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To cite this article: J. O. Okoth, E. K. Kirumira & R. Kapaata (1991) A new approach to community participation in tsetse control in the Busoga sleeping sickness focus, Uganda. A preliminary report, *Annals of Tropical Medicine & Parasitology*, 85:3, 315-322, DOI: [10.1080/00034983.1991.11812567](https://doi.org/10.1080/00034983.1991.11812567)

To link to this article: <http://dx.doi.org/10.1080/00034983.1991.11812567>



Published online: 15 Nov 2016.



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A new approach to community participation in tsetse control in the Busoga sleeping sickness focus, Uganda. A preliminary report

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Received 31 July 1990, Revised 6 December 1990, Accepted 7 January 1991

A process is described by which trapping technology is being taught to a rural community which has been affected continuously by an epidemic of sleeping sickness for over a decade. Through a systematic health education programme, people are actively involved in making and setting traps and in learning about the general characteristics of the tsetse fly and the disease. A mono-screen trap has been developed for community use and is being used to trap flies. This is the first time that this kind of community participation has been attempted in tsetse control—and this approach is discussed in relation to other approaches.

Tsetse control in Uganda has been under the administrative control of the Ministry of Animal Industry and Fisheries. The control took two forms: (a) the alteration of tsetse habitat, which involved shooting species of mammals on which tsetse fed and cutting down all trees and shrubs which provide shelter for the flies; and (b) insecticidal spraying, which involved ground application of residual insecticide to the most favoured resting sites of tsetse (Wooff, 1969).

These forms of tsetse control are detrimental to the environment. The peridomestic behaviour of the flies (Okoth, 1982, 1986a; Okoth and Kapaata, 1988) causes another problem in control, and in addition, economic and logistic difficulties preclude the use of imported insecticides to control tsetse. Because of these diffi-

culties these control measures have had limited success. Tsetse control by trapping would offer greater scope for control.

Within the last decade some successes have been reported with the use of traps to suppress tsetse populations in East and West Africa (Laveissiere and Couret, 1980; Lancien, 1981; Power, 1989). However, the success of traps in suppressing tsetse populations has been mainly due to the provision of trap materials and expertise from overseas. This dependency is short-lived. There is, therefore, a need to place more emphasis on the use of local materials and community participation (Okoth, 1985, 1986b).

Various approaches to community participation in tsetse control have been adopted and documented by researchers. In East Africa Dransfield *et al.* (1990), working with the Masai

people at Nguruman in Kenya, supplied trap materials and taught the people how to make the NG2B traps (Brightwell *et al.*, 1987) and to set them for the control of *Glossina pallidipes*. In Uganda Lancien has developed a pyramidal trap (Gouteux and Lancien, 1986; Lancien and Gouteux, 1987) which is centrally manufactured by people employed by him and then distributed by paid trap caretakers. The community is educated only to care for the traps and guard them against being uprooted or stolen (Lancien, pers. comm.). Laveissiere *et al.* (undated) described how they distributed impregnated screens and vavoua traps to a community in West Africa in order to control *G. tachinoides* and *G. palpalis gambiensis*.

These examples are indicative of various degrees of community participation; but typical of them all is the dependence on continued external support for sustainability. Community participation is evidenced only at the implementation stage. In a community-based tsetse control programme (Okoth, 1985, 1986b) emphasis should be placed on the continued active role of the community for whom the programme is intended and who are the final beneficiaries of such a programme. Community participation as a concept, however, engenders the active involvement of the people at the development, planning or designing, and implementation stages. This eliminates the disadvantages of the 'top-down' approach that was characteristic of most developmental or problem-solving programmes. It has also become clear that the intended beneficiaries of such programmes do not necessarily share the perception that the programme planners have of their priorities.

This paper examines the experience gained during a community participation programme for tsetse control in Kapyanaga/Nabukalu, Iganga District, Busoga, in Uganda, where attempts are being made to transfer trapping technology to the rural community. In this community, sleeping sickness has been continuous at an epidemic level for over a decade. A high level of community participation has been encouraged for programme viability and sustainability, as well as for long-term effect; the community are encouraged to provide their own

trap materials, and to make their own traps and use them themselves.

