pertinent issues have been raised and discussed in the course of our two day's stay here as a result of which the recommendations have been based. Delays in the Project Management Cycle was one of the grey areas which needs to be followed up especially with the principal donor, the EU whose commitment for funding FITCA is highly appreciated.

Other issues discussed varied from the successful story of Tsetse eradication from Zanzibar to the sad and horrifying situation of sleeping sickness in Southern Sudan. In between we heard the provoking challenge as to why we did abandon ground and aerial spraying in favour of newer vector control technologies which so far don't seem to be very effective.

All this is an indication that we still have a long way to go in the fight against tsetse and trypanosomosis in Africa and even more so in this region.

These Coordination meetings have been held regularly and this is obviously one of the strengths and a credit to the organizers, the OAU/IBAR Secretariat. This particular meeting has been very successful because of the efforts put in by the hosts, the people and the Government of Uganda. We have enjoyed Uganda's hospitality which has graciously been exercised throughout our stay. You have been our home away from home and for that we can only say THANK YOU.

It would take me a long time to thank each and everyone who has contributed to the success of this meeting starting from the organizers down to the Grand Imperial Hotel Management for their excellent services. To everyone associated with this success I say thank you and this includes the participating countries and those who have sponsored our participation.

With these few remarks may I conclude by wishing you BON VOYAGE back home hoping we shall meet again in the next meeting (Ishaallah) if God wishes.

PROVISIONAL LIST OF PARTICIPANTS

KENYA:

1.	Hon.J. Wamukoya	-	Asst.Minister for Agriculture Ministry of Agriculature, Box 30028, NAIROBI.
2.	Dr. G.N.Mwongela	-	Deputy Director, Vector Control, P. O. Kabete, NAIROBI, KENYA. Tel. 02-631273. Fax. 02-631273
3.	Mr. Francis Oloo	-	Chief Zoologist, Veterinary Dept. P.O. Kabete, KENYA. Tel: 02-632231.
4.	Dr. Joseph M. Ndung'u	-	Director, KETRI, P.O.Box 362, KIKUYU. Tel: 0154-32960/4 Fax: 0154-32397
5.	Dr. Joseph Makumi	-	KETRI, P.O.Box 362, KIKUYU. Tel. 0154-32960-4 Fax. 0154-32397

TANZANIA

6.	Dr. B.J.Mtei	-	Senior Epidemiologist, Ministry of Agriculture, P.O.Box 9152, DAR AR SAALAM. Tel: 0811-329197 Fax: 051-113260 or 113306
7.	Mr. E. Mwambembe	-	Senior Tsetse Officer, Ministry of Agriculture, P. O. Box 9152, DAR ES SALAAM, TANZANIA. Tel: 255-51-113260.
8.	Kassim G. Juma	-	Commissioner for Livestock&Agriculture, P. O. Box 159, ZANZIBAR, TANZANIA. Tel: 054 33400 GSM 0812750186 Fax: 054 33400

9.	Ms. Joyce W.Daffa	-	Regional Senior Tsetse Officer, Regional Agriculture Office, P. O. Box 1474, TANGA-TANZANIA. Tel: 053-43568/47945 Fax: 053-43934
10.	Dr. Bedan Masuruli	-	Regional Veterinary Officer, Kagera, Box 1661, BUKOBA, TANZANIA. Tel: 066-22270 Fax: 066-22272.
11.	Dr. M. Matandala	-	District Agriculture and Livestock Officer, Box 22, KARAGWE, BUKOBA, TANZANIA. Tel: 066-22270 Fax: 066-22272
12.	Dr. J.A. Mutasa	-	District Agriculture and Livestock Officer, Bukoba, P.O.Box 201, BUKOBA, TANZANIA. Tel: 066-21633.
13.	Paul A. Mkonyi	-	Director, ADRI, DSM, P.O.Box 9254. Tel: 864369.

UGANDA:

14.	Dr. Paph M. Mwambu	-	Senior Lecturer, Faculty of Vet.Medicine, Makerere University, P.O.Box 7062, KAMPALA. Tel: 041-540502
15.	Dr. Mukiibi-Muka	-	P.O.Box 96, TORORO (LIRI).
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