METHODS AND RESULTS

Study Area

Kapyanga subcounty and the adjacent areas of Nabukalu subcounty, approximately 0°30'N, 33°40'E (Fig. 1), were selected for the study. Much of the natural vegetation, especially the forest has been encroached on for subsistence farming. Vegetation fringing the swamp is forest/savanna mosaic where tsetse flies concentrate. Further from the drainage lines, where rudiments of forest trees still exist, the vegetation is more open. *Lantana camara* thickets and coffee and banana plantations are abundant throughout the study area, providing breeding— and resting—sites for tsetse (Okoth, 1986a; Okoth and Kapaata, 1988).

The area is divided into two parts, A and B, about 70 km² each and about 5 km apart. Area A is for the suppression of tsetse flies by the community and area B is a control. A fly transect for monitoring tsetse population passes from area A to area B through a buffer zone (area C). Area A and Area B each has a population of about 3500 people. People living in the area are peasant farmers. The main activities which bring them into close contact with tsetse are gardening, grazing cattle, watering, brick making, charcoal preparation and beer brewing.

Trap Design

A trap for community use must be simple and cost-effective. A suitable mono-screen trap has been designed (Okoth, 1991) with trap supports made from plant materials (Okoth, 1985).

Baseline Study

A baseline study was carried out to monitor and evaluate community participation in tsetse control. The study addressed the following:

- (a) the reported incidence of sleeping sickness,
- (b) local knowledge, attitudes, socio-cultural factors and superstitious beliefs associated with

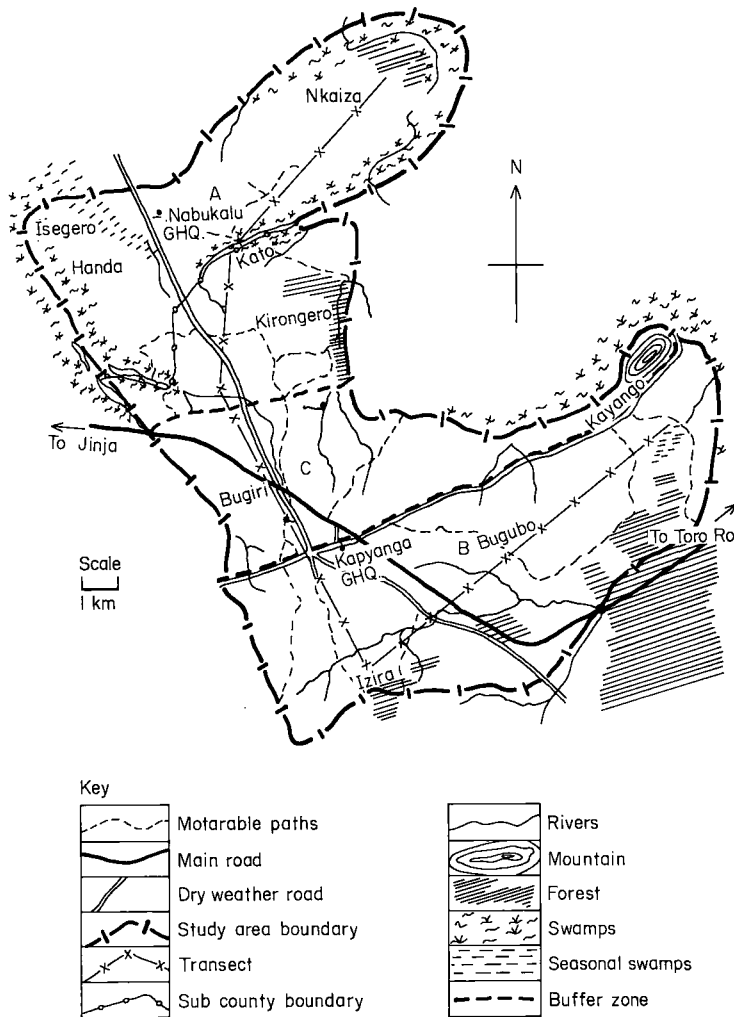


Fig. 1. Map showing the study area at Kapyanga/Nabukalu, Uganda.

the tsetse fly and the transmission of sleeping sickness,
 (c) existing work done by Government and/or other agencies on tsetse control and treatment of the disease, and
 (d) local knowledge about methods of tsetse control.

A questionnaire was developed to gather data on the above matters. A total of 100 households was interviewed in area A, each involving the

husband and wife or wives, and in some cases other members of the household, especially youths. From these interviews it appeared that

(a) eight deaths and seven non-fatal illnesses had occurred in the households visited,
 (b) 6.5% of the people interviewed knew what the tsetse looked like, 58.4% had no knowledge, 28.6% were not sure, and 6.5% had heard stories about the fly with a big yellow, blue or red head. However, 75.8% knew the general

habitat of the fly, 19.7% were quite sure. There was some variation of attitude concerning sleeping sickness; marked awareness of the gravity of sleeping sickness was shown by 99% of sufferers, 90% of those affected, and 78% of those unaffected,

(c) with regard to methods of tsetse control, respondents identified trapping, aerial spraying, ground spraying and bush-clearing. There was a general consensus that, for effective tsetse control, local people must be involved in one way or another.

It was clear that the willingness of the community to participate in tsetse control was very high. However, people needed to be educated, and informed about the appearance of tsetse flies, their dangers, and how to control or eradicate them. To achieve this vital goal, it was decided that a focal group of about 10 people (identified during the baseline study and selected from different villages within the 'suppression' area A) should be established to work with the researchers and to act as 'middle men' between the community and the research team.

Awareness Creation

FOCUS GROUP

The primary objective was to educate members of the focus group on various aspects of tsetse bio-ecology and control so that they would be useful during health campaigns. To achieve this, monthly meetings were organized in which the following aspects of bio-ecology and control were covered:

- (a) Recognition of tsetse flies: various other flies, such as tabanids, were displayed for differential identification of tsetse flies.
- (b) Tsetse ecology: habitat, breeding and resting sites.
- (c) Feeding behaviour: in relation to host preference and the sleeping sickness transmission cycle.
- (d) Tsetse and disease: sleeping sickness, nagana, animal reservoirs.
- (e) Tsetse control methods: each method was examined and its advantages and disadvantages discussed.

(f) Trapping technology: different traps were displayed and the principle of trapping was explained.

(g) Discussions on community participation in tsetse control were carried out.

The members were provided with note books and pencils and they took their lessons seriously. They elected their group leader during the first meeting. The talks were aided by slide shows. Field trips were organized for the group to search for puparia in order to acquaint themselves with the breeding sites and to set traps in appropriate sites.

After several meetings and field trips, the focus group members were able to understand and appreciate the complexity of tsetse control. They were also able to understand some basic principles of trapping. The next stage in developing the focus group members' self reliance in trapping skills was to introduce the mono-screen trap to them. Trap materials were provided, and with the assistance of the researchers the members were able to make traps for themselves. They set these traps around their villages in order to demonstrate the usefulness of the traps. They set the traps in one spot for several weeks in order to observe the reduction in fly population. Each member made weekly records of his trap catches and submitted these to the researchers.

The focus group members were later increased from 10–15. To facilitate their movement through the villages, 10 bicycles were provided.

COMMUNITY LEADERS

In the context of this paper, community leaders are Government agents who implement Government policies. In Uganda, these consist of two bodies: the chiefs, who are the administrative body, and the Resistance Council (RC), which is a political organization. The chiefs are civil servants and they play the role of enforcement officers. They work closely with the RC members in implementing Government policies. The RC system ranges from village level to national level. The major duties of the RC members are to mobilize the people, explain Government policies, plan development and

maintain security. There are nine councillors at every level of the RC; the Chairman, Vice-Chairman, General Secretary, Secretary for women, Secretary for Youth, Secretary for information, Secretary for education and mass mobilization, Secretary for defence, and Secretary for finance. All members of the RCs are elected by the people. In the project we use only the RC members and chiefs up to subcounty level.

In order to achieve a high level of health education among the people, it was necessary to start with their leaders. Two one-day seminars for chiefs and RC members in Nabukalu and Kapyanga were held. A total of 56 leaders attended the seminar at Nabukalu and 44 at Kapyanga. During the seminars, talks were given by the researchers and members of the focus group, and these were reinforced by a slide show. The talks covered subjects similar to those covered by the members of the focus group (see above).

The experience of the focus group members in trapping made a significant impression on the people concerning the feasibility and possible ease of controlling tsetse fly by and within the community. One of the focus group members from Nabukalu gave statistics on his area where he trapped for one and a half months, and although started by catching 52 flies per trap per day, during the last two weeks the catches were zero. This showed that constant trapping reduced the fly population to zero.

Community leaders were impressed with the seminar, and as a result requested that similar seminars be conducted at village level. It was suggested that such seminars be addressed by the members of the focus group. The leaders expressed willingness to co-operate with the researchers and to provide traps for themselves. They calculated the cost of one mono-screen trap to be 1600 Uganda shillings (Ush. 1600 = U.S.\$4.2), and noted that this sum of money was small in relation to the large sums they spend in hospital when they have sleeping sickness.

RURAL COMMUNITY

Seminars at village/subparish level were planned, using the same format as described

above. A total of 763 people (40% of the suffrage population) attended the seminars at various villages. By consensus, it was agreed in these seminars that people should be grouped in threes and each group be asked to produce a trap. However, some individuals decided to have their own traps.

Trapping Programme Plans

After creating awareness in the community, a 'master plan' meeting was held with the members of the RC to decide on an overall strategy for tsetse suppression. At this meeting the following decisions were taken: (1) Each RC Chairman was to divide his people into groups of three, and each group was to make one mono-screen trap. The cost of each trap was estimated to be Ush. 1800 (U.S.\$4.7). These traps were to be placed near homesteads to control peridomestic flies. (2) Secretaries for education and mass mobilization were to list the number of watering-sites for cattle in their area. All cattle owners using a particular water-hole were to contribute money for a trap for that water-hole. The contribution by each cattle owner varied between Ush. 90 and Ush. 300, depending on the number of users. (3) Secretaries for women were to find out how many wells and boreholes there were in their area and to list the users. Each user was to contribute money for a trap at the well. Contributions were usually between Ush. 30 and Ush. 100. (4) General Secretaries were to look into areas of intensive farming, such as rice fields, and to make sure that there was one trap for every 10 farmers. The contribution was to be Ush. 180 per person.

In this way it was hoped that all the strategic sites of man-fly animal-fly contact would be covered.

Trapping Activities

Figure 2 shows the villages in the tsetse suppression area A, which were coded A to L, and the distribution of traps. A total of 66 traps were made in three months, and the trap density was estimated to be between four and eight per km². The traps were numbered, and each trap owner kept a fly record sheet. Members of the focus group collected the trap catches in their area and submitted them to the researchers. Each trap

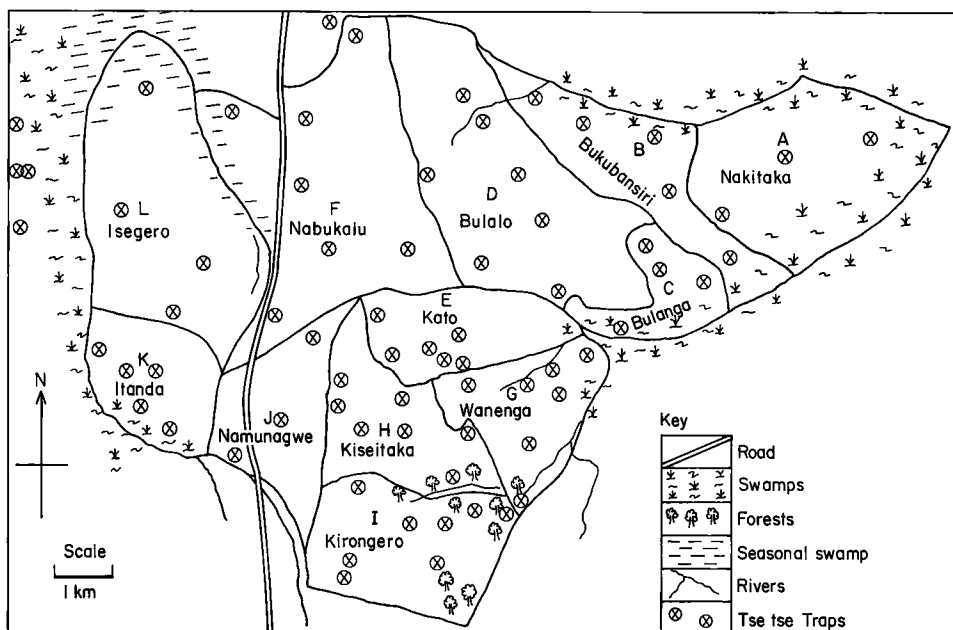


Fig. 2. Map of the 'suppression' area showing the distribution of traps.

was left in one spot until it had caught no flies for one week. The researchers then advised the owner to change its position.

Neighbouring village communities took an interest in the programme, and they were encouraged to make their own traps and to use them in the same way. Five traps have already been made and are operating—and these are also shown in Fig. 2.

The effect of this trapping by the rural community on the tsetse population will be reported in greater detail elsewhere.

DISCUSSION

Most tsetse control projects in Africa fail because of logistic and economic problems (Okoth, 1986b). In order to overcome these difficulties, research workers in recent years have been calling for reappraisal of the existing control methods in involvement of the community (UNDP/World Bank/WHO Consultation, 1982; Laveissiere *et al.*, undated; Lancien, 1981; Okoth, 1985, 1986a). These

studies suggest that community participation in tsetse control in Uganda is feasible. In Busoga nearly every person has been affected by sleeping sickness, either directly or indirectly, and this in itself has been a major motivation for the community to come together to control tsetse.

Even before this project was started, there was a marked awareness of the seriousness of sleeping sickness. In spite of this awareness, however, it was interesting to note that only a fraction of people really knew what the tsetse fly looked like, although a good number of them knew its general habitat. This shows that even in areas where there is marked awareness of a disease which is a major public health problem, there is still a need to educate the affected people on various aspects of the disease in order to involve them in the control measures.

In Uganda the rural communities are peasant farmers whose land tenure is by customary inheritance. There is no large migration. In such a community the transfer of a technology such as trapping is a long-term investment. Once the people know where the tsetse flourish they will place traps there, and in this way the fly

population can be considerably reduced or even eventually eradicated.

Although there is a possibility that, once the incidence of the disease is reduced and tsetse are rare, people would lose interest and stop operating the traps, it is also likely that a new case of sleeping sickness could stir the community once again into action.

Empowering the community requires a well-thought-out programme of health education to raise their epidemiological awareness and to create interest; and when this is done the community assumes responsibility and accountability for the programme. These behavioural changes in and between both the community and the programme planners and researchers should, however, be undertaken through a strategy by which the community learns how to become organized and to interact with the researchers and programme planners on equal

terms, rather than as recipients. In this way change of Governments do not affect the programme.

Because of the way this programme is set up, it does not demand much time from the community. They set their traps as they go to the gardens in the mornings, and they check them once in the evening when collecting the traps. Any member of the family available can set and check the traps.

ACKNOWLEDGEMENTS. This investigation received financial support from the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. We are grateful to the Entomological Section of UTRO for assistance in the field, and to the Director of UTRO for permission to publish these findings.

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